



IOC Technical Series 75

NATIONAL OCEAN **POLICY**

The basic texts from:

**Australia, Brazil, Canada,
China, Colombia, Japan, Norway,
Portugal, Russian Federation,
United States of America**

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UNESCO/IOC/Law of the Sea

Dossier 1



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National Ocean Policy

INTRODUCTION

The ocean environment is a fluid. Because of the highly interconnected and dynamic nature of the ocean environment, human activities or natural processes – taking place locally at one site – can influence and affect the outcome of another activity or natural process at a very distant location.

Marine ecosystems are open systems with complex interactions within and among them. Impacts or alterations on one ecosystem, in one site of the marine environment, will influence other sites, i.e. human activities conducted in the coastal zone can have significant impacts on the offshore environment, and vice-versa. Furthermore, the ocean being located downstream of land-based processes and activities, receives their influence and impact. A concrete example: 80% of the marine pollution directly or indirectly originates from land-based sources rather than ocean-based activities.

The sustainable use of the ocean and of its resources therefore calls for the application of an integrated management regime. However, at the national level, uncoordinated policies in different sectors – for example, gas and oil exploration and exploitation, ports, fisheries, shipping, aquaculture, local government, tourism, water – are the rule. Sectors tend to define the problems they face as internal, and seek solutions exclusively from within the sector when many of the factors affecting the sectors lie outside it.

Perhaps the shortest description of the problem was formulated by Ministers Miliband and Brad-

shaw introducing the UK Ocean Policy Paper currently being discussed in the Parliament: “Marine legislation has built up piecemeal over centuries. It is confusing, overlapping and broken into sectors. However, countries all over the world are reviewing the way they manage their marine environment.”

Despite the call by Agenda 21 (1992), which formulated a comprehensive prescription for the integrated development of the ocean environment, it is only recently, with the increased use of the ocean and its resources, that many of the shortcomings of the sector approach have become apparent, and remedial action have begun to be adopted. This is not the result of an intellectual exercise. It is driven by the exponential growth in the use and exploitation of the coast and its resources, the increasing occupation of the continental shelf and the expansion of some activities such as oil and gas exploration, both offshore and deep-sea. Motivations are several: better use of available resources and knowledge, increased economic efficiency, avoidance of conflicts of use, better priority-setting for public and private sector action, increased accountability to the public.

In essence, an integrated approach means that sector policies will have to be subsidiary to the principles and standards of a common National Ocean Policy, i.e. that objectives, programs and measures (policies) to manage the marine environment and its resources will be developed in such a way that the different objectives, programs and measures are mutually consistent across different

sectors. This requires that the instrument that fixes the national policy be explicit in setting the standards, baselines and benchmarks upon which that consistency will be measured.

Although these are very new concepts, a growing body of law, guidelines and standards has developed since 1992. These very valuable experiences are far from being universally recognized or acknowledged. This publication aims to make them more readily available to a wider audience in a common source.

By necessity, and given the different legal and administrative regimes effective in each of the different countries, the National Ocean Policies are defined through different instruments. It might be a high level standard-setting rule of the Executive branch of the government, it could be an act or law, it could be an administrative decree or rule, etc. Nevertheless they all retain the standard-setting property vis-à-vis the different sectors that are called to make an effort to adapt their sector policies to comply with this higher level one.

This is a good description on paper. The experience of the countries that have moved to implement integrated ocean policies tells a different story. It has been very difficult to implement the new standards contained in the ocean policy instruments over and across the series of incentives and disincentives under which each sector operates. It often requires the revision of a whole set of national legislation and administrative rules affecting different

jurisdictions and the institutional arrangements supporting them at each level, national, state provincial, including the empowerment of some branch of the administration with the function of enforcing the new standards. This is why the new Ocean Policies, tend to be more precise on the definition of goals and standards but less clear on the tools for implementing them.

The IOC has been involved in the promotion of Chapter 17 of Agenda 21 and of the integrated management standards since 1993, through its active participation in the work of the UN-ACC Sub-Committee on Ocean and Coastal Zones and through its programmes on Integrated Coastal Area Management (ICAM). Today, through the Law of the Sea Programmes of IOC and with the generous support of a grant of the European Commission (S12.455302) we are very proud of making available to the wider community of practitioners in coastal and ocean management, to the managers and policy makers, this set of National Ocean Policies. By publishing them we expect them to become an effective vehicle for communicating these experiences, showing the different approaches followed in different latitudes to tackle a similar problem.

Patricio Bernal
IOC Executive Secretary

Paris, December 2007

National Ocean Policy of **AUSTRALIA**

DATE: 1998

PURPOSE

Australia's Oceans Policy: framework for integrated and ecosystem-based planning and management for all of Australia's marine jurisdictions.

ADDITIONAL INFORMATION

This document was prepared by the Commonwealth Government in consultation with all the Australian States, the Northern Territory and the Australian Local Government Association (ALGA) as the basis for a National Ocean Policy. It does not present a formal position or outcomes agreed by State and Territory Government, their Agencies or ALGA.

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AUSTRALIA'S OCEAN POLICY

EXECUTIVE SUMMARY

Australia's Oceans Policy sets in place the framework for integrated and ecosystem-based planning and management for all of Australia's marine jurisdictions. It includes a vision, a series of goals and principles and policy guidance for a national Oceans Policy. Building on existing effective sectoral and jurisdictional mechanisms, it promotes ecologically-sustainable development of the resources of our oceans and the encouragement of internationally competitive marine industries, while ensuring the protection of marine biological diversity.

At the core of the Oceans Policy is the development of Regional Marine Plans, based on large marine ecosystems, which will be binding on all Commonwealth agencies. The first Regional Marine Plan will be developed for the south-eastern region of Australia's Exclusive Economic Zone. Broadly, this will include waters off Victoria, Tasmania, southern New South Wales and eastern South Australia.

Australia's Oceans Policy establishes a series of arrangements for implementation, including:

- a National Oceans Ministerial Board of key Commonwealth Ministers, chaired by the Minister for the Environment and Heritage. The Board will be

the decision-making body regarding Regional Marine Plans;

- a National Oceans Advisory Group of industry, community and government stakeholders;
- Regional Marine Plan Steering Committees, which will include regional stakeholders; and
- a National Oceans Office, located in Environment Australia, which will provide secretariat and technical support and programme delivery for oceans policy initiatives.

State and Territory governments will be encouraged to participate in the development of Regional Marine Plans and on the Steering Committees. Commonwealth-State coordination on oceans policy matters in general is proposed to take place through the Australian and New Zealand Environment and Conservation Council.

Australia's Oceans Policy - Specific Sectoral Measures details the major challenges and the proposed responses in some twenty areas of oceans planning and management. These range from the conservation of marine biological diversity, shipping, marine pollution, fisheries and indigenous interests, to understanding the oceans and protection of the

national interest. An important component is the progressive assessment of the effectiveness of the Oceans Policy and its implementation.

The Government has committed \$50 million over three years for the implementation of the Policy. Specific actions on which commitments have been made include:

- commencement of Regional Marine Planning;
- improved understanding of the marine environment, including environmental baseline surveys and sustainability indicators, monitoring and improved assessment of the impacts of commercial and recreational activities – all targeted to support Regional Marine Plans;
- accelerated development and improved management of marine protected areas;

- support for national mandatory standards for marine and estuarine water quality;
- support for the development of a single national ballast water management system;
- trials to treat acid sulfate soil problem areas;
- a National Moorings Programme for sensitive marine areas; and
- support for the early phased withdrawal of the use of toxic organotin anti-fouling paints, including tributyltin paints.

State and Territory Governments will be invited to endorse Australia's Oceans Policy as an agreed national approach, and will play an important part in ensuring its effective implementation.

A VISION FOR **AUSTRALIA'S OCEAN**

Healthy oceans: cared for, understood and used wisely for the benefit of all, now and in the future.

GOALS FOR AUSTRALIA'S OCEANS

In seeking to care for, understand and use our oceans wisely, Australia's Oceans Policy has the following broad goals.

1. To exercise and protect Australia's rights and jurisdiction over offshore areas, including offshore resources.
2. To meet Australia's international obligations under the *United Nations Convention on the Law of the Sea* and other international treaties.
3. To understand and protect Australia's marine biological diversity, the ocean environment and its resources, and ensure ocean uses are ecologically sustainable.
4. To promote ecologically-sustainable economic development and job creation.
5. To establish integrated oceans planning and management arrangements.
6. To accommodate community needs and aspirations.
7. To improve our expertise and capabilities in ocean-related management, science, technology and engineering.
8. To identify and protect our natural and cultural marine heritage.
9. To promote public awareness and understanding.

1. THE CONTEXT POLICY FOR AUSTRALIA'S OCEAN POLICY

AUSTRALIA'S MARINE JURISDICTIONS

Under the United Nations Convention on the Law of the Sea, Australia has rights and responsibilities over some 16 million square kilometres of ocean – more than twice the area of the Australian continent.

The great majority of Australia's marine area is under sole Commonwealth Government jurisdiction.

The areas of ocean and seabed adjacent to Australia's External Territories comprise around half of the total area of the Australian Exclusive Economic Zone (EEZ) and adjacent continental shelf. They are of considerable economic, social, scientific and cultural importance, but their isolation and the harsh conditions in the Antarctic and subantarctic territories pose particular challenges for resource development, conservation and management.

The small island territories are also an important part of Australia's External Territories. The Government aims to provide residents of the inhabited islands with the same rights, opportunities and responsibilities as all Australians. This includes promoting residents' economic development and the protection of their natural and cultural heritage.

Around continental Australia, sole Commonwealth Government jurisdiction stretches from the external boundaries of the EEZ and continental shelf to three nautical miles from the coastal baseline.

However the inshore areas, in particular those within the three nautical mile zone, fall within the primary jurisdiction of State and Territory Governments under the Offshore Constitutional Settlement. These areas are the most directly affected by land-based and inshore activities. Local Govern-

ments also play a significant role in the planning and management of the coasts and coastal waters.

For references and further detail on Australia's marine jurisdictions, see Appendix 2 - *The legal and constitutional framework of Australia's marine areas.*

AUSTRALIA'S OCEAN ENVIRONMENTS

Australia is one of the most biologically diverse nations on earth and our marine environments are home to spectacular arrays of species, many of which are unique to Australian waters.

In the southern temperate waters as many as 80 per cent of species are endemic (not found elsewhere). In the north, which is connected by currents to the Indian and Pacific Oceans, overall diversity is higher, although the proportion of endemic species is lower at around ten per cent.

The vast marine area for which Australia has responsibility is dynamic in nature and experiences continuous variability of physical, chemical and biological properties on time scales that range from days to decades.

Australia's marine areas are in generally good condition in comparison with other countries. This is reflected in Australia's international reputation for clean and contaminant-free seafood products and marine tourism destinations. We must maintain the health of our oceans to keep that reputation.

There is no room for complacency. Our ocean systems are under increasing pressure from many uses, such as fisheries, shipping, mineral and petroleum activities and tourism and recreation. These give rise to significant environmental pressures, such as

those from coastal development and agriculture, fisheries bycatch and introduced marine pests.

The impact of run-off and point source pollution from urban, agricultural and industrial activities places substantial pressure on the marine environment. Population growth, both here and overseas, will inevitably place increasing demands and pressures on Australia's marine resources.

Action now to put in place a comprehensive system for integrated ocean planning and management will reduce the risk of a progressive decline and irreversible damage to our marine systems. In this way we will also be able to prevent environmental, economic, social and cultural losses that would reduce options for future use.

For references and further details on Australia's marine environments, see *State of the Marine Environment Report 1995*, *Australia: State of the Environment 1996*, *Oceans Policy Issues Paper 7* and *Background Paper 1*.

MARINE INDUSTRIES

Australia's marine industries have been growing strongly over recent years. They are highly export-oriented and are major providers of jobs, often in coastal communities. These industries are important to the economy, contributing around \$ 30 billion a year or eight per cent of gross domestic product. They also contribute substantially to export performance – estimated at \$6.6 billion in 1994 or seven per cent of total exports.

Marine industries have excellent potential to contribute to future economic and employment growth. In particular, marine tourism and aquaculture can create new jobs in regional Australia. This will be very important in regions where alternative investment and employment opportunities are limited.

Australia is competitive by world standards in many marine industries. Current strengths include the designing and building of high speed aluminium ships and ferries, offshore oil and gas, marine research, tourism, environmental management, algal aquaculture, fish farming and fisheries management.

Growth in marine industries of eight per cent per annum has been recorded in recent years. At the last major review it was estimated that our marine industries might well be valued annually at between \$50 billion and \$85 billion by the year 2020.

For references and further details on Australia's marine industries, see the *Marine Industry Development Strategy 1997*.

THE INTERESTS OF INDIGENOUS AUSTRALIANS

The changing coastline and seas of Australia have played a part in shaping indigenous cultures over at least 50 000 years. Their cultural and economic importance for Aboriginal and Torres Strait Islander communities will continue.

Indigenous communities have an important part in the development of integrated approaches to the planning and management of marine resources. There are several processes under way to identify and agree upon indigenous peoples' interests in the oceans, including those relating to marine management and conservation aspirations and responsibilities, fishing rights and continued access to traditional marine resources.

The Torres Strait Treaty, entered into by Australia and Papua New Guinea in 1985, deals with sovereignty and maritime boundaries in the Torres Strait, and provides for protection of the way of life and livelihood of traditional inhabitants and the marine environment. The Treaty establishes the Seabed Jurisdiction and Fisheries Jurisdiction lines, with recognition of Australian sovereignty over fifteen islands or cays north of the Seabed Jurisdiction line, including the inhabited islands of Boigu, Saibai and Dauan. Traditional inhabitants of Torres Strait can engage in cross-border traditional fishing, but are subject to the laws applying in the waters of the country they visit.

THE INTERNATIONAL CONTEXT

As a party to the United Nations Convention on the Law of the Sea, Australia has sovereign rights to explore, exploit, conserve and manage the natural

resources within the area of our Exclusive Economic Zone. We have further rights and responsibilities to the limits of the continental shelf. The protection and ecologically sustainable management of the ocean on the basis of best available scientific information are fundamental responsibilities which came with those sovereign rights.

In meeting its national and international obligations as a claimant state to the Australian Antarctic Territory and adjacent oceans, the Government's objectives are to build a systematic knowledge of the Antarctic through strategic scientific research, to contribute to an understanding of global climate change, and to protect and conserve the Antarctic environment. That will provide the capacity for greater national effectiveness in the Antarctic Treaty System and in the areas covered by the Antarctic Treaty and the Convention for the Conservation of Antarctic Marine Living Resources.

Australia recognises the importance of maintaining the Antarctic Treaty System as an effective mecha-

nism for protecting the Antarctic Environment, pursuing science and achieving all of Australia's Antarctic policy objectives.

Australia also has extensive obligations under other ocean-related conventions and cooperative arrangements dealing with matters including shipping, meteorology, fisheries, biological diversity, pollution and the conservation of whales, dolphins and porpoises.

As examples, international shipping is guaranteed freedom of navigation in Australia's EEZ.

We have maritime boundaries with five other nations; Indonesia, Papua New Guinea, the Solomon Islands, New Zealand and the French sub-antarctic and tropical territories. We have land boundaries in Antarctica with Norway, New Zealand and France. For references and further details on Australia's international obligations, see the *Oceans Policy Background Paper 2*.

2. INTEGRATED AND ECOSYSTEM-BASED OCEAN PLANNING AND MANAGEMENT

THE NEED FOR INTEGRATED AND ECOSYSTEM - BASED OCEANS PLANNING AND MANAGEMENT

Australia's ocean ecosystems and their marine biological diversity are core national assets. If our use of them is well managed, they can meet a broad range of economic, social and cultural aspirations. They also provide a range of essential environmental services that would be extremely costly or impossible to restore or replace if ecosystem functioning was impaired.

Urban and infrastructure development in the coastal zone, together with the development of marine industries, continue to place increasing demands on our coastline and oceans. Past management practices have not allowed us to assess and ameliorate the cumulative impacts of our actions on ocean health and productivity.

If we were to continue without integrating our oceans planning and management we could not be confident that Australia would avoid following so much of the rest of the world in a spiral of marine resource degradation.

The collapse of a number of major marine ecosystems and fisheries resources in the northern hemisphere, with the associated economic damage and social dislocation, is a stark warning of the vulnerability of marine systems. In Australian waters, the degrading of our unique temperate seagrasses and serious declines in stock of important commercial fish species such as southern bluefin tuna, southern sharks, orange roughy and gemfish, show that we are not immune from such threats.

The Commonwealth and all State and Territory Governments have made commitments in the past

under the National Strategy for Ecologically Sustainable Development which are relevant to the Oceans Policy. In applying that Strategy to our oceans, the emphasis to date has been on actions within the separate sectors, such as fisheries, petroleum, and protected areas. While progress has been made, until now management and decision making have not been integrated across the various sectoral interests.

Management of our oceans purely on an industry-by-industry basis will not be sustainable in the long run. Activities such as fishing, tourism, shipping, aquaculture, coastal development and petroleum production must be collectively managed to be compatible with each other and with the ecological health of the oceans.

With Australia's Oceans Policy, the Government is introducing a refinement of the commitment to ecologically sustainable development. The Government is committed to integrated ecosystem-based planning and management for multiple uses of our oceans. This includes pursuing improved coordination between the States and the Commonwealth to ensure that jurisdictional boundaries do not hinder effective planning and management.

The Government recognises the need to provide for increased capacity to understand our marine environments, through increased scientific effort. That understanding is fundamental to the good management of our oceans and the protection of ecosystems and marine biological diversity.

REGIONAL MARINE PLANNING – THE WAY FORWARD

The Commonwealth's commitment to integrated and ecosystem-based planning and management will be implemented through the introduction of a

major Regional Marine Planning process. The process will be designed to improve linkages between different sectors and across jurisdictions.

Regional Marine Plans – based on large marine ecosystems – will integrate sectoral commercial interests and conservation requirements. In developing Regional Marine Plans, the Commonwealth will seek the participation of the relevant States and Territories, to ensure, as far as possible, the integration of planning and management across State and Commonwealth waters. The broad Principles for Ecologically Sustainable Ocean Use that will be applied are given in Section 4, with additional Policy Guidance in Appendix 1.

Either singly or in combination, our ocean and land-based uses must not threaten ocean ecosystem health. The objective is to manage our actions to:

- ensure continuing marine ecosystem health;
- safeguard marine biological diversity;
- promote diverse, strong and sustainable marine industries;
- provide increased certainty and longterm security for all marine users; and
- ensure the establishment of a representative system of marine protected areas.

In pursuing this, the Government will accelerate the development of the National Representative System of Marine Protected Areas (NRSMPA).

Further information on ecosystem-based management is at Appendix 3 and on the NRSMPA and internationally recognised protected area categories at Appendix 4.

All relevant agencies will be required to abide by the outcomes of the Plans. In developing the framework for Regional Marine Planning, the Government will consult with stakeholders on the need for and form of a statutory base for the development and implementation of Regional Marine Planning.

ESSENTIAL STEPS IN PLANNING AND MANAGEMENT

Prudent management of our ocean resources requires an orderly process of oceans planning and management. The Government will establish planning and management arrangements for our oceans which are capable of accommodating the following steps, including developing a regionalisation of our oceans based on large marine ecosystems, to underpin the preparation and implementation of Regional Marine Plans. For each marine region we will need to:

- assess our ocean resources, on a biogeographical basis;
- understand the current uses of those resources and the emerging pressures on them;
- evaluate what is needed to maintain ecosystem health and integrity, and the implications for sectoral activities and conservation reservation;
- propose allocations of ocean resources, delivered principally through existing responsible sectoral management arrangements, using multiple use principles to generate income and employment and to optimise long-term benefits to the community;
- assess and control the external impacts of proposed resource uses;
- continually monitor the performance of ocean planning and management processes; and
- maintain flexibility to respond to emerging information within this broad framework.

The governance mechanisms to implement these integrated planning and management processes are detailed in Section 3 - Implementation Arrangements for Oceans Planning and Management.

These mechanisms emphasise the role of the National Oceans Ministerial Board in overseeing and approving Regional Marine Plans, which will be developed with the guidance of Regional Marine Plan Steering Committees of key non-government and government stakeholders.

THE CONTENT OF REGIONAL MARINE PLANS

The development of Regional Marine Plans will provide a structured and orderly process for the ecosystem-based allocation of resource access and use across and within sectors. Key interest groups and government agencies will be represented on Steering Committees established to oversee the development of each Regional Marine Plan. Extensive community consultation will be undertaken, to ensure an open and transparent process. Current jurisdictional boundaries do not reflect the boundaries of marine ecosystems. One of the goals of the Regional Marine Planning process will be to establish complementary management regimes in both State and Commonwealth waters. State Governments will therefore be invited and encouraged to participate in the process so that the Regional Marine Plans cover both Commonwealth and State waters.

All Commonwealth agencies will be required to operate in accordance with the Plans. For each marine region the Regional Marine Plan will, broadly:

- identify ocean resources and economic and other opportunities;
- identify current and emerging threats to ecosystem health and determine planning and management responses to those threats;
- within the region, set out what is known of ecosystem characteristics and a broad set of objectives for those systems;
- identify the requirements and priorities for environmental baseline and basic biological inventory and other surveys in the development of Regional Marine Plans;
- identify priorities and put in place measures to meet conservation requirements and determine those areas that should be assessed for marine protected area declaration;
- identify community and sectoral interests, including the interests of Aboriginal and Torres Strait Islander communities;
- identify priorities for industry and economic development of the region;
- put in place a planning regime to prevent conflict between different sectors over resource access and allocation;
- provide a framework within which there is increased certainty and long-term security for marine-based industries; and

- establish indicators of sustainability and requirements for monitoring, reporting and performance assessment.

Additional guidance on ecosystem-based planning and management and on multiple use of the oceans is contained in Appendices 1 and 3.

Effective planning and management for multiple ocean uses and the maintenance of ocean ecosystem health requires integration across economic, environmental and social and cultural objectives.

The Regional Marine Plans will have to draw on available environmental, resource and economic and social information. They must be able to provide the increased security required by industry and other users and the capacity to respond adaptively to new information, to new opportunities, and to unforeseen impacts on ocean systems.

We will need to develop innovative approaches to deal with the scale and complexity of our marine ecosystems. Existing major planning and management tools that can be drawn on in the development of Regional Marine Plans include:

- development of clear regional objectives for uses, resources and ecosystems;
- zoning for multiple or single uses, including sequential and seasonal uses;
- resource-specific allocations for access and use, through the existing responsible sectoral management arrangements;
- complementary planning and management requirements implemented by individual sectors;
- outcome-based measures, with industry or user-determined mechanisms for implementation; and
- sustainability indicators, monitoring, reporting and adaptive development of management controls.

These planning and management tools can be used singly or in combination. Regional Marine Plans will be developed to accommodate the different circumstances that will apply amongst Australia's very diverse regional marine environments.

3. IMPLEMENTATION ARRANGEMENTS FOR OCEAN PLANNING AND MANAGEMENT

IMPLEMENTATION ARRANGEMENTS FOR THE OCEANS

Australia's Oceans Policy will be implemented through institutional arrangements which emphasise ministerial responsibility, consultation and stakeholder participation and well-coordinated government support.

Key Elements

- National Oceans Ministerial Board
- National Oceans Advisory Group
- National Oceans Office
- Regional Marine Plan Steering Committees

These Commonwealth arrangements have been framed with a view to encouraging the cooperation and participation of the States and Territories, coordinated through the Australian and New Zealand Environment and Conservation Council and the development of Regional Marine Plans.

National Oceans Ministerial Board

A National Oceans Ministerial Board will be established. It will include the Commonwealth Ministers responsible for the environment (Chair), industry, resources, fisheries, science, tourism and shipping. It will be able to co-opt other ministers as necessary, including for example defence and foreign affairs.

The principal responsibility of the Board will be to oversee the Regional Marine Planning process. The Board will develop the scope and timetable for Regional Marine Plans and ultimately approve each Plan. The Board will also:

- have primary responsibility for the implementation and further development of Australia's Oceans Policy;
- coordinate cross-sectoral oceans policy issues relating to Commonwealth waters, jurisdiction and obligations;
- consult on the coordination of priorities for programme expenditure on marine issues relating to national oceans policy implementation and regional marine planning, having regard to the existing priorities and programmes within Commonwealth agencies;
- consider marine research priorities related to development and implementation of Australia's Oceans Policy;
- promote strategic coordination across the agencies responsible for the development and representation of Australia's positions in international marine and oceans forums;
- establish the National Oceans Advisory Group as a non-government consultative and advisory body; and
- guide the actions of the National Oceans Office, through the Chair.

National Oceans Advisory Group

The National Oceans Advisory Group will be comprised predominantly of members with non-government interests, such as industry, science and conservation, selected for expertise in oceans issues. The Advisory Group will be established by and report to the National Oceans Ministerial Board, which will agree its agenda and work programme.

The National Oceans Advisory Group will:

- work through and advise the Board on cross-sectoral and cross-jurisdictional oceans issues, focussing on gaps, overlaps and priorities and

- examining matters such as integration issues and ecosystem-based planning and management;
- advise on the scope and effectiveness of the Regional Marine Planning process;
- be a forum for exchanging information and views between the various ocean sectors; and
- be supported by the National Oceans Office.

National Oceans Office

A National Oceans Office will be established to support the National Oceans Ministerial Board, the National Advisory Committee and Regional Marine Plan Steering Committees. It will provide secretariat and technical support and programme delivery, in consultation with other Commonwealth agencies. It will assist the Board in the implementation and further development of Australia's Oceans Policy. The Office will report to the National Oceans Ministerial Board and will be housed in Environment Australia.

By reference from and under the direction of the National Oceans Ministerial Board, the National Oceans Office will undertake a range of functions, including those to:

- support the National Oceans Ministerial Board and the National Oceans Advisory Group;
- support Regional Marine Plan Steering Committees and coordinate the development of Regional Marine Plans. The Plans will be put to the National Oceans Ministerial Board for consideration and endorsement;
- coordinate the overall implementation and further development of the Oceans Policy;
- support the Australian and New Zealand Environment and Conservation Council (ANZECC) in its consideration of matters related to the development and implementation of oceans policy;
- act as the main administrative coordination point between the Commonwealth, States and Territories on oceans policy implementation, including the involvement of relevant State and Territory agencies in the development and implementation of Regional Marine Plans; and
- coordinate and distribute information on oceans policy implementation and regional marine planning matters to all stakeholders,
- provide advice to the Ministerial Board on marine research priorities related to development of the Oceans Policy.

Regional Marine Plan Steering Committees

Regional Marine Plan Steering Committees, including key non-government and government stakeholders, will be established by the National Oceans Ministerial Board. The Steering Committees will oversee development of Regional Marine Plans, working closely with the National Oceans Office and report to the Board. State and Territory governments and agencies will be encouraged to participate on the Steering Committees where they are involved in Regional Marine Plans.

Commonwealth-State Cooperation

The Government will propose that the Australian and New Zealand Environment and Conservation Council be the coordination forum for Commonwealth-State consultations on the implementation of Australia's Oceans Policy. In working through ANZECC the Commonwealth Government will emphasise the need to accommodate the interests of all sectors, noting that the Council of Australian Governments protocol on the operation of Ministerial Councils requires representatives to take whole-of-government positions to Council meetings.

When developing the framework for Regional Marine Plans, the Commonwealth will work through ANZECC to ensure the integration of planning across State and Commonwealth waters. Other relevant Commonwealth-State ministerial councils, such as those with responsibilities for transport, fisheries and minerals, will continue to maintain their sectoral responsibilities. They will be expected to accommodate the cross-jurisdictional consultations on oceans policy which take place through ANZECC.

Members of the National Ministerial Oceans Board who are also members of relevant Commonwealth/State ministerial councils will ensure that linkages are made on issues of mutual interest.

In addition to this general coordination role proposed by the Government, ANZECC has agreed that it has a particular role in pursuing cross-jurisdictional policy development and implementation for a range of oceans policy issues. These include marine biological diversity conservation, marine protected areas, achieving ecologically sustainable ocean resource use, ecosystem-based oceans

planning and management and marine pollution. ANZECC has also agreed that it will take on the responsibility for overall reporting on the cross-jurisdictional aspects of the environment and conservation performance of Australia's Oceans Policy.

The implementation arrangements described above recognise the following:

- Existing sectoral management arrangements will remain. Integrating ocean planning and management across all sectors should provide an additional impetus for improving sectoral management.
- Management arrangements for some resource sectors have been significantly modified in recent years to take account of commitments to wider community consultation, incorporation of concern for ecosystem impacts, and developments required by new industries and changing technological capacities.
- Institutional arrangements will reflect the need for stability in the investment climate and minimum necessary compliance costs for ecologically sustainable marine industries.
- The Offshore Constitutional Settlement remains the basis for the management of specific sectors across jurisdictional boundaries. However, consideration will be given to administrative changes that may be needed so that the full range of cross-jurisdictional issues can be addressed effectively in implementing the Regional Marine Planning processes.

4. PRINCIPLES FOR ECOLOGICALLY SUSTAINABLE OCEAN USE

THE NATIONAL POLICY CONTEXT

The institutional arrangements for ocean planning and management outlined in Section 3 will be expected to abide by the policy guidance contained in this section and Appendix 1.

The vision and goals for Australia's Oceans Policy are consistent with a range of related national policies and agreements, including:

- the National Strategy for Ecologically Sustainable Development (1992);
- the National Strategy for the Conservation of Australia's Biological Diversity (1996); and
- the Intergovernmental Agreement on the Environment and the Heads of Agreement on Roles and Responsibilities (1998).

Australia's Oceans Policy has been developed within the context of these national policies.

PRINCIPLES FOR ECOLOGICALLY SUSTAINABLE OCEAN USE

The following principles should be applied to all decisions and actions affecting access to and use of Australia's marine jurisdictions and adjacent waters, and the associated resource base. They should be considered together, recognising that ocean ecosystem health and integrity is fundamental to ecologically sustainable development.

- The maintenance of healthy and productive marine ecosystems is fundamental to the management of both the oceans and of the land.
- The benefits from the use of Australia's common ocean resources, and the responsibilities

for their continued health and productivity, should be shared by all Australians.

- Internationally competitive and ecologically sustainable marine industries are essential for wealth generation, employment and continued regional development.
- Economic, environmental, social and cultural aspirations are to be accommodated through integrated planning and management of multiple uses of ocean resources.
- Management of human activities that affect our oceans will require progressive improvement in our understanding of living and non-living ocean resources and processes.
- Ocean planning and management decisions should be based on the best available scientific and other information, recognising that information regarding ocean resources will often be limited.
- If the potential impact of an action is of concern, priority should be given to maintaining ecosystem health and integrity.
- Incomplete information should not be used as a reason for postponing precautionary measures intended to prevent serious or irreversible environmental degradation of the oceans.
- The processes for assessing, planning, allocating and managing the ocean resources should:
 - be easily understood and openly justified;
 - be certain;
 - have clear lines of accountability;
 - provide for equity within and between generations;
 - be designed to deliver outcomes that balance long and short-term economic, environmental, social and cultural considerations;

- involve the minimum effective regulatory burden on ocean users required to meet economic, environmental, cultural and social objectives;
- ensure cooperation and coordination between governments and across the sectors which use the oceans; and
- take into account wider interests and ensure effective community involvement.

Appendix 1 contains detailed Policy Guidance that is to be used by managers in implementing and reporting on planning and management arrangements for Australia's oceans.

5. IMPLEMENTING AUSTRALIA'S OCEAN POLICY – SOME KEY INITIAL ACTIONS

Australia's Oceans Policy takes a substantial step towards caring for, understanding and using our oceans wisely.

The following measures provide a solid basis for translating the principles of the policy into action, and for the long-term ecological health and continued economic development of our marine jurisdiction. They also provide the building blocks for effective national integration across jurisdictional boundaries.

The Government will provide \$50 million over three years for the implementation of these initiatives.

The initiatives complement a broad range of Government programmes and activities already addressing many of the issues identified in this Policy. For example, Coasts and Clean Seas programmes under the Natural Heritage Trust are providing record levels of funding to address major issues such as land-based sources of marine pollution, introduced marine pests, coastal degradation, fish habitat rehabilitation and marine species protection. Other Natural Heritage Trust funded programmes such as Landcare, Bushcare, Waterwatch and the Endangered Species Program are also helping to achieve Oceans Policy goals.

Industry has already begun to move towards sustainable use of ocean resources, minimising the environmental impacts of sectoral activities. *Australia's Oceans Policy* continues to emphasise individual sectoral management responsibilities and stewardship to achieve our vision for the oceans.

It is important to note that the actions described in this section are not exhaustive. The accompanying document, *Australia's Oceans Policy – Specific Sectoral Measures* outlines the range of actions neces-

sary to address the implementation of this Policy in and across the oceans sectors.

The National Oceans Office will be charged with developing a detailed and auditable implementation schedule, which will be finalised within six months of the release of this Policy. This will address the actions as necessary to ensure the conservation and ecologically sustainable use of our oceans identified during development of the Policy.

The actions and initiatives set out below will support the central themes of this Policy and address sector specific issues.

INTEGRATED OCEAN PLANNING AND MANAGEMENT

New institutional arrangements

The new institutional arrangements for the Oceans Policy comprise the National Oceans Ministerial Board, the National Oceans Advisory Group and the National Oceans Office and Regional Marine Plan Steering Committees. The functions of these bodies and their linkages are detailed in Section 4.

Regional marine planning for the south-eastern region of Australia's EEZ

The Government will implement ecosystem-based management for our oceans through the development of Regional Marine Plans (detailed in Section 2).

Regional Marine Plans will be based on large marine ecosystems. They will maintain ecosystem health and integrity while promoting multiple use of our oceans by integrating sectoral commercial interests and conservation requirements.

The Government believes it is important that early progress is made on integrated planning and management of an important oceans region to demonstrate the benefits of the approach more generally.

The first Regional Marine Plan will be developed for the south-eastern region of Australia's EEZ. Its boundaries will be determined by the National Oceans Ministerial Board, but on available information the Plan is likely to include the Commonwealth waters off the south east of South Australia, Tasmania, (including Macquarie Island), Victoria and southeastern New South Wales.

This south-eastern region encompasses some 12-15% of the national coastline; involves the jurisdictions of the Commonwealth and four states; and it has more than 50 per cent of the national population in the adjacent coastal lands.

The area also contains major marine industries such as tourism, fisheries, aquaculture, offshore petroleum and sea transport which are essential to the regional and national economies.

The development of Regional Marine Plans will involve undertaking regional resource assessments of marine areas, including consideration of current and possible uses, and proposals for broad cross-sectoral priorities and resource allocations among the sectoral uses.

The Commonwealth will seek the cooperation and participation of the Tasmanian, South Australian, Victorian and New South Wales governments to ensure, as far as possible, the integration of planning and management in the south-eastern region.

National marine resource surveys, sustainability indicators and monitoring

Our limited national capacity to collect marine information has affected not only our understanding of processes and our knowledge of the basic resource base, but also our capacity to identify and assess individual and cumulative impacts from ocean uses. The Government is committed to improving the understanding of ocean systems.

- Funds will be provided to support rapid assessments of the biological resources of Australia's oceans. The resulting information base will

underpin effective regional integration for planning and management, including core components such as the National Representative System of Marine Protected Areas. These assessments will also benefit industry by providing information on potential new resources such as deepwater fisheries and pharmaceuticals.

- A series of indicators of ocean environmental health and integrity will be developed. These can also serve as indicators of the sustainability of ocean uses for ocean planning and management purposes. Resources will also be provided for increasing the level of assessment of the environmental impacts of commercial and recreational activities and for monitoring and performance assessment of *Australia's Oceans Policy*.

CONSERVATION OF MARINE BIOLOGICAL DIVERSITY

Our seas include an amazing variety of plants and animals which all contribute towards Australia's rich marine biological diversity. Australia is the only developed nation which has been described as 'mega-diverse'. Our relative isolation means that an unusually large proportion of our marine fauna and flora is unique to Australian waters, especially in our cooler temperate areas.

Conservation of our marine biological diversity is an important goal of the Government which will be achieved through a variety of means.

National Representative System of Marine Protected Areas

The Government is committed to accelerating the development of the National Representative System of Marine Protected Areas. It is essential that the NRSMPA be established as quickly as possible both for conservation purposes and to give regional security for industry access to ocean resources.

- Additional funding will be provided to:
 - accelerate the declaration and management of marine protected areas in Commonwealth waters, including the declaration of five new parks now under assessment;
 - refine tools for identification and selection of marine protected areas;

- develop partnerships with key stakeholders to assist in the implementation of the NRSMPA; and
- develop performance measures for the NRSMPA.

As far as possible, future representative marine protected area proposals under the Commonwealth's NRSMPA programme will be developed as part of the Regional Marine Planning process. Areas of known outstanding conservation significance will, however, continue to be assessed for protection in accordance with the existing processes.

Great Barrier Reef Marine Park The

Great Barrier Reef is one of Australia's best known natural wonders. The Government has placed a high priority on improving its management and protection through the Great Barrier Reef Marine Park Authority. The Government will:

- add to the Great Barrier Reef Marine Park further areas in the Great Barrier Reef Region which are not yet in the Park;
- increase surveillance and enforcement measures in the Great Barrier Reef;
- implement a policy requiring the use of bycatch reduction devices and turtle excluder devices in the Great Barrier Reef World Heritage Area by 31 March 2000; and
- complete a review of existing protective arrangements to ensure appropriate levels of protection for all habitat types within the Great Barrier Reef World Heritage Area.

Marine Species Protection

Protection of Australia's native fauna and flora, especially our endangered species has been an important commitment of the Government.

The Government will:

- nominate the Great White Shark for international protection;
- within two years, introduce regulations on access to genetic resources in Commonwealth waters;
- ensure that recovery plans for all threatened marine species and communities will be required, even if they do not occur in Commonwealth waters;

- provide for regulations to be made defining specialised criteria for the assessment of the conservation status of marine biota; and
- recognise in legislation for the first time, 'conservation-dependent' species and vulnerable ecological communities.

Whales

Australia has been a world leader in the protection of whales. The Government has a strong commitment to protecting whales which it has vigorously pursued.

The Government will:

- nominate for international protection under the Convention on Conservation of Migratory Species of Wild Animals 1979 (the Bonn Convention) all dolphins and porpoises inhabiting Australian waters which meet the relevant criteria;
- strengthen protection for whales by legislating to create the Australian Whale Sanctuary and to ban capture for live display;
- continue to pursue an international ban on commercial whaling; and
- promote the establishment of a South Pacific Whale Sanctuary to complement the Southern Ocean Whale Sanctuary and as an important step towards a Global Whale Sanctuary.

Protection for matters of national environmental significance

The *Environment Protection and Biodiversity Conservation Bill* before Parliament identifies the marine environment as one of a range of matters of national environmental significance. This is consistent with the Council of Australian Governments' Heads of Agreement on Roles and Responsibilities for the Environment.

- With limited exceptions, all actions and decisions which may have a significant impact on Commonwealth marine areas, or which take place within Commonwealth marine areas and may have a significant impact on the environment, will be subject to the environment protection procedures under the new legislation.

The *Environment Protection and Biodiversity Conservation Bill* also provides for strategic assessments of the impacts of actions arising from policies, plans and programmes, allowing for recommendations from the Minister for the Environment and Heritage and subsequent endorsement of the policies, plans and programmes by the Minister.

- The Government will, as appropriate, use strategic environmental assessment as a key mechanism in the development, endorsement and implementation of Regional Marine Plans.

OCEAN USES AND IMPACTS

Progress has been made in developing ecologically-sustainable industry sectors which contribute to the economic and social well-being of Australia.

In addition to the increased certainty, long-term security and new opportunities for economic growth that will arise as a result of the Regional Marine Planning process, the Government will foster industry-generated development and progress within the sectors.

Fisheries and Aquaculture

Management

Catches in well-managed fisheries are sustainable in the long term. Australia's commercial fisheries management is well regarded internationally. The Australian Fisheries Management Authority has the lead in developing co-management arrangements for ecologically-sustainable fisheries. However overcapacity and excess effort in some fisheries has led to overfishing and a reduction in the viability of fishing operations and marine species populations.

Measures to remove excess capacity from Australian domestic fisheries will continue to be pursued so that fishing effort does not exceed ecologically-sustainable levels.

The adoption of self-funded adjustment strategies implemented through a range of economic incentives for those fisheries identified as needing adjustment will be addressed.

The Government will:

- carry out an industry development programme

in 1999 in the southern shark fishery to make the industry more viable while protecting the environment;

- establish a government-industry working group to look at options for an industry development programme in the southeast non-trawl fishery;
- through the Competition Policy Review carry out a comprehensive review of our fisheries laws and regulations by July 1999 to streamline procedures and minimise compliance costs for small businesses; and
- continue the existing cost recovery policy for fisheries and not impose resource rent on the industry.

The Government recognises that recreational, charter and commercial fishing often compete for the same resources. The management of these activities must be integrated to reflect that fact.

- As an important aspect of the ecosystem-based approach, the procedures for integrated regional planning and management will include mechanisms for resolving questions of resource allocation between these fishing sectors.
- The Government will also appoint a gamefishers' representative to the Eastern Tuna and Billfish Fishery Management Advisory Committee.
- The Government will also conduct a \$1.8 million National Recreational Fishing Survey to assist in better management of both the recreational and commercial fishing sectors.

Aquaculture has great potential to develop further export markets for high value products and contribute to regional development opportunities.

Site selection, waste management, disease and pest control, and feedstock sourcing are emerging as critical challenges in the industry's long term sustainability. In some cases, the development of aquaculture enterprises has sparked considerable community opposition.

- The Government will continue to support the development of a comprehensive aquaculture industry policy framework, including regulatory guidelines and co-management strategies.

Bycatch

Bycatch reduction is a key area for action by gov-

ernments and the fishing industry. It is essential to implement an ecosystem-based approach to fisheries management.

- The Government will finalise and implement a Commonwealth Fisheries Bycatch Policy.
- Fundamental to the Bycatch Policy's implementation will be the development of fisheries-specific action plans, including the formal incorporation of Bycatch Action Plans in Commonwealth fisheries management arrangements.
- A National Bycatch Policy will also be developed, drawing on the development of the Commonwealth Policy.

The Government recognises the importance of educating the fishing community about environmental issues and the applicability of bycatch reduction devices. Most fishers recognise their environmental responsibilities and, with the right advice and support, implement environmentally sound fishing practices.

- The Government is providing \$700,000 to assist the establishment of a network of fisheries officers which will promote environmentally-sound fishing practices. This is in support of a joint initiative by the Australian Seafood Industry Council, Oceanwatch and the Australian Marine Conservation Society.
- The Government will implement the Threat Abatement Plan to reduce the impact of fishing on seabirds.

Environmental impact assessment

There can be significant environmental effects on seafloor communities and on juvenile fish from trawling and scallop dredging. Together with the impacts of overfishing, there is sufficient community concern regarding the sustainability of fisheries to warrant a strategic approach to demonstrating that fisheries will be managed sustainably.

- The Government will undertake strategic environmental impact assessments of all new management plans for Commonwealth fisheries, and, within a five year period, all those fisheries that do not have a management plan. The Environment Protection and Biodiversity Conservation Bill, currently before the Parliament, will be the vehicle for this.

- The Government will remove the current blanket exemption of marine species from wildlife export controls to ensure exemptions are available only for marine species harvested in accordance with sustainable and ecologically-based management arrangements.

Offshore petroleum and minerals

Offshore petroleum is a major economic use of Australia's marine environment. The offshore minerals industry is in a very early stage of development with limited knowledge of offshore resources.

Future growth in use of offshore minerals and petroleum will be influenced by the availability of capital for high risk investments and the long lead times to full development.

- Accordingly, the Government will continue to improve petroleum offshore strategies to maintain relevant and effective access to exploration acreage.
- The Government will also improve Australia's international investment attractiveness through continued investment in pre-competitive geoscientific surveys and analysis, and improved access to public exploration data lodged under legislative requirements.
- The Government will spend an additional \$33 million over four years to help identify new offshore oil zones in Australia's Exclusive Economic Zone, including the southern continental margin of the Great Australian Bight.
- The Petroleum (Submerged Lands) Act 1967 is the primary legislation for the administration of Australia's offshore petroleum resources. The Act is over 30 years old and has become complex and unwieldy.
- The Commonwealth Government will rewrite the Act to reduce compliance costs for government and the industry while maintaining a high level of environmental protection.

The industry's environmental record has been exemplary in Australia.

- To help maintain this reputation, the Government is developing objective-based environment protection regulations for the industry.
- To encourage increased cooperation with the

offshore petroleum industry in the development of joint approaches for the protection of marine habitats in areas under existing leases, the Government will remove the existing legislative constraint on the establishment of marine protected areas where there are pre-existing leases, recognising the need for cooperative action without compromising pre-existing rights.

Shipping

Shipbuilding Industry

Australia's commercial shipbuilding industry has emerged from a period of extensive restructuring. It is entrepreneurial, aggressive, innovative and extremely successful in international markets. More than 90% of the industry's output is exported.

- The Commonwealth Government will introduce a new Ships Bounty Scheme and a Shipbuilding Innovation Scheme at a cost of around \$68.8 million over four years. The Schemes will lay the basis for many new jobs in shipbuilding and related industries.

National management and regulatory framework

Australia's economy is absolutely dependent on shipping. About 97 per cent of the volume of our trade is carried by ships, with about 95 per cent of that carried by foreign flagged vessels.

- The Government will continue to promote shipping, waterfront and regulatory reforms to ensure that access to efficient and competitive shipping services is maintained. Our international economic competitiveness requires that we be in step with international approaches to shipping regulation. At the same time our marine environment is relatively unpolluted in comparison with many of our trading partners and so it is more vulnerable to pollution.
- For this reason Australia will continue to take a leadership role in the International Maritime Organization (IMO) to develop and promote a strong international regulatory framework for ship safety and the prevention of pollution.

Ballast water

Ballast water is a major source of harmful marine pests. As a consequence of lack of effective ballast water treatment and testing techniques, and the

current voluntary code of national and international ballast water control, Australia is exposed to a high risk of further devastating pest introductions. To address ballast water effectively, Australia requires a single national management regime that applies to both Commonwealth and State waters.

- The Government will support the Australian Quarantine Inspection Service (AQIS) in developing a single national management regime for ballast water
- AQIS will accelerate the development of decision support systems for the management of ballast water and associated treatment and testing techniques to minimise marine pest incursions.

Marine pests incursion management

In recent years there has been growing concern over the potentially devastating impacts of aquatic pests and the lack of a nationally coordinated response capability to address aquatic pest outbreaks. At least 170 species of exotic marine organisms have been translocated into Australian waters.

While an interim ready response capability is being developed with funding from the Coasts and Clean Seas initiative, a more durable nationally coordinated and fully functional incursion response system for marine pests is required.

- The Government will provide funding to assist in the establishment of a comprehensive introduced marine pest incursion management system to minimise potential damage to both the environment and marine industries. This system will be developed in cooperation with the States and Territory Governments through the Australian and New Zealand Environment and Conservation Council.

Tributyltin (TBT) Anti-Fouling Paint

TBT is a highly toxic biocide used in the shipping industry to prevent marine organisms attaching themselves to ship's hulls.

There has been increasing international pressure to phase out the use of toxic organotin compounds in antifouling paints.

The Government will support the International Maritime Organization and will:

- promote the introduction of a global ban on TBT; and
- ban the use of TBT by 2006 on vessels being repainted in Australian docks unless the IMO sets an earlier date for such a ban, in which case Australia will ensure it complies with any such arrangement, noting Defence operational requirements.

MARINE POLLUTION

Marine and Estuarine Water Quality Standards

The decline in marine and estuarine water quality is regarded as one of the most serious threats to Australia's marine and coastal environments. The management of marine and estuarine water quality should be part of the integrated planning and management of our marine resources, including the maintenance of environmental and natural resource values.

The joint Commonwealth - State - Territory National Environment Protection Council (NEPC) has been considering the development of a National Environment Protection Measure (NEPM) for ambient marine and estuarine water quality. This could include mandatory standards, goals, guidelines and protocols. States and Territories would implement the NEPM within the context of their own regulatory and management approaches.

The Government believes that a NEPM for marine and estuarine water quality should be developed as a matter of priority. The community has a right to expect that nationally-consistent bacterial standards for ambient water quality will be developed and applied for their protection when they come into contact with estuarine and marine waters areas which are used for recreation.

- The Government will support the development of national marine and estuarine water quality standards through the National Environment Protection Council.

Improving treatment of sewage and stormwater

We are an urban nation with our full share of environmental problems. Urbanisation in Australia and population growth pose challenges that need to

be managed by governments and the community if we are to maintain our quality of life. Sewage and stormwater pollution Australia's beaches and coastlines, particularly near urban centres, is of concern to all Australians.

Effective protection of our marine waters will involve attacking the problem of sewage and stormwater at source as well as taking regulatory and ameliorative measures.

For the first time, the Commonwealth making a substantial financial contribution to improve the treatment of sewage and stormwater through the \$125 million *Coasts and Cleans Seas* initiatives.

- The Government will continue to provide support for such improvements through *Coasts and Cleans Seas*.

Acid sulfate soils rehabilitation

Extensive agricultural, residential and tourism development activities along the coastal strip have led to disturbance and increased exposure of acid sulfate soils. This has resulted in a reduction in inshore water quality, habitat degradation and loss of biodiversity.

- The Government will work with the States to develop and finalise the action plan for the implementation of the National Strategy on Acid Sulfate Soils.
- The Government will provide financial support for demonstration projects to illustrate the options available to the community and governments in handling areas which are prone to acid sulfate soil problems that result in damage to coastal marine resources.

MARINE TOURISM

Australia's tourism industry relies heavily on our extensive and diverse coastline and marine environments for its international competitiveness. The industry also has an important role in the stewardship of many unique and fragile environmental and tourism resources.

Over the next decade the industry is likely to continue its growth, generating substantial export earnings and employment opportunities.

The implementation of the Regional Marine Planning process will assist the industry in planning and managing its expansion. It will also enhance security of access to high quality environmental resources while ensuring that their environmental values are not degraded.

The Government will:

- continue to promote the development of an environmentally sustainable tourism industry;
- assist and encourage the industry with research directed towards maintaining and enhancing the natural environment; and
- continue to ensure that, within the context of precautionary management and the priority of protecting world heritage values, access and capacity limitations on tourist operators in World Heritage Areas are in accordance with management plans and that operators have the level of certainty and tenure required to develop operations of high environmental quality.

The Government recognises the vital importance of the promotion of Australia to overseas markets. New areas to be targeted will include adventure travel and cruise shipping.

The Government has recognised the importance of encouraging a wider dispersal of tourism around Australia. The economic benefits of spreading tourism beyond the major gateways are considerable and there is significant potential for growth in many regions, including those on the coast.

The Government is considering increased funding for regional tourism by expanding the Regional Tourism Program. Much of the Program will be directed towards 'hard' infrastructure such as interpretive centres and 'soft' infrastructure such as skills development and training.

National moorings program

Damage from boat anchors and inappropriately designed moorings is a serious environmental issue in popular marine and coastal areas. Corals and sea-grasses, which are already at risk from a variety of threats, are particularly vulnerable.

- The Government will provide funding to establish well-designed moorings in particularly sensitive areas.

COMMUNITY PARTICIPATION

Community participation is a key to promoting and instituting a duty of care for the marine environment.

National Oceans Forum

- The Government will hold a National Oceans Forum in 1999 to promote the implementation of *Australia's Oceans Policy*. A broad national cross-section of those with a stake in the management of our oceans will participate. The Forum will have the opportunity to meet with members of the National Oceans Ministerial Board.

Community Networks

Community involvement in coastal and marine management has been enhanced through Coastcare and fisheries extension programmes and the Marine and Coastal Community Network, which operate in both urban and regional centres.

- The Government will continue to support the community's involvement in coastal and marine management by maintaining funding for the Marine and Coastal Community Network and support for Coastcare and other facilitators.

Aboriginal and Torres Strait Islander communities

The social, cultural and economic relationships that many Aboriginal and Torres Strait Islander communities have with the ocean environment means they have established interests in the use, conservation and management of Australia's oceans.

The Government will ensure that where there are specific Aboriginal and Torres Strait issues under discussion, the Minister responsible is able to carry those to the National Oceans Ministerial Board. The Government will also:

- provide for Aboriginal and Torres Strait Islander representation on the National Oceans Advisory

Group and on Regional Marine Plan Steering Committees;

- provide for Aboriginal and Torres Strait Islander participation at the National Oceans Forum; and
- consult with peak indigenous groups on the requirements for establishing a national consultative mechanism, such as an annual forum.

In the context of developing integrated ocean planning and management processes, the Government will seek to ensure that:

- traditional conservation and use practices are valued;
- that the reliance by many coastal indigenous communities on marine resources is treated as an important ocean use; and
- that indigenous communities are given every opportunity to take up commercial activities related to the oceans.

The Government will continue to work with indigenous communities to establish indigenous protected areas and to support Aboriginal and Torres Strait Islander training and employment in jointly managed parks.

UNDERSTANDING THE OCEANS

Australia's Oceans Policy, the Marine Science and Technology Plan and the Marine Industry Development Strategy highlight the need for greater knowledge and scientific understanding of marine ecosystems and resources to underpin their conservation and sustainable use.

- The Government will assist in the establishment of a new marine science research and teaching centre at Coffs Harbour.

Marine research needs to be well coordinated to make the most effective use of the available resources. Stronger linkages between scientists, industry and environmental managers in setting priorities and goals for marine science is critical to integrated ocean planning and management.

- The National Oceans Ministerial Board will consider Government priorities for publicly funded marine research related to the implementation

of the Oceans Policy. A major driver of these priorities will be the development and implementation of Regional Marine Plans.

- The National Oceans Office will provide advice to the Ministerial Board on marine research priorities relevant to the Oceans Policy and ensure that the marine research agencies are kept informed of the Government's emerging priorities.
- Knowledge of the natural variability of the oceans is essential for many marine activities, from ship routing to recreation. The most well known of these is the El Niño -Southern Oscillation effect. Such knowledge is also essential to our understanding of the major global changes which influence our environment, economy, cultural and social fabric. The development, implementation and review of Regional Marine Plans will also require a sound understanding of ocean systems.
- The Government will promote and support the Australian, Pacific and Global Oceans Observing Systems as mechanisms to develop the oceans-related data capture and exchange necessary for improving prediction and management.
- The Government will support the establishment and operation of a Regional Office of the International Oceanographic Commission in Perth, Western Australia.

PROTECTING THE NATIONAL INTERESTS

Regional development of Oceans Policy

Given the dynamic nature of the marine environment, effective implementation of the Oceans Policy requires cooperation with our immediate neighbours and other countries in our region.

- The Government will cooperate with our maritime neighbours to address transboundary impacts and improve regional cooperation on ocean issues such as pollution prevention, fisheries management and marine protected areas.
- Recognising the direct interactions that will be required with New Zealand on a range of oceans management issues in the Tasman Sea and Southern Ocean, the Government proposes to work with New Zealand to:
 - develop, through ANZECC, a trans-Tasman understanding on oceans planning and management; and

- examine with the New Zealand Government a possible role in the development of the Regional Marine Plan for the southeastern region of Australia's EEZ in relation to issues of joint interest.

Surveillance and enforcement

Effective surveillance and enforcement within Australia's marine jurisdiction is fundamental to protecting our national interests and the Government will continue its assertion of our sovereign interests in this area.

- The Government will provide increased support for the established civil patrols in our sub-Antarctic waters to deter illegal fishing.
- The Government will employ more fisheries officers to make sure the increased emphasis on the sub-Antarctic does not affect our ability to police illegal fishing off northern Australia.
- The Government will amend the fisheries laws to make surveillance and enforcement of foreign fishing more effective.

- The Government will continue its multilateral and bilateral activities to reduce incursions into Australian waters.
- The Government will also examine complementary actions and possible alternatives to traditional surveillance and enforcement such as trade certification and restriction for fisheries resources.

ASSESSING EFFECTIVENESS

Performance assessment is an integral part of the Policy to ensure that the identified strategic directions and specific actions contribute effectively towards the achievement of the Policy's goals.

- An initial review of progress in implementation of the Policy will be undertaken within two years.
- Comprehensive reviews of the effectiveness of the Policy will be undertaken at least every five years.

6. MARINE SCIENCE AND TECHNOLOGY AND MARINE INDUSTRIES

The *Marine Industry Development Strategy* and the *Marine Science and Technology Plan* are key elements of the conservation and resource development focus of Australia's Oceans Policy. They identify priorities for scientific, technological and industrial development to increase the national capacity to care for, understand and use our marine resources wisely.

The Strategy and the Plan are also characterised by a long-term perspective, with flexibility to respond to changes in priorities for marine industry development and marine science and technology. This will help maintain a consistent connection between the Strategy, the Plan and Australia's Oceans Policy.

THE MARINE SCIENCE AND TECHNOLOGY PLAN

The *Marine Science and Technology Plan* is designed to improve knowledge of Australia's marine jurisdictions. Under the broad umbrella of the Oceans Policy, the Plan will address existing and emerging priorities for marine science, technology and engineering at a national scale.

The Plan will encompass all the marine science, technology and engineering programmes currently in operation in Commonwealth Government departments and agencies, and other relevant bodies. It will provide a framework for the development of our capabilities in these fields during the next ten to fifteen years.

Three priority areas have been identified for the Plan. These are to:

- characterise and improve our understanding of the coastal zone, Australia's marine jurisdictions

and the adjacent oceans, the oceans' interaction with the atmosphere, their biological resources and ecological systems, and their underlying geological features;

- provide the scientific, technological and engineering basis for the ecologically sustainable use and management of Australia's marine jurisdictions and their resources; and
- provide the physical infrastructure, appropriate skills base and information support for Australian marine science, technology and engineering; and coordinate the management of national programmes in marine science, technology and engineering.

MARINE INDUSTRY DEVELOPMENT STRATEGY

The Commonwealth Government has endorsed the *Marine Industry Development Strategy*. It reinforces the Oceans Policy's approach of a comprehensive and long-term framework for growth in our marine industries. To achieve this growth the industries must be internationally competitive and ecologically sustainable.

In keeping with *Australia's Oceans Policy*, the Strategy emphasises cross-sectoral features that are often not adequately considered by the existing sector-based management approaches. The Strategy also endorses a coordinated approach to marine development that fully accommodates the multiple use of ocean resources.

The Strategy's recommendations are aligned closely with the Commonwealth Government's business improvement agenda, which includes improved regulatory arrangements. Recommendations to foster marine industry development include:

- a review of government marine policy and related decision-making processes;
 - development of consistent legislation to define and apply the principles of ecologically sustainable development;
 - collection of basic data for marine industry development and environmental management; and
 - implementation of objective-based regulations.
- working with industry to raise the community's awareness of marine industries, their economic contribution, and issues affecting their ecologically sustainable development; and to provide channels for community views and aspirations on maintenance of natural resources; and
 - pursuing the Strategy for the Development of a National Marine Data Programme based on the work of the Marine Data Group and its networks and developed in the context of the Marine Science and Technology Plan.

Initiatives will be undertaken by the Commonwealth Government in consultation with State and Territory Governments. These include:

- facilitating the development of marine industry associations and networks to strengthen the representative capacity of marine industries;

For references and further details see *Marine Industry Development Strategy 1997* and *Marine Science and Technology Plan* (to be released in 1999).

7. AUSTRALIA'S OCEAN POLICY – NEXT STEPS

Following release of the Policy, the Government will establish the institutional structures outlined in Section 3. The National Oceans Office will finalise a detailed and auditable implementation schedule addressing jurisdictional and sectoral responsibilities and a timetable for implementation.

The Government will continue its consultations with the State and Territory Governments with a view to the early and full endorsement of *Australia's Oceans Policy*.

A regional marine planning framework will be established with the first Regional Marine Plan to address the south-eastern region of Australia's EEZ. The following illustration indicates key milestones for the effective implementation of *Australia's Oceans Policy*.

Appendix 1

POLICY GUIDANCE FOR OCEAN PLANNING AND MANAGEMENT

The following policy statements are intended to help apply the principles for ecologically sustainable ocean use when developing and implementing planning and management arrangements for Australia's oceans. They are also intended, in association with more specific national and regional objectives, to provide the basis for reporting and performance assessment in the implementation of *Australia's Oceans Policy*.

Maintenance of ecosystem integrity

- The ecological links between the land and oceans, as well as within and between ocean ecosystems, must be taken into account in ocean planning and management.
 - Maintenance of natural ecosystem structure and function should be used to develop agreed objectives and indicators for ecosystems and resource uses, on the basis of the best available information available on assessment of:
 - natural levels of temporal and spatial variability and the sensitivity or resilience of the ecosystems likely to be affected by proposed uses;
 - the extent and levels of change in ecosystem components or impacts on ecosystem integrity likely to arise from proposed uses and other impacts, singly and in unison;
 - levels of induced change considered acceptable;
 - levels of change in ecosystem characteristics considered incompatible with maintenance of ecosystem health or recovery within a reasonable period; and
 - gaps or uncertainty in information on resources, uses or ecosystem processes and the capacity to monitor, detect and assess change in indicators of ecosystem health.
- ### ***Integrated oceans planning and management for multiple ocean use***
- The economic, environmental, social and cultural values of ocean resources should be assessed, as should the impacts of proposed uses on those values, before resource allocation decisions are made.
 - Ocean resources should be allocated to the mix of uses within a planning area that offers the greatest long-term community benefits (taking economic, environmental, social and cultural values into account) compatible with maintaining ecosystem health.
 - Direct, indirect and cumulative adverse impacts of resource use should be minimised – uses that may diminish the value of an area or resource for subsequent uses require careful assessment of long-term costs and benefits and of alternative uses.
 - Multiple uses of the same ocean resource should be considered jointly so that their overall impacts on the oceans, and the impacts they have on each other, can be understood.
 - Resource-use activities should be assessed within a planning framework which considers impacts on ecosystems, against management goals, and through an objective, transparent and open analysis of risk, costs and benefits.
 - Where good management suggests that uses of particular areas should be restricted, primarily for a single purpose or for a specific set of purposes, access for resource users with different interests may be managed through zoning on the basis of area and/or time.
 - Multiple use planning and management of the oceans should incorporate, as a central component, a comprehensive, adequate and representative national system of marine protected areas

Promotion of ecologically sustainable marine-based industries

- Healthy marine ecosystems are essential for the long term productivity of marine industries.
- Planning and management for ocean use should explicitly include the development of sustainable, internationally competitive marine industries that contribute to national economic growth, employment and regional development.
- Allocation of ocean resources under existing sectoral management regimes should provide for integrated ocean use and should:
 - support industry efforts to generate wealth through growth, innovation and value enhancement;
 - encourage industry in promoting its international competitiveness and international trade and investment opportunities; and
 - encourage continuous improvements in environmental management and cleaner production strategies.
- Governments and industry should cooperate to ensure cost-effective access to high-quality information about resources, environmental baseline and monitoring information required for managing existing industries, and for identification of new opportunities.
- Unnecessary regulatory impediments to the development of ecologically sustainable marine industries should be removed. This can be achieved by:
 - simplifying and streamlining regulatory frameworks, including removing unnecessary regulations;
 - improving valuation and pricing of resource access and government services; and
 - managing uncertainties in resource access, use and allocation processes, for example, by creating tradeable rights, where compatible with maintaining the productivity and health of marine ecosystems and other community equity considerations.

Governance

- The distribution of roles and responsibilities between the Commonwealth, States, Territories and local government should be consistent with the Intergovernmental Agreement on the Environment and the outcome of the Council of Australian Governments' review of roles and responsibilities for the environment.

- Partnerships between governments, industry and the community should be a major component of institutional arrangements for assessing, planning and managing ocean resources:
 - recognising coastal and marine policies and strategies in place or being developed by Commonwealth, State and Territory Governments; and
 - recognising the responsibilities carried by governments to develop and implement policies for community benefit and in the national interest
- Planning and management arrangements should incorporate a duty of care towards the health of our oceans on the part of individuals and corporate and government bodies.
- To the extent possible, the regulatory framework for ocean use should:
 - be outcome or objective-based, and provide incentives for improved performance;
 - not impose unnecessary costs or regulatory burdens on users and managers;
 - be consistent across jurisdictional boundaries where they impact on the same oceans resource;
 - be developed cooperatively with community and industry;
 - use market-based approaches where they are able to address adequately the full range of economic, environmental and community values; and
 - be consistent with internationally-agreed measures.
- Institutional arrangements and decision-making processes for the oceans should enable conciliation and dispute resolution. However, such arrangements will not fetter governments from carrying out their responsibilities to the Australian people.
- The Commonwealth Government will continue to involve State and Territory Governments in considering existing and new international treaties relating to the marine environment, particularly where they may affect State or Territory interests.

Managing for uncertainty

- Planning and management for use of ocean resources, particularly the living marine resources, must be able to accommodate considerable uncertainty. Regimes should be adaptive and:

- be able to accommodate uncertainty in the accuracy of assessments of resources and of risks and the variability and unpredictability of the marine environment;
- allow for changes in resource values and improvements in technology and information that may alter risk assessments and provide new opportunities for resource use; and
- be capable of rapid responses to assessment of adverse impacts; this includes reducing or ceasing resource use to assure an acceptable rate of recovery or remediation of ecosystem health.

Application of the precautionary principle

- If the potential impact of an action is uncertain, priority should be given to maintaining ecosystem health and productivity.
- Incomplete information on possible impacts should not be used as a reason for postponing precautionary measures intended to reduce or avoid unacceptable levels of change or to prevent serious or irreversible environmental degradation of the oceans.
- In the application of the precautionary approach, public and private decisions should be guided by:
 - careful evaluation to ensure that changes arising from a use or uses remain within limits considered acceptable, to avoid, wherever practicable, serious or irreversible damage to the environment; and
 - assessment of the risk-weighted consequences of various options.
- If there is a risk of serious and irreversible environmental damage resulting from an ocean use, that use should be permitted only if the damage can be mitigated, or it is limited in its extent, and there is an overriding net community benefit from the use:
 - the higher the risk of unacceptable levels of change or of serious or irreversible environmental damage, the more conservative should be the measures required to reduce that risk.
- Ocean users carry a responsibility to assure the ecological sustainability of their operations and an obligation to identify and implement precautionary measures.

User-pays and other economic instruments

- Charges for access to ocean resources should reflect the community interest and short- and long-term economic, environmental, social, and cultural costs and benefits.
- Where it is not possible to quantify these costs and benefits, their existence and relative importance should be taken into account in setting charges.
- Risk of losing ecosystem health and productivity should be presumed to have a high cost to the community.
- Access to common ocean resources for private profit should be priced to give a reasonable rate of return to the community, where consistent with government resources policies.
- Public-funding principles should apply for services provided for the public good.
- Unless there is an overriding public interest, the costs of commercial development potentially impacting on the oceans — including infrastructure, environmental management, monitoring and remediation, and the costs of managing natural hazards — should be borne by development proponents.
- Those who generate and release wastes into the ocean should bear the costs of containment, avoidance, abatement, or remediation to the level of best practice.
- Approvals for resource use proposals should be contingent on the proponents having in place credible arrangements for bearing these costs.
- Pollution which results in loss of amenity or diminished value of the oceans resource to other users is a form of resource use and, while it continues, should be costed accordingly.

Reporting, monitoring and assessment

- Ocean planning and management should include the development of outcome-based performance indicators and performance assessment procedures.
- Use of ocean resources should be monitored to ensure that estimates of impacts are accurate. If assessments of impacts differ significantly from forecasts, management procedures should allow for the initiation of remedial action, including reviews of resource allocation.
- Monitoring and assessment programmes should be structured so that they provide sufficient sta-

tistical power for detection of potential impacts, including design for replication and appropriate control or reference areas. Such programmes should be subject to public and independent peer review.

- Ocean conditions should be monitored to underpin improved understanding and decision making and to detect variability and long-term change. Effective linkages with national and international ocean monitoring programmes should be maintained.
- Ocean managers should have access to data which are essential for good oceans management.
- Access to and use of ocean resources carry with them a responsibility for users to provide information in the form and at the level of detail required for good management.
- Ocean managers have complementary responsibilities:
 - to communicate clearly what information is required and the form in which it is to be provided;
 - to recognise and minimise the transaction costs of requiring information from resource users; and
 - to provide feedback on the use made of the information and its management value.
- Monitoring of the performance of management agencies should be open and transparent, with the results made publicly available.

Duty of care and stewardship

- Australian governments, marine industries, communities and individuals should acknowledge and apply a duty of care in use of Australia's ocean resources. A collective sense of stewardship is a critical element in sharing the responsibility for these assets across all sectors.

Interests and responsibilities of indigenous peoples

- The cultural interests and traditional knowledge and management practices of Aboriginal and Torres Strait Islander peoples should be recognised and incorporated in ocean planning and management and related policy development.
- Local communities should be encouraged to participate in local industries and in management strategies and to continue to share responsibility for the management of ocean resources.

Broader community participation

- Effective public participation in ocean planning and management requires that:
 - the public should have access to sufficient information about current ocean resource uses, proposals and alternative uses and their impacts;
 - the public should have sufficient opportunities for informed community contributions to decisions and management; and
 - there is a clear understanding of the responsibilities of governments for planning and management in meeting community and national interests.
- Ocean management decisions and how they are made should be open for public scrutiny.
- Local communities and local industries should be encouraged to participate in planning and management strategies and share responsibility for the management of ocean resources.

Regional and global responsibilities

- Australia's obligations in relation to the oceans under conventions, agreements and arrangements to which it is party must be acquitted in the assessment, allocation and management of ocean resources:
 - including commitments relating to peaceful use of the oceans and cooperation in access for national and international scientific research and monitoring programmes.
- Government and industry should cooperate internationally to incorporate the full environmental costs associated with ocean related production.
 - multilateral development and implementation of market-based measures to protect the health of our oceans is an important strategy for maintaining the international competitiveness of our marine industries while promoting global environmental protection.
- International trans-boundary resources should be allocated and conserved in a fair and equitable way, placing a premium on the peaceful settlement of any differences regarding their use.
- Australia should provide leadership regionally and internationally in the management of our oceans, recognising the possibility that national activities may have effects on the marine jurisdictions of neighbouring countries.

Appendix 2

THE LEGAL AND CONSTITUTIONAL FRAMEWORK OF AUSTRALIA'S MARINE AREAS

Maritime zones

Consistent with the provisions of international law, Australia has declared a range of maritime zones under the *Seas and Submerged Lands Act 1973*. The outer limits of all of these zones are measured from the territorial sea baseline, located for the most part at the low-water line along the coast. However, it also consists of bay and river closing lines and some straight baselines between the mainland and adjacent islands and across parts of the coast that are deeply indented.

The zones, which are measured both from mainland Australia and from islands forming part of Australia, including the external Territories, are as follows:

The territorial sea - The outer limit of the territorial sea is 12 nautical miles (nm) seaward of the baseline. Australia has sovereignty over the territorial waters. It may therefore impose comprehensive controls in this area, with the one major exception that it must respect the right of innocent passage of foreign vessels.

The contiguous zone - This is the area between 12 nautical miles and 24 nautical miles seaward of the baseline. In the contiguous zone, Australia can take limited enforcement measures in relation to customs, fiscal, sanitary and immigration matters.

The Exclusive Economic Zone (EEZ) - This is the area between the lines 12 nautical miles and 200 nautical miles seaward of the territorial sea baselines. In this area Australia has the right to explore and exploit living and nonliving resources, and the concomitant obligation to protect and conserve the marine environment.

The continental shelf - The area between 12 nautical miles and 200 nautical miles seaward of the territorial sea baseline (that is, it covers much of the same area as the EEZ) and any areas of physical continental shelf beyond 200 nautical miles. Australia has the right to explore and exploit the living and non-living resources of the shelf.

An Australian Fishing Zone (AFZ) was declared in 1979 and is now under the *Fisheries Management Act 1991*. The zone is the area of waters between 3 nautical miles and 200 nautical miles seaward of the baselines. Waters off the Australian Antarctic Territory were excepted from the AFZ in 1979 for foreign national and vessels. These waters are regulated in accordance with the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR).

The Offshore Constitutional Settlement

In the early 1970s the States challenged the Commonwealth's assertion of sovereignty under the *Seas and Submerged Lands Act 1973* over the then three nautical mile territorial sea. The High Court upheld the Commonwealth's assertion of sovereignty in the *Seas and Submerged Lands Case*. The Commonwealth and the States subsequently came to a series of arrangements collectively known as the Offshore Constitutional Settlement (the OCS). The purpose of the OCS was to give the States a greater legal and administrative role in offshore areas. The principle legislation implementing the OCS (*Coastal Water States, Power and Title Act 1982*) entered into force in February 1983.

There are two fundamental elements underpinning the OCS arrangements. First, the States and the Northern Territory were given title to an area called 'coastal waters' consisting of all waters

landward of the three nautical mile limit but not including internal waters that are within the constitutional limits of a State; for example, Sydney Harbour. Second, the States and the Northern Territory were given concurrent legislative power over coastal waters; that is, they were given the same power to legislate over coastal waters as they would have over their land territory. The legislation implementing the OCS made it clear that should the territorial sea subsequently be extended from three nautical miles to 12 nautical miles the OCS arrangements would continue to apply only to the three nautical miles limit. In 1990 the territorial sea was extended to the 12 nautical miles limit, but the relevant limit for the purposes of the OCS remains at the three nautical miles.

In effect, through the OCS, the Commonwealth agreed to give the States primary responsibility over coastal waters (out to 3 nautical miles). Beyond that the Commonwealth retains primary responsibility. The OCS also included a number of cooperative arrangements for the management of resources offshore, such as fisheries and petroleum. These cooperative arrangements are reflected in the relevant Commonwealth, State and Northern Territory legislation.

Examples of such arrangements are those entered into under the *Fisheries Management Act 1991* to enable a fishery both within and outside State coastal waters to be managed by one authority (State or Commonwealth) under one law (State or Commonwealth).

Constitutional power

A range of constitutional powers enable the Commonwealth Parliament to pass laws relating to the oceans and their management. These

include: Commonwealth powers over trade and commerce, external affairs, corporations, defence, fisheries, territories and quarantine. A number of aspects of the external affairs power are relevant, but principally that aspect that allows the Commonwealth to legislate with respect to matters physically external to Australia—that is, beyond low water mark. The Commonwealth can also legislate under the external affairs power to give effect to treaties, matters of international concern and matters affecting Australia's relations with other countries.

As noted, the States and the Northern Territory were given power to legislate over coastal waters as part of the OCS. After implementation of the OCS in 1983, however, the High Court held that the general power of each State to make laws for the 'peace, order and good government' of the State enables each State to legislate in relation to its adjacent maritime area, provided there exists a reasonable connection between the State and the activity covered by the legislation.

This means that the extension of State legislative powers to coastal waters as part of the OCS is now largely redundant.

The OCS does not prevent either the Commonwealth or the States from exercising their full legislative powers in the offshore area. However, the practice largely has been to exercise those powers in a manner consistent with the OCS. Nevertheless, if there is a conflict between State and Commonwealth laws applying to the maritime area then, in accordance with section 109 of the Constitution, the Commonwealth law would prevail. The State law would be invalid to the extent of the inconsistency.

Appendix 3

WHAT IS ECOSYSTEM INTEGRITY?

Fully-functioning natural ecosystems are significant community assets, providing a range of essential environmental services and other direct benefits that can be sustainable in the long-term.

- All ecosystems, including ocean ecosystems, vary in space and time. They are naturally in a state of constant flux within limits or trends that under natural conditions are characteristic of each system.
- Information on ocean ecosystem structure and function is, and will continue to be, incomplete. There is uncertainty and unpredictability about the processes, the limits to natural variability, and the effects of induced changes that require a conservative and precautionary approach to resource development.
- All human uses of the oceans result in change in ocean ecosystems and there are direct and indirect impacts from a range of land-based activities. Such changes may be relatively small or transient when compared with natural levels of variability, or they may be marked, persistent or irreversible.

Deciding on acceptable levels of change requires an open, objective and scientifically credible process for determining ecosystem characteristics, indicators of change and assessment of the associated risks to continued ecosystem structure, functioning and evolutionary potential. The same considerations apply to assessments of other direct and indirect impacts, costs and benefits.

A range of indicators of ecological structure (such as species richness, composition and trophic organisation, and habitat status), function (such as primary production, energy and material flows) and information on natural and induced levels of variability, can be used as reference points in assessing the

state of an ocean ecosystem. Ecosystem integrity is regarded as being maintained when the selected indicators remain within limits that are agreed as likely to avoid a significant risk of progressive or irreversible change or decline. There are thus several main elements in decisions about the maintenance of ecosystem integrity:

- establishing what the ecosystem characteristics are, and broadly what our objectives are for those ecosystems;
- understanding the scale and levels of natural variability and cyclic and long-term trends in ecosystem characteristics or components;
- selection and testing of a robust set of indicators of those characteristics;
- assessing the levels of change attributable to direct and indirect effects of resource use, singly or in combination; and
- deciding on the level of change considered acceptable, the criteria for determining the level of change, and agreement on implementation of appropriate corrective measures if those limits are exceeded.

Some ocean resource uses result in significant changes in ecosystem components. They can result in the establishment of extensively modified habitats, in which new cycles and levels of ecosystem functions become established. While such changes may sometimes be reversed relatively quickly, in other cases recovery may take a long time, and require the reestablishment of slow-growing ecosystem components or of key system processes.

As an example, achieving the maximum ecologically sustainable harvests in a fishery necessarily results in significant changes in abundance, age structure and other characteristics of target stocks and some associated species. Achieving acceptable levels of harvest requires an informed and open

basis for assessing environmental, economic, social and cultural costs and benefits. It also requires making decisions on the balance points for industry and fisheries management objectives, ecosystem structure and functioning and other community aspirations for fisheries and other resource uses in the area.

MULTIPLE OCEAN USES

Planning and management for multiple ocean uses involves the integrated allocation of resource access and use to reach an acceptable balance of outcomes. It must take into account the full range of uses, users and values, while ensuring that the integrity of ecosystems is maintained. It includes consideration, before resource allocation decisions are made, of uses which can occur in much the same area at the same time, and those which require separation in space or in time, with the objective of retaining the greatest number of possible options for the future.

Management must also be adaptive, able to respond to indications of adverse change in the environment, changes in social, cultural and economic values, and changes in understanding and technology.

Before decisions are made about allocation of ocean resources, a number of factors need to be taken into account:

- objective assessments of the resources and values of an area and potential impacts from proposed uses;
- the value and impacts of alternative uses;
- the levels of compatibility amongst potential uses of the resources of an area and the potential for maximising the benefits or value to the

community by encouraging multiple uses of the resources, either at the same time or sequentially; and

- identification of means of detecting undesirable environmental outcomes and actions to be taken to avoid or mitigate adverse impacts.

Planning and management for multiple uses should ensure that decisions about resource access or use and the allocation of benefits are equitable, objective and transparent. They should include explicit assessments of impacts, in particular on other recognised uses and on ecosystem integrity. Integrated management of multiple uses should provide a capacity to manage conflicts between uses and sensitive environmental concerns adaptively. It should ensure that the mix of uses optimises the flow of benefits to the community in terms of environmental, social, cultural and economic outcomes in the longer term.

It is inevitable that some potential users will not be able to use the same area at the same time, or may only co-occur with constraints on particular activities. In some cases, assessments may result in allocations for exclusive uses. For example some oceans areas will need to be set aside as scientific reference areas for monitoring undisturbed ocean ecosystem structure and functions and ocean health. Some localities within petroleum exploration tenements will need to be managed exclusively for that use during testing and production.

In all cases of resource allocation that exclude or constrain some uses, arrangements for multiple use management should include processes for review of allocations that take into account changes in environmental, social, cultural and economic information, understanding and values, and changes in technology.

Appendix 4

NATIONAL REPRESENTATIVE SYSTEM OF MARINE PROTECTED AREAS

What is a marine protected area ?

The generalised definition of protected area is intended to apply equally to marine and terrestrial areas. As adopted in the context of the Australian National Reserves System it is:

An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means. (IUCN 1994, Commonwealth 1997)

Australian Conservation Agencies have adopted the World Conservation Union (IUCN) classification for protected areas for the purposes of national reporting. IUCN has identified six categories of protected area in its classification. These range from Category I, strict nature reserves or wilderness areas managed for science or wilderness protection, through national parks, habitat or species management areas, to Category VI, managed mainly to ensure protection and maintenance of biological diversity while providing a sustainable flow of natural products and services to meet community needs.

National Representative System of Marine Protected Areas

The development of the National Representative System of Marine Protected Areas (NRSMPA) was endorsed by Australian Governments under the Inter-governmental Agreement on the Environment. There are commitments by all Australian Governments to its establishment in key strategies such as the National Strategy for Ecologically Sustainable Development (1992) and the National Strategy for the Conservation of Australia's Biological Diversity (1996).

The NRSMPA brings together biodiversity conservation and human activities, incorporating multiple-

use and ecologically sustainable development principles, into an established and deliverable mechanism supported by all Governments.

The primary goal of the NRSMPA is:

To establish and manage a comprehensive, adequate and representative system of marine protected areas to contribute to the long-term ecological viability of marine and estuarine ecosystems, to maintain ecological processes and systems, and to protect biological diversity at all levels.

The NRSMPA has secondary goals to incorporate integrated ecosystem management; manage human activities and to provide, among other things; for the needs of species and ecological communities; and for the recreational, aesthetic, cultural and economic needs of indigenous and non-indigenous people where these are compatible with the primary goal.

The Australian and New Zealand Environment and Conservation Council established the Task Force on Marine Protected Areas to advance the establishment of the NRSMPA. Development of partnerships with industry and indigenous groups is important in this process. The Commonwealth Government is identifying priority areas within the Exclusive Economic Zone for the establishment of marine protected areas. It is committed to substantial progress by 2001 in establishment of the NRSMPA in cooperation with State and Territory Governments.

Key tasks in the development of the NRSMPA are:

- refinement and application of a national bio-regionalisation for inshore and offshore waters (IMCRA);
- development of guidelines, criteria and processes for selection of candidate areas;

- identification of potential areas in Commonwealth, State and Northern Territory waters for inclusion in the NRSMPA;
- compilation and maintenance of accessible information on the characteristics of existing marine protected areas;
- development and implementation of effective management for marine protected areas; and
- development of performance measures for the NRSMPA, including assessment of the contribution of marine protected areas to the conservation of biological diversity in the context of integrated ocean management.

IMCRA—an ecosystem-based regionalisation of Australia's oceans

The Interim Marine and Coastal Regionalisation for Australia (IMCRA) is an ecosystem-based classification of Australia's marine waters. It describes regions at the 100s to 1000s of kilometre scale (meso-scale) and the >1000s of kilometre scale (macro-scale), drawing on information about the biological, physical and chemical variability of the sea floor and overlying waters.

A meso-scale regionalisation out to the 200 metre isobath around the Australian mainland and Tasmania recognises 60 regions. These regions range in size from the largest at 240 000 square kilometres to the smallest at 3000-5000 square kilometres in embayments and major gulfs. Preliminary work on a macro-scale regionalisation of the exclusive economic zone and the continental shelf has also been completed.

Regionalisations such as those used in IMCRA are conceived and developed for specific purposes. Ecologically-based regionalisations provide the first layer in a broad ecological planning framework within which more detailed information on ecosystems, communities and/or species distributions can be used to assist decision-making across or within a region.

The regionalisations will continue to be refined as data becomes available. The meso-scale and macro-scale regionalisations contribute to an understanding of the variation of Australia's marine environment and form an important input to planning decisions that may be made at different spatial scales. For some decisions more detailed mapping and classification of the marine environment will be required.

National Ocean Policy of **BRAZIL**

- DATE:**
- 11 October 1994 (Decree No. 1,265) (PMN)
 - 23 February 2005 (Decree No. 5377) (PNRM)

PURPOSE

National Maritime Policy (PMN): to direct the development of the maritime activities of the Country in an integrated and harmonious fashion for the effective, rational and full use of the sea and of our inland waterways, in accordance with national interests.

National Policy on Marine Resources (PNRM): to direct the development of activities for the effective use, exploration and exploitation of living, mineral and energy resources in territorial waters, the exclusive economic zone and the continental shelf in keeping with national interests, in a rational and sustainable way for the social and economic development of the country, to generate jobs and income and to contribute to social inclusion.

ADDITIONAL INFORMATION

Decree No. 1,265 of 11 October 1994 adopts National Maritime Policy (PMN) and revokes Decree No. 89,331 of 25 January 1984, published in the Official Journal of the Union (DOU) 13 October 1994, p.15.443/49. It was signed by the President of the Republic, Itamar Franco, in pursuance of the powers conferred upon him under Article 84, clauses IV and VI, of the Brazilian Constitution.

Decree No. 5377, 23 February 2005 adopts the National Policy on Marine Resources – (Política Nacional para os Recursos do Mar –PNRM as set out in the Appendix to this Decree. D 003 939-2001-Comissão Interministerial dos Recursos do Mar (CIRM) {Inter-ministerial Commission for Marine Resources}). It was signed by the President of the Republic, Mr. Luiz Inacio Lula da Silva, under the powers conferred upon him in pursuance of Art. 84, paragraph “a.” of the Brazilian Constitution.

2

NATIONAL MARITIME POLICY

INTRODUCTION

The purpose of the National Maritime Policy (Política Marítima Nacional – PMN) is to direct the development of the maritime activities of the Country in an integrated and harmonious fashion for the effective, rational and full use of the sea and of our inland waterways, in accordance with national interests.

Within the meaning of the PMN, maritime activities are all those related to the sea, in general, and to navigable rivers, lagoons and lakes.

The PMN shall be harmonized with other national policies and in accordance with international instruments related to relevant matters, according to guidelines set by the President of the Republic.

The inter-ministerial and sectoral policies of the various ministries, inasmuch as they relate to maritime activities, shall be governed by the PMN in regard to said activities.

Federal Administration bodies shall contribute, in their respective areas of competence and in accordance with their legal powers, to attaining the goals set for the PMN and to following the established guidelines.

Hence, the PMN essentially has arisen from the Government's concern to properly manage national activities in the maritime sector by instituting common features, identifying bottlenecks, by strengthening their human and economic resources and providing security, within the broader framework of the maritime environment.

The PMN thus seeks the intelligent implementation of the naval component of Maritime Power¹, to benefit the interests of the Country.

This document comprises this Introduction, a brief outline of the Predicate Factors of the PMN, a statement of the goals to be achieved and a list of activities to be carried out in order to attain these goals.

The activities to be carried out have been linked to main issues, although not exclusively, and fall under the following headings: International Relations (RI); Waterway Transport (T); Shipbuilding (C); Research and Development (PD); Marine Resources (RM); Personnel (P) and Security (S).

First comes the heading of the activity to be carried out, followed by the specified goals it seeks to attain, then the Ministry responsible for coordinating the planning, implementation and oversight is designated as are the main participants in said activity, namely the ministries that will contribute more regularly, albeit only in specific areas.

Listed in the appendix are the specific duties of the ministries and other federal administrative bodies.

1. Maritime Power is understood to mean the component of National Power which the nation has at its disposal to meet its purposes relating to the sea or dependent thereon. These means are of a political, economic, military and social nature and include, *inter alia*, maritime awareness of the people and the political class, the Merchant Navy and the Union Navy, the shipbuilding industry, ports and the structure of maritime commerce. Naval Power is the military component of Maritime Power.

Chapter 1

PREDICATE **FACTORS**

The National Maritime Policy is predicated on the following factors:

- (a) national strategic concept (CEN);
- (b) government action guidelines;
- (c) national security policy (Defence);
- (d) general mobilization guidelines;
- (e) maritime segments of sectoral policies;
- (f) international instruments to which Brazil is a party, in regard to matters which are relevant thereto.

Chapter 2

GOALS

1. Development of a national maritime culture.
2. Rationality and profitability of maritime activities.
3. National technological independence, in the area of maritime activities.
4. Research, rational exploitation of living resources, especially for food production, and non-living resources in the seas, the seabed, the ocean floor and the subsoil thereof, navigable rivers, lagoons and lakes, where significant commercial activities in terms of the maritime power are performed.
5. Production, in the country, of ships, boats, equipment and specific material, relating to the development of maritime activities and with the defence of the maritime interests of the Country.
6. Improvement of the country's port infrastructure, waterways and naval repairs.
7. Optimization of internal and external waterway transport.
8. Environmental protection in areas where maritime activities take place.
9. Training, evaluation and rational use of the human resources required for maritime activities.
10. The privatization of maritime activities where State management does not constitute a strategic or national security imperative.
11. Obtaining the benefits derived from the participation in international instruments pertaining to maritime activities.
12. Security of maritime activities and the safeguarding of national interests relating to the sea.
13. Positive image of the country abroad in support of Brazilian diplomatic action.
14. Guarantee the existence of effective naval power of compatible dimensions with the other components of maritime power.

Chapter 3

ACTIONS TO BE PERFORMED

(a) International Relations

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
RI 1	Identify the country's stance in regard to international instruments for purposes of rescission or accession	11	MRE	MM, MT, MAARA, MMAAL, SAE
RI 2	Negotiate, in the international sphere, the positions most compatible with the national maritime policy	11	MRE	MOM, MF, MT, MJ, MAARA, MICT, SEPLAN, SAE
RI 3	Coordinate measures on use of the country's maritime power to further Brazilian diplomatic action abroad	13	MRE	MM, MT
RI 4	Foster and expand integration with the countries endowed with advanced exploration and maritime commerce technology	2, 4, 5, 9, 11	MAARA	MRE, MICT, MCT, MMAAL

(b) Waterways Transport

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
T 1	Improve port services	6, 7	MT	Mtb, MM, MF, MICT, MAARA, MMAAL, MJ
T 2	Promote the integration of national waterway transport with the country's other transport systems	1, 7	MT	MMAAL, MICT, MF, MIR
T 3	Tailor the merchant navy to the country's vital maritime shipping requirements	6, 7	MT	MMAAL
T 4	Encourage the use of coastal trade	1, 7	MT	MAARA, MICT, MME, MMAAL
T 5	Encourage the participation of Brazilian flag in long distance navigation	1, 7	MT	MRE, MICT, MME
T 6	Promote the construction of waterway infrastructure and locks in the main national water basins	1, 7	MT	MME, MIR, MMAAL
T 7	Develop national maritime support vessels	1, 7	MT	MICT, MME

(b) Waterways Transport (continued)

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
T 8	Implement intra-regional waterway transport networks, especially in the Northern and Central – Western regions	2, 6, 7	MIR	MT, MMAAL, MAARA, MICT
T 9	Implement multimode transport associated with waterways, with a view to reducing transport costs and regulating regional supplies	1, 2, 6, 7	MIR	MT, MAARA, MICT, Mtb, MRE
T 10	Develop water resource conservation and inspection activities to combat the degradation and predatory use of these resources	2, 4, 8	MMAAL	MM, MAARA, MJ, MIR

(c) Shipbuilding

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
C 1	Foster the development, in Brazil, of shipbuilding projects, platforms and maritime research, exploration and exploitation of marine resources	3, 5, 9, 14	MT	MM, MICT, MME, SEPLAN
C 2	Encourage the building, in national shipyards, of specialized vessels, in keeping with modern world maritime transport trends and with the growing need for education, research, exploration and exploitation of marine resources	3, 4, 5, 9	MT	MM, MAARA, MICT, MME, MMAAL, SEPLAN
C 3	Propose measures to improve the shipbuilding incentive system	5	MT	MM, MICT, MME, SEPLAN
C 4	Foster the participation of national private industry in military naval shipbuilding	3, 5, 14	MM	MT, MICT, SEPLAN
C 5	Develop new maritime propulsion technology including nuclear technology	3, 5, 14	MM	MT, MICT, MME, MCT, SEPLAN, SAE
C 6	Promote the development of a naval repairs industry	3, 6	MT	MM, MICT, MME, SEPLAN
C 7	Assist in defining the operational requirements of fishing vessel building designed for the catch, handling and on-board conservation of fish, in keeping with good on-board handling practice	3, 4, 5	MAARA	MICT, MMAAL

(d) Fisheries and Development

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
PD 1	Foster national undertakings linked to maritime activities which incorporate national scientific and technological research findings	3	MICT	MM, MT, MAARA, MED, MMAAL, MCT, SEPLAN
PD 2	Encourage research that contributes to the development of national technology, including nuclear technology, in the area of maritime activities	3	MCT	MM, MT, MAARA, MED, SEPLAN
PD 3	Support universities, research centres, associations, congresses and technical publication entities that contribute to developing a national technology for maritime activities	3	MCT	MM, MT, MAARA, MED, MMAAL, SEPLAN
PD 4	Encourage basic industries, linked to maritime activities, to attain the right operational level, including export support and incentives	3, 5	MICT	MM, MT, MAARA, MMAAL, SEPLAN
PD 5	Step up research into and the exploitation of marine-linked non-conventional energy sources	3	MME	MM, MT, MED, MCT, MMAAL
PD 6	Encourage research and development of new maritime propulsion technologies, including nuclear technology	3, 5, 14	MCT	MM, MT, MED, MICT, MME, SEPLAN
PD 7	Foster technical standard-setting activity to achieve the standardization of maritime materials and equipment	3, 5	MICT	MM, MT, MAARA, MED, SEPLAN
PD 8	Foster the use of national equipment in projects in this sector	3, 5	MICT	MM, MT, MAARA, MCT, SEPLAN
PD 9	Promote the drawing up and establishment of norms and standards on the rehabilitation or preservation of the environment in areas where maritime activities are being conducted	8	MMAAL	MM, MT, MAARA, MME
PD 10	Encourage the establishment or the development of research institutions on maritime activities	3	MCT	MM, MT, MED, MMAAL, SEPLAN
PD 11	Improve the operation processes of fishing ports and terminals	2, 4, 6, 7	MAARA	MM, MICT, MT
PD 12	Maintain, in integrated form, data banks to support the catch, production and marketing of fish and fish by-products	2, 3, 4	MAARA	MMAAL

(e) Maritime resources

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
RM 1	Foster nationally run fisheries	4, 5, 9	MICT	MM, MT, MTB, MIR, MMAAL
RM 2	Step up research, exploration and the exploitation of minerals on the Brazilian continental shelf, especially those that can replace strategic mineral imports	4	MME	MM, MT, MMAAL, SAE
RM 3	Secure active Brazilian participation in all the phases of research, exploration and the rational exploitation of marine resources involving complementary foreign cooperation	4	MRE	MM, MT, MMAAL, MME,
RM 4	Encourage ongoing improvements to research and education institutions dedicated to marine studies	1, 2, 3, 4, 9	MED	MT, MMAAL, MICT, MME, MM, MCT
RM 5	Achieve progressive Brazilian participation in the national exploitation of living, mineral and energy resources from the waters, seabed and subsoil of the oceans beyond the limits of national jurisdiction	11	MRE	MT, MME, MICT, MMAAL,
RM 6	Support the development of sea food industry products	3, 4	MICT	MAARA, MMAAL
RM 7	Coordinate fisheries in Brazilian jurisdictional waters to develop them according to sustainability parameters to avoid endangering existing stocks	2, 4, 8, 12	MMAAL	MAARA

(f) Personnel

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
P 1	Foster the implementation or the development of education institutions pertaining to maritime activities	1, 9	MM	MT, MAARA, MED, Mtb, MICT, MME
P 2	Foster the training of professionals, including the instruction and training of staff to work efficiently in administrative, commercial, technological and military areas relating to maritime activities	1, 9	MM	MED, MT, MME, Mtb, MICT
P 3	Promote, in conjunction with the competent sectors, the regulation of the professions relating to maritime activities	9	MM	Mtb, MT, MME, MED, MICT

(f) Personnel (continued)

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
P 4	Promote, in conjunction with the competent sectors, a remuneration policy to make the maritime sector competitive with other sectors of the national economy	9	Mtb	MT, MF, MME, SAF, SEPLAN
P 5	Promote the reorganization of maritime work in ports and terminals and thus bring it into line with technological change in transport modes and the profitability of the system	2, 6, 9	Mtb	MT, MCT, MICT, MMAAL, MME, MAARA

(g) Security

ACTION No.	HEADING	GOALS	COORDINATION	MAIN PARTICIPANTS
S 1	Enlighten Brazilian society as to the importance of the sea to the future of the country	1	MM	MRE, MF, MT, MAARA, MED, Mtb, MICT, MME, MIR, MCT, MMAAL, SEPLAN, SAE
S 2	Propose the modernization, improvement and harmonization of legislation pertaining to the national maritime power with due regard to national interests	2, 12	MM	MRE, MF, MT, MAARA, Mtb, MICT, MME, MIR, MJ, SEPLAN, SAE
S 3	Endow strategic ports with naval vessel support facilities	6, 12	MT	MM, MICT
S 4	Foster private initiative participation in maritime salvage	10	MICT	MM, MT, MF, MME
S 5	Promote the security of maritime traffic	12	MM	MT, MICT, MME
S 6	Promote the security of ports, terminals and maritime facilities	6, 12	MT	MM, Mtb, Mj, MAARA
S 8	Promote security in maritime areas of interest to the country	12	MM	MT, SAE
S 9	Step up naval police exercises	12	MM	MF, MJ, MMAAL
S 10	Step up coastal patrol activities	12	MM	MJ, MF, MMAAL
S 11	Encourage the production of strategic and operational information to enhance the use of national maritime power	12	MM	MRE, MT, MICT, MME,
S 12	Plan maritime mobilization in times of peace, including norms to be met in building selected merchant ships that can be rapidly converted for military use	5, 12	MM	MT, MICT, MME, SAE
S 13	Promote the activation of the civilian management of maritime transport in tense international war situations	12	MT	MM

APPENDIX

DECREE NO. 5377, 23 FEBRUARY 2005 **Adopts the National Policy on Marine Resources – (Política Nacional para os Recursos do Mar –PNRM).**

1. INTRODUCTION

The general guidelines on the National Policy on Marine Resources (PNRM) were promulgated by the President of the Republic in 1980. More than two decades have passed since the promulgation of the PNRM and national and international scenarios in terms of seas, oceans and coastal areas have undergone significant changes, especially in regard to their global legal framework, mainly following the entry into force of the *United Nations Convention on the Law of the Sea* (UNCLOS) in November 1994. Hence the need to update the PNRM.

2. PURPOSE

The purpose of the PNRM is to direct the development of activities for the effective use, exploration and exploitation of living, mineral and energy resources in territorial waters, the exclusive economic zone and the continental shelf in keeping with national interests, in a rational and sustainable way for the social and economic development of the country, to generate jobs and income and to contribute to social inclusion.

The PNRM essentially seeks to:

- establish principles and aims for use in designing government plans, programmes and action pertaining to human resource training, the development of marine research, science and technology and the exploration and sustainable exploitation of marine resources; and
- define action to attain the goals set out in this policy.

3. MARINE RESOURCES

Marine resources are the living and non-living resources present in the waters above the seabed, the ocean floor and its subsoil as well as the adjacent coastal areas, whose sustainable exploitation is of economic, social and ecological relevance.

Non-living Marine Resources comprise mineral resources lying in waters above the seabed, in the ocean floor and in its subsoil and the energy resources derived from wind, tides, waves, currents and temperature gradients.

The above-mentioned resources also include marine aquafarming, tourism, sports and recreational activities.

The PNRM does not cover maritime goods shipping, which is governed by specific policies and legal standards.

4. BASIC PRINCIPLES

The basic principles of the PNRM are:

- compliance with political and strategic guidelines issued by the Office of the President of the Republic;
- harmonization with other national policies and the multi-annual plan;
- prioritization of programmes and activities in accordance, in keeping with the multi-annual plan and predicated on its contribution to the furthering of national interests and the sustainable development of the country;
- decentralized and participative implementation to provide incentives to the Union's partners, states, local authorities and society;
- adoption of the precautionary principle in the exploration and sustainable exploitation of marine resources;
- protection of the biodiversity and genetic heritage present in marine areas under national jurisdiction and in the adjacent coastal area; and
- compliance with the international commitments of the Brazilian Government.

5. PREDICATE DOCUMENTS

The PNRM is predicated on the following instruments:

- the 1988 Federal Constitution and relevant national legislation;
- National Maritime Policy; and
- international instruments to which Brazil is a party and, in particular:
 - the United Nations Convention on the Law of the Sea;
 - the United Nations Convention on Biological Diversity;
 - the United Nations Conference Environment and Development (Agenda 21);
 - International Maritime Organization Conventions on the Prevention of Marine Pollution; and
 - the Responsible Fisheries Code of Conduct-FAO.

6. GOALS

The PNRM goals are to:

- promote human resources training;
- foster the development of marine research, science and technology; and
- provide incentives to the exploration and the sustainable use of marine resources in waters over the seabed, on the ocean floor and in its subsoil, and in the adjacent coastal areas.

7. STRATEGY

The strategy comprises a series of activities to be undertaken in order to attain the PNRM goals. These activities will be carried out under the guidance and coordination of the Inter-Ministerial Commission for Marine Resources (CIRM) bodies, in accordance with their specifically legally established competences and in harmony with the guidelines of this collegiate body. They fall into the following areas with their respective powers:

Human Resource Training

- foster the training and further-training of scientists, technicians and professionals, at various

levels, as required to carry out programmes relating to marine resources;

- promote activities designed to develop maritime and environmental awareness in the Brazilian population in keeping with the national interest of making sustainable use of marine resources;
- strengthen education and research institutions in the area of marine sciences, drawing on their legacy and natural vocation;
- expand national and international technical and scientific exchanges with a view to exchanging and disseminating data and information on human resource training in marine science and technology, research, exploration and the sustainable use of marine resources;
- provide incentives for the establishment of education and research institutions specialized in marine studies; and
- foster the training and further training of teachers at various levels who are needed for the introduction of a curriculum into school systems with a view to developing activities for the sustainable conservation of the environment and marine resources.

Research, Science and Marine Technology

- promote studies to gain knowledge, draw up an inventory and evaluate the potential, the sustainable use, management and methods for the exploitation of living and non-living resources extent in maritime areas under national jurisdiction and of national interest;
- promote large-scale oceanographic research in the major ocean basins, in order to study changes in climate and in ocean currents, national impacts and global change;
- establish, implement and maintain a system for the collection, processing and dissemination of data on living marine resources;
- promote development and technological dissemination with a view to increasing fisheries production and reducing waste;
- establish, implement and maintain a system for the collection, processing and dissemination of geophysical and geological data from the Brazilian Legal Continental Platform (Plataforma Continental Juridica Brasileira – PCJB);
- instigate Brazilian participation in research, exploration and exploitation of mineral resources in the “Area” (seabed outside national jurisdiction);

- promote studies and research to gain knowledge, and inventory and evaluate the biotechnological potential of the marine organisms extant in maritime areas under Brazilian jurisdiction and in the national interest;
 - encourage the exchange of data and scientific and technological information between national and international educational and research institutions involved in marine resources, exploration and sustainable use;
 - provide the conditions for international cooperation in fisheries, exploration and marine resource exploitation in maritime areas under national jurisdiction; and guarantee effective Brazilian participation in all phases of these activities;
 - promote the development of technologies and the national production of the materials and equipment required for fisheries and exploration and the sustainable exploitation of marine resources;
 - promote technological projects in marine resources, with a view to including institutions and undertakings in the national research, development and innovation effort in marine technology;
 - foster technological capacity-building in marine sciences institutions needed to develop studies and research on marine resources and on the exploration and sustainable use of the sea; and
 - encourage the development of studies in basic education on marine conservation technology in order to raise pupil awareness.
- promote projects and activities designed to secure, in a sustainable manner, an increase in the availability of fishing resources, from sea-farming and fishing, in Brazilian jurisdictional waters;
 - promote the drawing up of plans, programmes and actions to direct and stimulate the development of tourist activities associated with the sea and coastal zones;
 - encourage public and private initiatives relating to tourism, sports activities and recreation to be practised in Brazilian jurisdictional waters;
 - mainstream the principles of sustainability from the social, economic, environmental and cultural viewpoints, in all the programmes, projects and initiatives on research into and the evaluation, exploration and exploitation of marine resources;
 - implement programmes and actions for the protection of the marine environment and marine resources affected by land-based activities;
 - direct, coordinate and supervise the funding negotiations with multilateral bodies and government agencies and non-governmental organizations in respect of public projects involving marine resources;
 - encourage the sustainable exploitation, the export and consumption of products of marine origin, as well as added value to these products; and
 - foster, in the country, the building of ships, platforms, fish aggregating devices (FADS), artificial reefs and other floating or submersed artefacts for education, research and exploration purposes and the sustainable exploitation of marine resources.

Exploration and Sustainable Exploitation of Marine Resources

- promote the integrated management of coastal and oceanic environments with a view to the sustainable exploitation of marine resources and the protection of ecosystems, biodiversity and the genetic, cultural and historical heritage of marine areas under national jurisdiction;
- propose the updating of Brazilian legislation to include all aspects of marine resources, the integrated management of coastal and oceanic zones and national maritime interests;
- propose the establishment, drawing on the best scientific data available, of norms, criteria and standards for living marine resources, with special reference to over-fished species or species under threat of over-fishing;

8. GUIDELINES FOR IMPLEMENTATION

The Government of Brazil reserves the right to regulate, direct, coordinate and supervise marine scientific investigation, the preservation and conservation of the marine environment and the exploration and the sustainable exploitation of living, mineral and energy resources in jurisdictional waters and the Brazilian continental shelf.

The PNRM will be broken down into multi-annual sector plans.

The CIRM sector plans will be structured in programmes and actions, in keeping with the norms of the multiannual plan and the Union budget.

The CIRM, established under Decree No. 74.557, 12 September 1974, and governed by Decree No. 3.939, 26 September 2001, shall:

- coordinate matters relating to the attainment of the PNRM;
- support the programmes and activities flowing from the PNRM and its outcomes; and
- propose PNRM updates.

The bodies represented on the CIRM shall:

- incorporate into their plans and programmes relevant parts of the decisions and plans drawn up within the CIRM and adopt the measures necessary for the attainment of PNRM goals;
- promote the judicious use of existing bodies and means, make optimum use of existing capabilities and coordinate and integrate the respective programmes in order to avoid duplication of effort and wasting of resources; and
- prioritize CIRM programmes in incentives and initiatives designed to further the scientific and technological development of marine resources.

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National Ocean Policy of **CANADA**

DATE: 2002

PURPOSE

Canada's Ocean Strategy: to ensure healthy, safe and prosperous oceans for the benefit of current and future generations of Canadians.

ADDITIONAL INFORMATION

Published by Fisheries and Oceans Canada Oceans Directorate (Ottawa, Ontario).

3

Canada's Oceans Strategy *Our Oceans, our Future*

EXECUTIVE SUMMARY

Canada's Oceans Strategy is the Government of Canada's policy statement for the management of estuarine coastal and marine ecosystems. National in scope, *Canada's Oceans Strategy* sets out the policy direction for ocean management in Canada.

The Oceans Act provides a framework for modern ocean management. The Act calls for the Minister of Fisheries and Oceans to lead and facilitate the development of a national ocean management strategy. *Canada's Oceans Strategy* responds to this requirement, providing for an integrated approach to ocean management, coordination of policies and programs across governments, and an ecosystem approach.

Canada's Oceans Strategy defines the vision, principles and policy objectives for the future management of Canada's estuarine, coastal and marine ecosystems. Specifically, the Strategy supports policy and programs aimed at: **Understanding and Protecting the Marine Environment; Supporting Sustainable Economic Opportunities; and providing International Leadership.**

Canada's Oceans Strategy in general, and oceans governance in particular, is much more than a federal government responsibility. It is a collective responsibility shared by all.

Accordingly, oceans governance under the Strategy has core commitments to:

- work collaboratively within the federal government, and among levels of government;
- share responsibility for achieving common objectives; and
- engage Canadians in oceans-related decisions in which they have a stake.

Under this Strategy, oceans governance will advance in three specific areas. First, the federal government will develop, support and promote activities to establish **institutional governance mechanisms** to enhance coordinated, collaborative oceans management across the federal government and with other levels of government. The Strategy proposes to use new and existing mechanisms such as committees, management boards and information sharing to promote coordination in ocean management.

Second, the Strategy seeks to implement a program of **Integrated Management planning** to engage partners in the planning and managing of ocean activities. As the cornerstone of the governance approach, Integrated Management establishes decision-making structures that consider both the conservation and protection of ecosystems, while at the same time providing opportunities for creating wealth in oceans related economies and commu-

nities. It brings together the environmental, economic and social considerations by planning for sustainable use of the oceans in a safe and secure environment. In addition, Integrated Management provides the opportunity to bring together the citizens who want to be engaged in decisions that affect them.

Finally, the Strategy responds to the desire of Canadians to become engaged in ocean management activities by **promoting stewardship and public awareness**. Oceans stewardship means acting responsibly to conserve the oceans and their resources for present and future generations. Through stewardship initiatives, Canadians can actively participate in caring for our ocean resources in meaningful and positive ways.

Implementing *Canada's Oceans Strategy* will require actions under each of the policy objectives, as well as specific initiatives to promote oceans governance. Implementation will also involve new ways of looking at our ocean resources, and new ways of doing business. It requires the ongoing commitment and participation of all levels of government – federal, provincial, territorial, municipal – as well as Aboriginal organizations and communities, businesses, academia, non-governmental organizations and Canadians generally.

Canada's Oceans Strategy is based on knowledge from a growing body of ocean management experiences both nationally and internationally. The national Strategy will continue to evolve over time. Its further development and implementation will involve active collaboration with partners, and the development of a results-based management and accountability framework to measure progress, relevance and effectiveness.

INTRODUCTION

Canada's Oceans Strategy is the Government of Canada's policy statement for the management of estuarine coastal and marine ecosystems. Based on the authority and direction set out in the Oceans Act, the Strategy has been informed by experience with Integrated Management planning and Marine Protected Areas, a range of discussions and consultations with oceans stakeholders over the past four years, and emerging experience in oceans policy and oceans management in the international community.

National in scope, *Canada's Oceans Strategy* sets out the new policy direction for modern ocean management.

The Strategy will be further refined and implemented by the Government of Canada in collaboration with provincial and territorial governments; affected Aboriginal organizations and communities (including those bodies established under land

claims agreements); ocean industries such as fishing, shipping and oil and gas interests; environmental organizations and non-governmental organizations; coastal communities; and other Canadians or organizations with an interest in its development or implementation. These are the partners involved in managing Canada's oceans.

This document outlines the policy framework for *Canada's Oceans Strategy* and seeks to:

- Establish the context in which *Canada's Oceans Strategy* is being developed and implemented;
- Set out the framework of a new modern approach to oceans management for the 21st century;
- Describe the strategic approach that will be used to achieve the policy objectives; and
- Set out a series of federal activities that support the *Strategy*.

THE CONTEXT FOR **CANADA'S OCEANS STRATEGY** *Canada - A Maritime Nation*

Canada is an ocean nation whose economy, environment and social fabric are inextricably linked to the oceans and their resources. Bordered by three oceans, Canada's coastline is vast and diverse – the Pacific's multi-faceted shoreline of rugged mountains, inlets, fjords and islands – the Arctic's complex food web and habitats – the wide continental shelf of the Atlantic. Canada's oceans also define a large part of national sovereignty and are a critical element of national security.

Of equal significance are the internal marine waters of Canada, such as the St. Lawrence Estuary, the Gulf of St. Lawrence, Hudson Bay, James Bay, Strait of Georgia, and the internal Arctic waters. In addition, the oceans are affected by rivers, watersheds, and land-based activities thousands of kilometers from the coasts. Eight of ten provinces and all three territories directly border oceans and marine waterways, and over 25 percent of the population lives in coastal zones.

The richness and biodiversity of Canada's oceans provide enormous potential for present and future generations. The marine ecosystems have a remarkable diversity of species, including commercial and non-commercial fish, marine mammals, invertebrates and plants. The health of our oceans and sound management of ocean resources are not just coastal issues—they are truly national and affect all Canadians.

Canada's oceans are also a critical component of the overall global and national climate as they determine and regulate climate, and provide keys to the understanding of and adaptation to global climate change.

With over \$20 billion in annual economic activity and many billions more in ocean trade passing through our waters, Canada's oceans and their resources are already significant contributors to the overall Canadian economy. Indeed, oceans are the lifeblood that support many coastal communities and are our highways to the world's market places. As they are also the backbone of the global transportation system, safe and secure navigable waters are critical to the effective functioning of Canada's national economy.

Oceans also offer the potential for numerous opportunities to generate significant economic, social and cultural benefits. Examples of the potential are found in fisheries (commercial, recreational and Aboriginal), aquaculture, tourism, transportation, shipbuilding, oil and mineral production, education and research. By developing this potential, Canada is in a position to provide knowledge, management advice and technical expertise for the world community. In addition, determining, understanding and regulating the activities being conducted in our ocean areas of jurisdiction is critical to ensuring national security, sovereignty and defense.

ENVIRONMENTAL IMPACTS ON CANADA'S OCEANS

Oceans are facing severe environmental threats from over-exploitation, pollution from land-based and sea-based activities and the alteration and destruction of habitats and ecosystems. The health of oceans is affected by sewage and pollutant discharge in marine waters, excessive growth of marine plant life, alien species introduction and changes to hydrology and sediment flow.

Despite efforts to improve environmental quality of coasts and seas both in Canada and abroad, degradation of ocean environments has continued. As well, the lack of an integrated approach to using this shared resource has often caused conflict among economic, environmental and social objectives. Management of ocean resources in a global, sustained and integrated fashion has remained elusive, despite various international agreements and initiatives.

INTERESTS IN CANADA'S OCEANS

Today, the growing number of different and competing interests makes management of Canada's oceans much more difficult and complex. Where once traditional fishing and shipping industries were nearly alone, they now share oceans with many others. The conflicts among ocean uses make it essential to ensure that policies are cohesive.

Many stakeholders, particularly those who wish to develop the oceans and their resources, are concerned about the lack of a common vision and common set of principles. As a result, many stakeholders feel that opportunities are somewhat complicated and diminished for investment and development of ocean resources, especially when taken together with a large number of government departments and agencies with oceans related mandates and regulatory regimes.

CURRENT MANAGEMENT

Canada's oceans are governed by a complex web of laws and regulations managed by different levels of government. This governance structure points to the need for developing a unified vision and integrated approach to ocean management that effectively considers the impact of individual sector activities on each other, and on the oceans as a whole. This should be combined with developing resource management decision-making and environmental assessment approaches that take an ecosystem approach and effectively recognize the long-term cumulative impacts of human actions on the marine environment.

New governance mechanisms can also further the coordination needed with the private sector, Aboriginal groups, local communities and other oceans stakeholders' interests.

THE OCEANS ACT

The *Oceans Act* provides a framework for modern and future ocean management initiatives, and calls for the Minister of Fisheries and Oceans to lead and facilitate the development of a national ocean management strategy. *Canada's Oceans Strategy* responds to this requirement. It is designed to be implemented in such a way that it provides policy direction for an integrated approach to ocean management, coordination of policies and programs across governments and an ecosystem approach to ocean resource management and environmental assessment.

THE APPLICATION OF CANADA'S OCEANS STRATEGY

MANAGING CANADA'S OCEANS

Canada's oceans are part of the "global commons." Like other ocean nations, Canada is required to manage these resources in a manner that recognizes the international laws, agreements and standards for ensuring order on the seas, beyond the waters of any one state. Management of Canada's oceans is based on both national and international obligations and commitments.

INTERNATIONAL

The *United Nations Convention on the Law of the Sea* (UNCLOS) is considered the international constitution of the oceans incorporating both the codification of customary international law and negotiated treaty commitments relating to the world's oceans. It provides a comprehensive framework for the regulation of the oceans. It deals with a range of activities such as access to the seas, navigation, protection and preservation of the marine environment, pollution prevention and control, exploitation of living and nonliving resources, conservation, scientific monitoring and research, and the outline of a dispute settlement mechanism. Although the Government of Canada has not yet ratified the 1982 UNCLOS, it is committed to its eventual ratification. Already, a significant proportion of UNCLOS provisions are reflected in Canadian legislation.

There are also numerous other international instruments, processes and institutions dealing with the full range of ocean issues in which Canada is actively engaged to promote and support its interests and responsibilities. These rights and obligations under international conventions and agreements are fully recognized and respected in *Canada's Oceans Strategy*. The *Strategy* is also designed to advance the

international drive to strengthen the global oceans governance regime.

THE GOVERNMENT OF CANADA

Almost every federal department and agency in Canada is involved in the management of the oceans through policies, programs, services, or regulations. In addition to oceans management, federal departments and agencies have specific authorities, policies and program responsibilities in a wide range of diverse areas such as resource management, sovereignty and defense, trade and industrial development, northern development, transportation and safety, and health and environment.

The *Oceans Act* provides the legislative foundation for *Canada's Oceans Strategy*. It provides the basis for oceans governance by:

- defining maritime territory in accordance with the *United Nations Convention on the Law of the Sea* (UNCLOS), including the declaration of the exclusive economic zone (EEZ);
- assigning a leadership role to the Minister of Fisheries and Oceans in the stewardship of Canada's oceans, and the development of a national strategy for the management of all activities in or affecting estuarine, coastal and marine areas; and
- clarifying and consolidating federal oceans management and responsibilities, as well as oceans responsibilities not otherwise assigned.

At its core, the *Oceans Act* has a principle-based approach, premised on collaboration and co-operation, and respect for assigned constitutional and legislative responsibilities, including existing Aboriginal and treaty rights.

The *Preamble* of the *Oceans Act* guides *Canada's Oceans Strategy*. The *Preamble* states that:

- Canada promotes the understanding of oceans, ocean processes, marine resources and marine ecosystems to foster the **sustainable development** of the oceans and their resources;
- Canada holds that conservation, based on an **ecosystem approach**, is of fundamental importance to maintaining biological diversity and productivity in the marine environment;
- Canada promotes the wide application of the **precautionary approach** to the conservation, management and exploitation of marine resources in order to protect these resources and preserve the marine environment;
- Canada promotes the **integrated management** of oceans and marine resources;
- Canada recognizes that the oceans and their resources offer significant opportunities for **economic diversification** and the generation of wealth for the benefit of all Canadians, and in particular for coastal communities; and
- The Minister **in collaboration** with other ministers, boards and agencies of federal, provincial and territorial governments, and with affected Aboriginal organizations, coastal communities and other persons and bodies (including those bodies established under land claims agreements), is encouraging the development and implementation of a national strategy for the management of estuarine, coastal and marine ecosystems.

PROVINCIAL, TERRITORIAL AND LOCAL GOVERNMENTS

While the federal government has broad responsibilities for the stewardship and management of Canada's oceans and resources, there are equally important roles and responsibilities for provincial, territorial and local governments. Provinces have primary responsibility for provincial lands, the shoreline and specific seabed areas. Municipalities have responsibility for many of the land-based activities affecting the marine environment.

Canada's Oceans Strategy provides the basis for a new strategic management framework to involve all levels of government and interests to work on achieving common objectives.

ABORIGINAL

The *Constitution Act*, 1982 recognizes and affirms existing Aboriginal and treaty rights. The *Oceans Act* contains an explicit provision to provide certainty that it does not abrogate or derogate from those rights. *Canada's Oceans Strategy*, flowing as it does from the Act, provides this same certainty.

First Nations, Inuit and other Aboriginal groups and organizations have long held a special relationship and connection with the oceans. There is much to be learned from the holistic Aboriginal approach to the marine environment. Aboriginal traditional ecological knowledge is an important component of increasing understanding of the complex marine environment.

Canada's Oceans Strategy also respects the legislative responsibilities of land claim agreements that outline specific resource management responsibilities and commitments by the federal government to co-operate and collaborate with the signatories. In many cases, these agreements directly or indirectly affect or concern the oceans.

The *Strategy* provides the broad framework and active encouragement for Aboriginal groups in Canada to become engaged in ocean management. Where Treaties and Land Claims Agreements are not yet established, there are a range of opportunities for involvement and engagement of Aboriginal communities.

Specifically, Integrated Management planning offers an opportunity for First Nation communities and Aboriginal groups to become involved in ocean management decision making.

COASTAL COMMUNITIES

Canadians have expressed a desire to be more engaged in ocean management. The *Strategy* offers Canadians the opportunity for greater and more direct involvement in policy and management decisions that affect their lives. Coastal communities will be actively involved in the development, promotion, and implementation of sustainable oceans activities, as Integrated Management planning will offer this kind of direct opportunity. In this way, there is a more viable planning process, associ-

ated actions are relevant to the area, and there is “on the ground” expertise and capacity for implementation, monitoring and compliance promotion.

OCEAN INDUSTRIES

Canada’s oceans support a diverse network of commercial activity, including commercial and sport fishing, aquaculture, high technology instrument development, shipbuilding, oil and gas exploration and extraction, seabed mining, defense production, tourism and recreation, boating, marine transportation and ports, marine navigation, and communications. *Canada’s Oceans Strategy* aims to promote the development of private/public partnerships and

standards that will support existing and emerging ocean industries, and ensure the conservation and sustainability of ocean resources.

OCEAN INTERESTS

There are also non-government organizations, interest groups and academics with a wealth of expertise that can provide informed advice on matters such as economic, environmental and social issues, science and technology, community living, jobs and growth, and public education. *Canada’s Oceans Strategy* is designed to actively encourage the participation of these groups and individuals in its evolution and implementation.

POLICY FRAMEWORK

As a policy framework, *Canada's Oceans Strategy* has the overarching goal -- **to ensure healthy, safe and prosperous oceans for the benefit of current and future generations of Canadians.**

The policy framework is intended to guide the coordination and management of ocean activities. All levels of government retain respective legislative and jurisdictional responsibilities and authorities.

PRINCIPLES

As set out in the *Oceans Act*, the *Strategy* is based on the three principles of **sustainable development, integrated management and the precautionary approach.** These three principles should guide all ocean management decision making.

Application of these principles is premised on a sound base of scientific and traditional knowledge. The scientific knowledge required to make oceans management decisions encompasses both natural and social dimensions. It is derived from sources inside and outside Canada and its governments. Under the *Strategy*, the Government of Canada commits to ensuring that the following principles serve as guides and tests for assessing future oceans management decisions.

The **sustainable development** principle rests at the core of *Canada's Oceans Strategy*. It recognizes the need for integration of social, economic and environmental aspects of decision making, and that any current and future ocean resource development must be carefully undertaken without compromising the ability of future generations of Canadians to meet their needs.

While this principle applies to all oceans management considerations, from an operational perspec-

tive, this *Strategy* commits the Government of Canada to ensure its implementation through the process of Integrated Management planning. (Implementation details are available in the *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada*).

As a principle, **Integrated Management** is a commitment to planning and managing human activities in a comprehensive manner while considering all factors necessary for the conservation and sustainable use of marine resources and the shared use of ocean spaces.

Integrated Management is central to *Canada's Oceans Strategy*, as it contains commitments to the long-term objective of developing large-scale and local Integrated Management plans for all of Canada's oceans, starting with priority areas and building on experience as resources and capacity permit.

Integrated Management also embodies several other important principles, concepts and approaches, such as:

- integrated data collection, monitoring, research, synthesis, and information sharing, communication and education (the full range of relevant knowledge is applied to the planning process and decision-making process, including scientific studies and local and traditional knowledge);
- inclusive and collaborative oceans governance structures and processes;
- flexible and adaptive management techniques to deal with uncertainty and improvements in the understanding of marine species and ecosystems; and
- planning on the basis of natural and economic systems together, rather than principally on

political or administrative boundaries (Integrated Management plans may include more than one province or territory or span international boundaries).

The **precautionary approach**, defined in the Oceans Act as “erring on the side of caution,” is a key principle to be applied in the management of ocean activities. Under the *Strategy*, the Government of Canada is re-affirming its commitment to promoting the wide application of the precautionary approach to the conservation, management and exploitation of marine resources in order to protect these resources and preserve the marine environment. *Canada's Oceans Strategy* will be governed by the ongoing policy work being undertaken by the Government of Canada.

Further commitments in this Strategy clarify the application of this principle from an oceans perspective, namely:

- the promotion of an ecosystem-based approach to management;
- the application of conservation measures necessary to maintain biological diversity and productivity of the marine environment, including the establishment of marine protected areas;
- the promotion of progressive improvement in understanding of the marine environment; and
- the priority given to maintaining ecosystem health and integrity, especially in the case of uncertainty.

OBJECTIVES

Three policy objectives or outcomes have been identified for the advancement of oceans management activities:

- **Understanding and Protecting the Marine Environment;**
- **Supporting Sustainable Economic Opportunities; and**
- **International Leadership.**

UNDERSTANDING AND PROTECTING THE MARINE ENVIRONMENT

Successful oceans management depends on *understanding the marine environment* – an understanding that is predicated on solid science, which in turn depends on rigorous peer review. The ability to understand and protect marine ecosystems also depends on the ability to bring together the various disciplines of the marine sciences.

Science support for oceans management is important for delineating ecosystem boundaries, identifying key ecosystem functions and components, developing predictive models and risk assessment techniques, developing ecosystem-based management objectives, developing performance indicators, and assessing the state of ecosystem health. Modern oceans management requires integrating social and environmental information so that human activity is better factored into sound decision-making.

Other key information sources include the federal marine fleets, the fishing industry, community knowledge, and the traditional ecological knowledge shared by Aboriginal peoples.

Integrating diverse and complex information, supplemented by new research to improve understanding of the marine environment (particularly of marine ecosystems), contributes to the advancement and management of oceans resources. Sharing that knowledge with the Canadian public is an important element of enhancing public awareness and engaging public debate.

Protecting the marine environment is the corollary of improved understanding of the marine environment. The broadly defined stewardship responsibility is designed to ensure that resources of the oceans are managed wisely, respect the stated principles, and protect oceans for the benefit and enjoyment of future generations. Protection must consider the degradation of the marine environment including, physical alteration and destruction of marine habitat.

Pollutants entering the oceans are also a major concern. Over 80 per cent of marine pollution is from land-based sources. Sea-based sources of

marine pollution also warrant additional attention and action.

There are also unique, sensitive, and ecologically significant areas of the marine environment that require special protection and remediation. Recovery is urgent for marine species currently threatened or endangered, and for actions that keep healthy populations from becoming at risk.

The understanding and protection sections of the policy framework support the creation of a national network of marine protected areas and the establishment of marine environmental quality guidelines. These are two specific elements set out in the *Oceans Act*.

Achieving this objective, however, is much more than just establishing new programs.

It requires new approaches to collaboration across and between governments, as well as new ways of doing business for those using oceans resources and the active engagement of Canadian communities, organizations, and citizens. (These aspects are discussed in greater detail in the subsequent section on Oceans Governance).

SUPPORTING SUSTAINABLE ECONOMIC OPPORTUNITIES

The conservative estimate of ocean industries' contribution to the Canadian economy is well over \$20 billion a year. There is a very strong link between the sustainable economic opportunities objective, and that of understanding and protecting the marine environment. The health of the oceans is inextricably linked to the sustainability of economic livelihoods for coastal communities and Canadians generally. Support for sustainable economic opportunities also requires the development of a scientific knowledge base of oceans resources and development impacts. Under the *Strategy*, the Government of Canada will work with other levels of government, Aboriginal groups, industry and oceans stakeholders to develop this knowledge base and assess the economic potential for development. At the same time, the social, cultural and environmental impacts of development will be considered.

The conservation and sustainable use of **fisheries resources** is one of the key goals within this objective. So too is the development of aquaculture in a manner that supports public confidence and industry competitiveness. Fisheries managers and scientists are developing a renewed approach toward management that is based on conservation, objectives-based fisheries management techniques within an ecosystems context. This requires working more closely with commercial, recreational and Aboriginal licence holders and fleet sectors to promote greater involvement in, and responsibility for, operational management activities.

Offshore energy and mineral resource development are already contributing to the prosperity of Canada, and have enormous potential. In addition to being an important element of the overall energy supply and energy policy, offshore energy developments are directly and indirectly helping to transform economies in many communities on the east coast and in the North.

The **shipping** industry is a key transportation mechanism in Canada and offers important social and economic benefits to Canadians. In the area of shipping, Canada harmonizes marine safety and environmental policies with international maritime law, and is a major supporter of the work of the International Maritime Organization.

Canada also has an important and innovative **shipbuilding and industrial marine** industry that is a critical component of the local economy of many coastal communities and, as well, provides industrial benefits for industries across Canada. The offshore oil and gas industry, which has continued to grow since early exploration in the 1960s, is generating increasing demands for vessels of all types, and for equipment related to both exploration and development. In addition, important Canadian service industries, such as **sea-bed mapping, marine communications and data management**, have economic and knowledge potential with the added benefit of a contribution to improved oceans management. Such industrial and knowledge management benefits underscore the necessity for an integrated approach and the collaborative arrangements set out in *Canada's Oceans Strategy*.

Many coastal communities in Canada, from major cities to small villages, are increasingly turning to their coastal areas to support economic opportunity. Opportunities range from small **eco-tourism** operations to major **cruiseships** and waterfront developments. *Canada's Oceans Strategy* supports increased economic opportunities and commits to cooperation that supports its principles and objectives.

The *Strategy* also recognizes that all sustainable economic activities depend on the provision of a safe and secure operating marine environment. Without peace and security in Canadian ocean areas of jurisdiction, the wealth-generating opportunities presented by the oceans will not be realized by present and future generations.

Supporting sustainable economic opportunities is not without challenges. For example, conflicts are becoming more common over the most effective and sound uses of ocean space, most particularly in the near-shore. In addition, the cumulative effects of many stresses are not always considered and are difficult to assess. There is also an added challenge of understanding the dynamics of marine ecosystems and predicting future conditions. These challenges reinforce the need for the principles of integrated management, sustainable development, and the precautionary approach to support the sustainable economic opportunity objective. Costs of not implementing an oceans strategy include increased conflicts and competition for ocean space, lost economic opportunities and continued environmental degradation.

INTERNATIONAL LEADERSHIP

The third policy objective is **International Leadership**. Oceans, by their very nature, demand international management. International Leadership is about advancing Canadian and global ocean-related interests broadly and proactively. By influencing international priorities, decisions and processes, Canada can help ensure its sovereignty and security, sustainable ocean resources, and support social and economic interests. Canada's strong history of assisting other nations, particularly developing nations, in the sustainable development of their oceans will continue.

Several federal departments have international activities concerning oceans. It is recognized that no single department has the mandate, capacity or resources to implement all of the international oceans commitments. A high degree of consistency is required in order to maximize the returns from investments in international activities. A common understanding and consensus on international oceans priorities is necessary among federal government departments in order to advance a coherent international oceans strategy. The challenge ahead is to be more co-ordinated, better prepared and capable of responding to the many international oceans issues that demand immediate attention.

The *United Nations Fisheries Agreement* (UNFA) has emerged as a significant international agreement to complement the *United Nations Convention on the Law of the Sea* (UNCLOS). UNFA specifically addresses the management and conservation of straddling stocks (those species that occur both within the exclusive economic zone of a coastal state and in the adjacent high seas), as well as highly migratory fish stocks on the high seas. Canada has ratified UNFA and intends to ratify UNCLOS once an effective UNFA enforcement regime has been established.

There are a number of other international legal instruments, institutions, processes and initiatives dealing with the full range of ocean issues that define the international environmental agenda. For example, Canada is an active participant in the development of a new global regime for the protection of underwater cultural heritage, an active supporter and participant in the United Nations Informal Consultative Process on Oceans and Law of the Sea, and signatory to a number of International Maritime Organization conventions. In addition, Canada is an active participant in a number of international fisheries and oceans resource management organizations including the North Atlantic Fisheries Organization (NAFO), the International Commission for the Conservation of Atlantic Tunas (ICCAT), the North Atlantic Salmon Commission (NASCO), the North Pacific Anadromous Fisheries Commission (NPAFC), and the North East Atlantic Fisheries Commission (NEAFC), among others. Continuing participation in these fora will assist in advancing ways of strengthening the effective global governance of the oceans.

The “Earth Summit” of 1992 (the United Nations Conference on Environment and Development) produced Agenda 21, the global blueprint for guiding the management of the environment and development. Canada has been working with other nations to fulfill the commitments of Agenda 21, and supporting international institutional arrangements and initiatives to meet its commitments to sustainable development goals. Chapter 17 of Agenda 21 is specifically devoted to oceans, and outlines principles and objectives for oceans management. The *Oceans Act* and *Canada’s Oceans Strategy* represent a concerted effort to implement the Agenda 21 principles of sustainability, integrated management, and precaution. As such, the *Strategy* is a significant tool for addressing Canada’s international sustainable development commitments.

The *Oceans Act and Strategy* will be presented to the international community at important fora, such as the World Summit on Sustainable Development, as a framework for integrated, horizontal ocean governance. This is just one way in which Canada will continue to ensure that oceans governance remains a focal point in global sustainable development discussions.

In the international context, *Canada’s Oceans Strategy* supports and promotes effective governance and regulation, including the exercise of national sovereignty and security. The maintenance and preservation of sovereignty over national ocean space is recognized as a fundamental right in international law and is a priority for Canada. Within our maritime zones, a coordinated system of surveillance and monitoring ensures the Canada is aware of the maritime activities in progress. Strongly associated with maritime surveillance is the enforcement of national and international law within Canadian maritime areas of jurisdiction. Enforcement is fundamental to the protection of our sovereign rights and to the preservation of maritime order and security. The *Oceans Act* recognizes Canada’s maritime jurisdiction through the definition of baselines, internal waters, the twelve nautical mile territorial sea, the twenty-four nautical mile contiguous zone, the two hundred nautical mile exclusive economic zone, and the continental shelf in accordance with the 1982 Law of the Sea Convention. In particular, the Act confirms the authority for the enforcement of a federal

law that is a customs, fiscal, immigration or sanitary law within the contiguous zone. In addition, the Act grants authority to prevent entry into Canada, powers of arrest and search and seizure. A comprehensive national and international legal framework supports this requirement, as well as effective intelligence and enforcement capabilities.

It is important to highlight that a critical goal of this *Strategy* is the ability to ensure the safety and security of shipping and life at sea. Achieving this goal involves prevention through the prediction of dangerous conditions, the maintenance of safe and secure waterways, and the enforcement of Canadian sovereignty, and the capacity for emergency response that serves people, property and vessels in distress.

Canada’s Oceans Strategy will respond to the challenge of providing the improved coordination and increased capabilities needed to address immediate and future international oceans issues.

OCEANS GOVERNANCE

Canada’s Oceans Strategy in general, and oceans governance in particular, is much more than a federal government responsibility. It is a collective responsibility shared by all.

Accordingly, oceans governance under the *Strategy* has core commitments to:

- **work collaboratively within the federal government, and among levels of government;**
- **share responsibility for achieving common objectives; and**
- **engage Canadians in oceans-related decisions in which they have a stake.**

Under this *Strategy*, oceans governance will advance in three specific areas. First, the federal government will develop, support and promote activities to establish **institutional governance mechanisms** to enhance coordinated, collaborative decision-making across the federal government and with other levels of government. The *Strategy* proposes to use new and existing mechanisms such as committees, management boards and information sharing to promote coordination in ocean management.

Second, the *Strategy* seeks to implement a program of **Integrated Management planning** to better engage partners in the planning and managing of ocean activities. As the cornerstone of the oceans governance approach, Integrated Management establishes advisory bodies that consider both the conservation and protection of ecosystems, while at the same time providing opportunities for creating wealth in oceans related economies and communities. It brings together the environmental, economic and social considerations by planning for sustainable use.

Integrated Management involves comprehensive planning and managing of human activities to minimize the conflict among users. It also involves a collaborative approach and a flexible and transparent planning process that respects existing divisions of constitutional and departmental authority and does not abrogate or derogate from any existing Aboriginal or treaty rights.

The governance model proposed for Integrated Management is one of collaboration. It involves ocean management decisions based on shared information, on consultation with stakeholders, and on their advisory or management participation in the planning process. It is also based on institutional arrangements that bring together all stakeholders. Participants take an active part in designing, implementing and monitoring the effectiveness of coastal and ocean management plans, and partners enter into agreements on ocean management plans with specific responsibilities, powers and obligations. It is also recognized that in specific cases, Integrated Management and planning may be achieved through co-management.

The Framework proposes that an Integrated Management body will be composed of both governmental and non-governmental representatives with interests in a given ocean space. In coastal and ocean areas with relatively light levels of human use and impact, Integrated Management bodies may focus more on informing and consulting with local interests. In these circumstances, the Integrated Management body may mostly serve to facilitate information sharing.

As there is an increase in human activities and pressures on the marine environment, other arrangements will balance coastal and ocean uses with maximum social and economic benefits, while not exceeding ecological thresholds. In these circumstances, substantial effort will be directed towards maximizing participation of all interests and establishing an Integrated Management body whose role will be to provide decision makers with advice and also to assume part of the responsibility for implementation of the approved management plan.

Finally, the *Strategy* responds to the desire of Canadians to be engaged in ocean management activities by **promoting stewardship and public awareness**. Oceans stewardship means acting responsibly to conserve the oceans and their resources for present and future generations. Through stewardship initiatives, the government can encourage Canadians to volunteer and actively participate in the caring for ocean resources in meaningful and positive ways. Citizens also want to be engaged in decisions that affect them, and look for support for stewardship projects.

Canada's Oceans Strategy builds on an existing foundation of stewardship and public awareness activities and will continue to develop and promote national initiatives in these areas. This active participation is encouraged through the Integrated Management planning process, but also through more specific activities. Stewardship initiatives under the Strategy will be co-ordinated with others such as the National Stewardship Initiative and the Natural Legacy Agenda. As well, oceans stewardship initiatives are important for supporting Canada's international commitments under Chapter 36 of Agenda 21.

Industry is also interested in public/private sector partnerships that contribute to sustainable ocean use. Government roles in this relationship are to enable and encourage the public and private sectors to participate as completely as possible in helping to support sustainable ocean use.

STRATEGIC DIRECTIONS FOR IMPLEMENTING **CANADA'S OCEANS STRATEGY**

Implementing *Canada's Oceans Strategy* requires action under each of the *Strategy's* policy objectives:

1. Understanding and Protecting the Marine Environment;
2. Supporting Sustainable Economic Opportunities; and
3. International Leadership.

As well, the goal of the *Strategy* is to pursue specific initiatives to promote oceans governance.

Implementation of the *Strategy* challenges Canada to explore new ways of looking at our ocean resources, and new ways of doing business.

The activities currently identified within this document are examples of initiatives over a four-year period that will be undertaken by the Government of Canada in support of the *Strategy*.

The Government of Canada would like to engage in discussions on these activities to expand them beyond the federal government.

The Government of Canada invites comments to include activities that may be undertaken by and in partnership with other Canadians. These include provincial and territorial governments, municipal governments, affected Aboriginal organizations and communities, ocean industries such as fishing, shipping and oil and gas interests, environmental organizations and non-governmental organizations, coastal communities, and other individuals or organizations with an interest in oceans management and the implementation of *Canada's Oceans Strategy*.

Canada's oceans have played an important role historically and they offer much promise for the future.

Canada's Oceans Strategy invites others to work collectively to ensure healthy, safe and prosperous oceans for the benefit of current and future generations of Canadians.

ACTIVITIES

Grouped under the main policy objectives of *Canada's Oceans Strategy*, the intention is to implement the federal activities over a four-year period. Advancing these activities requires varying levels of support. Some simply require doing business in new ways through the establishment of committees or conducting joint research. Other activities require policy approval and new financial resources. Still others may require legislative or regulatory change, or changes to the international oceans governance regime.

UNDERSTANDING AND PROTECTING THE MARINE ENVIRONMENT

- **Improved scientific knowledge base for estuarine, coastal and marine ecosystems:**
 - Improve co-operation in the collection, monitoring and disseminating of information, including the integration of traditional ecological knowledge;
 - Better understand ecosystem dynamics including climate, variability and the impact of change on living marine resources, as well as a new orientation towards operational oceanography;
 - Promote the development of a State of the Oceans Reporting system;
 - Promote academic liaison on oceans research for and among natural and social sciences, especially through the Oceans Management Research Network; and

- Strengthen the co-ordination of ocean science in support of ocean management.
- **Policies and programs aimed at marine pollution prevention:**
 - Improve existing legislation and guidelines on marine environmental protection and maintain an on-going review and assessment of the adequacy of marine pollution prevention standards;
 - Support the implementation of the *National Programme of Action for the Protection of the Marine Environment from Land-based Activities*, in particular the identified priority areas of sewage and physical alteration/ destruction of habitat;
 - Develop a more proactive implementation of the fish habitat protection policy;
 - Develop a framework for a *National Programme of Action for the Protection of the Marine Environment from Seabased Activities* to address priority areas such as ballast water discharges and the introduction of exotic species; and
 - Promote the implementation of the green infrastructure program in coastal communities to improve sewage treatment.
- **Conservation and protection of the marine environment:**
 - Develop a strategy for a national network of Marine Protected Areas;
 - Support and promote efforts to protect underwater cultural heritage;
 - Establish and implement a Marine Environmental Quality policy and operational framework under the Oceans Act; and
 - Support new legislation, regulations and policies and programs aimed at protecting marine species at risk.
- **New and emerging opportunities for oceans industries and oceans-related coastal development:**
 - Support partnerships for innovative industries;
 - Support new and emerging fisheries and aquaculture developments, industries supplying environmental equipment and services and new and emerging Canadian capability in servicing and supplying the offshore developments;
 - Support economic diversification in coastal communities to ensure participation within the larger oceans economy;
 - Promote technology transfer, market access, and business development for oceans products and services internationally;
 - Promote an "Oceans Team Canada" approach; and
 - Explore the removal of trade barriers to oceans industry development.
- **Co-operation and co-ordination to support and promote business development in the oceans sector:**
 - Examine regulatory regimes to ensure effective environmental protection and streamline regulations;
 - Examine programs that provide support for industry to ensure that oceans opportunities are captured. This includes viewing programs such as Atlantic Canada Opportunities Agency, Western Economic Diversification, Central Economic Diversification and provincial/territorial initiatives through an ocean-centered agenda;
 - Conduct economic analysis on emerging oceans industries;
 - Support National Research Council and Industry Canada development of a Marine and Ocean Industry Technology Roadmap to help identify technologies that could be supported by Technology Partnerships Canada (TPC);

SUPPORTING SUSTAINABLE ECONOMIC OPPORTUNITIES

- **Sectoral measures to improve and support governance and management of marine industries:**
 - Support and promote initiatives underway within Fisheries and Oceans Canada such as the Atlantic Fisheries Policy Review and Aquaculture development;
 - Support and promote the sustainability ele-

- Support efforts to secure Canadian industrial benefits from the development of offshore oil and gas, in partnership with the industry, provinces and other stakeholders; and
- Work with industry to develop and implement codes of practice for sustainable oceans use.

INTERNATIONAL LEADERSHIP

- **Sovereignty and security:**
 - Promote national and international collaboration to prevent illegal activity and enforce national and international obligations;
 - Support and promote the maintenance of maritime sovereignty and security; and
 - Promote a national and international marine safety network.
- **International oceans governance:**
 - Promote compliance with existing international agreements;
 - Support and promote an Arctic/circumpolar agenda through the Arctic Council;
 - Promote integrated management, stewardship and precautionary approach as the overriding principles for oceans management in international fora, including the World Summit on Sustainable Development; and
 - Develop management arrangements with bordering nations for trans-boundary coastal and marine ecosystems.
- **Share experience, promote compliance and build capacity, in particular for developing nations:**
 - Support and promote consultative processes at the United Nations;
 - Provide capacity for effective implementation of ocean management regimes such as the *United Nations Convention on the Law of the Sea*;
 - Support capacity development for developing countries for the sustainable development of marine resources and ocean spaces; and
 - Promote a coherent approach to managing oceans within the global governance system at both a regional and global level.

OCEANS GOVERNANCE

- **Establish mechanisms and bodies for oceans co-operation and collaboration:**
 - Strengthen institutional arrangements at the national and regional level;
 - Explore arrangements for strengthening relationships with Aboriginal people in oceans management;
 - Support the Minister's Advisory Council on Oceans;
 - Support the Oceans Task Group under Canadian Council of Fisheries and Aquaculture Ministers;
 - Examine the use of other federal, provincial, territorial fora in relation to ocean management such as Canadian Council of Ministers of the Environment;
 - Strengthen and expand institutional arrangements to implement *Oceans Act* responsibilities at the national and regional level; and
 - Explore options to use the Government On-Line initiative as a tool to promote oceans management co-operation and collaboration.
- **Promote Integrated Management planning for all Canada's coastal and marine waters:**
 - Support implementation of the *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada*;
 - Support the planning processes for Large Ocean Management Areas; and
 - Support coastal and watershed planning initiatives.
- **Stewardship and public awareness activities:**
 - Support regional and national stewardship initiatives, including the development of a national framework;
 - Promote engagement of Canadians in stewardship initiatives;
 - Support and promote public awareness of oceans and ocean issues;
 - Encourage public and private partnerships; and
 - Promote public education on oceans.

CONCLUSION

Canada's Oceans Strategy responds to the legislative and policy requirements outlined in the *Oceans Act* and sets the foundation for future management of Canada's estuarine, coastal and marine waters. The Government of Canada, on behalf of all Canadians, recognizes its implementation as a priority.

In summary, this *Strategy* is designed to set clearly defined objectives and stimulate partnerships among all

those with a stake in oceans management. It is based on knowledge from a growing body of ocean management experiences both nationally and internationally. The national *Strategy* will continue to evolve over time. Its further evolution and implementation will involve active collaboration with partners, led by Fisheries and Oceans Canada, with a results-based management and accountability framework to measure progress relevance and effectiveness.

Appendix 1

INTEGRATED MANAGEMENT INITIATIVES AT WORK

Integrated Management initiatives are currently underway on all three coasts. The following examples give a sense of how Integrated Management planning can be put into practice:

ARCTIC OCEAN: BEAUFORT SEA INTEGRATED MANAGEMENT PLANNING INITIATIVE (BSIMPI)

The 1984 Inuvialuit Final Agreement (IFA) established a modern resource co-management arrangement among the Inuvialuit of the Western Arctic, the Government of the Northwest Territories and the Government of Canada. The regional co-management mechanisms within this agreement have enabled the development of a multi-level joint management process for the Beaufort Sea Integrated Management Planning Initiative. This initiative involves several organizations in the scoping and planning of the BSIMPI, including: the Fisheries Joint Management Committee, the Inuvialuit Game Council, the Inuvialuit Regional Corporation, Fisheries and Oceans Canada, Indian and Northern Affairs Canada, and the Canadian Association of Petroleum Producers. Integrated Management will facilitate sound decisions addressing largescale ecosystems, multiple users and issues of marine quality. The Beaufort Sea area continues to be of immediate interest as the Mackenzie Delta/Beaufort Sea remain poised to become major contributors to the continental energy supply.

ATLANTIC OCEAN: EASTERN SCOTIAN SHELF INTEGRATED MANAGEMENT (ESSIM) INITIATIVE

The Eastern Scotian Shelf Integrated Management Initiative (ESSIM) will lead to an Integrated Oceans Management plan for this large offshore area.

Key interests in oceans use and activities include fisheries, offshore oil and gas, shipping, maritime defence operations, submarine cables, science, research and development, recreation and tourism, potential offshore minerals development, and marine conservation. Based on dialogue and input gained through the ESSIM Initiative to date, there is now discussion of a collaborative management and planning process and structure – the ESSIM Forum. This forum would function as a networked structure for engaging and linking federal and provincial government departments, boards and agencies, First Nations, oceans industry and resource user groups, community associations, non-governmental organizations, and academia in the ESSIM process.

PACIFIC OCEAN: CENTRAL COAST OF BRITISH COLUMBIA

The Central Coast of British Columbia has experienced extensive harvesting of the marine and terrestrial natural resources during the past half century. During recent years there has been increasing pressures from growth in aquaculture, cruise ship tourism, sports fishing and potential offshore petroleum. First Nations are the principle inhabitants of this extensive, sparsely populated, largely wilderness area.

Building on the results of an ongoing strategic planning initiative by the provincial government the area has been identified as an Oceans Act Integrated Management planning area. In collaboration with the provincial government, First nations, stakeholders and other interested parties, Fisheries and Oceans Canada, and other federal organizations, have commenced development of the marine information needed for integrated management of activities in the Central Coast.

National Ocean Policy of **CHINA**

DATED: May 1998

PURPOSE

- Introduce the progress of China's work in Marine Affairs to the world.
- Following the China's Ocean agenda 21, it also seeks to effectively safeguard the state's marine rights and interests, rationally develop and utilize marine resources, give positive protection to the marine eco-environment and realize the sustainable utilization of marine resources and the marine environment as well as the coordinated development of the work in this field.

ADDITIONAL INFORMATION

Issued by the Information Office of the State Council.

5

WHITE PAPER ON THE DEVELOPMENT OF CHINA'S MARINE PROGRAMMES

THE DEVELOPMENT OF MARINE AFFAIRS OF CHINA

THE OCEAN WHITE PAPER

INTRODUCTION

The ocean, which covers 71 percent of the earth's surface, is a basic component of the global bio-support system. It is also a treasure house of resources and an important regulator of the environment. It is inevitable that the development of human society will come to depend more and more on the ocean.

In the coming 21st century mankind will have new opportunities to develop and utilize the ocean. Upholding the principles of the international marine law as defined by the United Nations Convention on the Law of the Sea, maintaining the wholeness of the oceans, protecting the marine environment and guaranteeing the sustainable utilization of marine resources and maritime safety have become common norms for all the people in

the world to abide by, and a collective mission for all mankind to undertake. As a major developing country with a long coastline, China attaches great importance to marine development and protection, and takes it as the state's development strategy. It is constantly strengthening comprehensive marine management, steadily improving its marine-related laws, and actively developing science, technology and education pertaining to the oceans. China has made positive contributions to international ocean development and protection by participating positively in UN marine affairs, promoting cooperation between countries and regions and conscientiously carrying out its obligations in this field.

The year 1998 has been designated by the United Nations as the International Ocean Year, and on this occasion the Chinese government would like to introduce the progress of China's work in this particular field to the world.

I. SUSTAINABLE MARINE DEVELOPMENT STRATEGY

China has a population of more than 1.2 billion, and its land natural resources per capita are lower than the world's average. Official statistics show that China has a land area of 9.6 million sq km, making it the third-biggest country in the world. However, the land area per capita is only 0.008 sq km, much lower than the world's average of 0.3 sq km per capita. In recent years China's average annual amount of freshwater resources has been 2,800 billion cu m, ranking sixth in the world; but the amount of freshwater resources per capita is only one fourth of the world's average. China is rich in land mineral resources, but the amount per capita is less than half the figure per capita worldwide. As a major developing country with a long coastline, China, therefore, must take exploitation and protection of the ocean as a long-term strategic task before it can achieve the sustainable development of its national economy.

China boasts a mainland coastline of more than 18,000 km. There are more than 5,000 islands in China's territorial waters, each with an area of more than 500 sq m, and the islands' coastlines total more than 14,000 km. China also exercises sovereignty and jurisdiction over the vast continental shelves and exclusive economic zones (EEZs), as defined by the UN Convention on the Law of the Sea. Located in medium and low latitudes, China's sea areas have comparatively advantageous natural environmental and resource conditions. Some 20,278 species of sea creatures have been verified there. The fishing grounds that have been developed in China's sea areas cover 818,000 square nautical miles. The shallow seas and tidelands have a total area of 13.33 million ha, of which 2.6 million ha of water surface are suitable for the raising of aquatic

products in terms of the current scientific level. So far 938,000 ha are being utilized for this purpose. Scattered in these offshore waters are more than 30 sedimentation basins, with a total area of nearly 700,000 sq km. It is estimated that there are about 25 billion tons of oil resources and 8.4 trillion cu m of natural gas in these basins. More than 160 bays are spread along China's coasts, plus the deep-water stretches of coast with a total length of several hundred kilometers. Many spots along the coastline are suitable for constructing harbors and developing marine transportation. There are more than 1,500 tourist, scenic and recreational spots favorable for developing marine tourism. In addition, China's offshore areas abound in seawater resources and regenerable marine energy resources.

The China Ocean Agenda 21 formulated by China in 1996 put forward a sustainable development strategy for China's marine programs. The basic ideas of this strategy are as follows: To effectively safeguard the state's marine rights and interests, rationally develop and utilize marine resources, give positive protection to the marine eco-environment and realize the sustainable utilization of marine resources and the marine environment as well as the coordinated development of the work in this field. In this regard China abides by the following basic policies and principles:

Safeguarding the new international marine order and the state's marine rights and interests.

In February 1992 the Standing Committee of the National People's Congress (NPC) of China adopted the Law of the People's Republic of

China on Its Territorial Seas and Adjacent Zones. As China's important law in this particular field, it provides a legal basis for the country to exercise sovereignty over its territorial seas and jurisdiction over the adjacent zones and safeguard the state's safety and marine rights and interests. To uphold the new international marine legal system and the state's marine rights and interests, the NPC Standing Committee approved the UN Convention on the Law of the Sea in May 1996, and solemnly stated: "In accordance with the provisions of the UN Convention on the Law of the Sea, the People's Republic of China enjoys sovereignty and jurisdiction over the EEZs and continental shelves up to 200 nautical miles off its coasts. Together with the countries with opposite coasts or its neighboring countries, China shall, through consultation and on the basis of international laws and the principle of fairness, fix the dividing lines of each country's marine jurisdiction. China has sovereignty over all archipelagoes and islands listed in the Law of the People's Republic of China on Its Territorial Seas and Adjacent Zones. Regarding disputes over marine issues between China and its neighboring countries, the Chinese government shall, in view of the vital interests bearing on peace and development, stand for their settlement through friendly consultation. With regard to issues that cannot be solved for the time being, China stands for pigeonholing them and for strengthened cooperation and joint development."

Overall planning for marine development and control.

China will strengthen the comprehensive development and administration of its coastal zones, rationally develop and protect the offshore areas, actively participate in the development and utilization of international seabeds and oceans, and exploit the coastal land and sea areas in a unified way in order to gradually form coastal economic belts and marine economic zones, thus making the coastal areas more prosperous and developed.

Rationally utilizing marine resources and promoting the coordinated development of the marine industries.

China adopts the policy of placing equal stress on development and protection, to guarantee the

sustainable utilization of marine resources. It will comprehensively develop and utilize its marine resources, continue to explore the oceans for new resources, make use of new technologies, and form and develop new marine industries to promote the sustained, rapid and healthy development of the marine economy.

Simultaneously planning and implementing the development of marine resources and the protection of the marine environment.

China will work out a program for the coordinated development of marine resources and the protection of the marine eco-environment and, in line with the principles of "putting prevention first, combining prevention with control" and "making the causer of pollution responsible for treating it," improve the monitoring, surveillance, law enforcement and management of the marine environment. Stress will be laid on strengthening the control of land-sourced pollutants and implementing the system for controlling the total quantity of pollutants, in order to prevent the marine environment degenerating.

Reinforcing oceanographic technology research and development.

China will pay attention to basic research and marshal all necessary forces to tackle key oceanographic problems, develop marine high-techs, and constantly improve the technological levels of marine development and services. It will speed up the promotion and utilization of advanced and applicable technologies, and consistently narrow the differences between the regions in terms of the technological level of marine development. Furthermore, the discipline of oceanography will be further emphasized in institutions of higher learning, including vocational education, and oceanographic personnel of various levels will be trained. At the same time, oceanographic knowledge will be spread among the general public.

Setting up a comprehensive marine management system.

China will continue to improve its marine function zoning and planning and strengthen the scien-

tific management of marine development and protection, as well as the utilization of sea areas. Experiments in the comprehensive management of the coastal zones will be actively carried out, and a comprehensive control system will be gradually put in place.

Actively participating in international cooperation in the field of marine development.

China will conscientiously fulfill the obligations defined in the UN Convention on the Law of the Sea, actively take part in international marine affairs, promote international and regional cooperation and exchanges related to oceanic matters, and contribute its full share to the prosperity and development of the world's work in this field.

II. RATIONAL DEVELOPMENT AND UTILIZATION OF MARINE RESOURCES

In the light of the bearing capacity of marine resources, China adopts a policy of developing and utilizing them in a comprehensive way, so as to promote the coordinated development of the marine industries. In recent years China has made constant efforts to upgrade the maritime fishing, transportation, salt-making and other traditional industries. At the same time, it has spared no effort to develop the industry of marine reproduction and magriculture, offshore oil and gas, tourism, marine pharmaceuticals and other burgeoning industries. It has actively explored new marine resources as far as possible, and promoted the formation and development of some potential marine industries, such as deep-water mining, comprehensive utilization of seawater, and power generation with marine energy. In 1997 the total output value of the major marine industries, including ocean fishing, salt-making, the salt chemicals industry, marine transportation, shipbuilding, offshore oil and gas, and tourism, topped 300 billion yuan. As a result, these industries have become forces actively promoting the development of China's economy as a whole.

China's ocean fishing industry has a long history steeped in experience. In developing this sector, the country adheres to the principle of "speeding up the development of aquaculture, conserving and rationally utilizing offshore resources, actively expanding deep-sea fishing, emphasizing processing and circulation, and strengthening legal administration." Since the mid-1980s, China's saltwater aquaculture has developed rapidly, with a large increase in species and expansion of breeding areas. The output of such products rose from 1.926 million tons in 1987 to 7.91 million tons in 1997, with their propor-

tion in the total output of the maritime harvest rising from 27 percent to 36 percent. In accordance with the actual conditions of marine fisheries resources, China has actively readjusted the structure of this sector, made efforts to conserve and rationally utilize off-shore fisheries resources, and actively exploited new resources and fishing grounds, so as to make the fishing industry constantly adapt to the changes in the structure of marine resources. In 1997 the total output of China's ocean fishing industry came to 13.854 million tons. While expanding deep-sea fishing and international fishing cooperation, China adheres strictly to relevant international maritime laws, pays full attention to protection of the eco-environment and, in the light of the principle of "equality, mutual benefit, rational development of the exploitable resources, and abstention from infringement on the interests of other countries," actively develops fishing cooperation with relevant countries and regions, in order to jointly expand the fishing economy. Since the 1980s, China has established cooperative fishing relations with more than 30 countries and regions.

China attaches great importance to the protection of marine fisheries resources, and has adopted various measures to conserve such resources so as to guarantee the implementation of a sustainable marine development strategy. It has done this by instituting various closed fishing seasons, closed fishing areas, marine sanctuaries and moratorium systems, banning harmful fishing gear and methods, and restricting the size of net meshes and the proportion of young fish. In 1979 China began to adopt a fishing permit system to curb reckless fishing, and in 1987 the country began to control fishing boats'

horsepower. Since 1995 China has practiced a new midsummer moratorium system – every year during July and August fishing is banned in the sea areas north of 27 degrees north latitude. The new system has achieved encouraging economic, ecological and social results, and from this year the midsummer moratorium area will be expanded to 26 degrees north latitude and its duration will be lengthened to three months. China attaches great importance to the marine reproduction and the reproduction of fisheries resources, and has always insisted on the marine reproduction and releasing of prawns and other species, a measure which has achieved positive results.

As far back as in the 1960s China began to explore and exploit offshore oil and gas resources on its own. In the 1980s it started to absorb foreign capital and technology to develop this industry in cooperation with foreign companies. In exploiting offshore oil and natural gas, China follows the policy of placing equal stress on oil and gas, with the balance inclined slightly toward gas, combining domestic exploration and exploitation with cooperation with foreign companies, and integrating upstream and downstream. As a result, great progress has been made. By the end of 1997 China had signed 131 contracts and agreements with 67 oil companies from 18 countries and regions and imported a total capital of close to six billion US dollars for this industry. At the same time, more than 100 structures with oil and gas had been discovered, and 1.7 billion tons of oil reserves and 350 billion m³ of natural gas had been found. Twenty oil and gas fields are under development. With an offshore oil and natural gas industry in place, in 1997 China's offshore oil output exceeded 16.29 million tons, and its natural gas output stood at four billion m³.

China has worked out a policy of utilizing its deep-sea waters and coastal resources in a rational way. According to the policy, priority shall be given to the construction of harbors in deepwater coastal areas, and vigorous efforts will be made to develop marine transportation. Significant achievements have been attained in marine transportation development since the founding of New China, especially since the

implementation of reform and opening to the outside world. By the end of 1997, merchant ships had increased to 320,000 with a total dead-weight tonnage of close to 50 million, of which more than 23 million were of the fleets in foreign trade transportation. Harbor construction and marine transportation in China are based on the planning concept of constructing major waterways, harbor hubs and water transport support system. China will put special efforts into the construction of specialized berths for bulk goods such as containers, coal, oil, ore and grain, set up collection and distribution channels in the rear, speed up the establishment of a modern loading-unloading-hauling system, and construct a container transport system with advanced freight-handling technologies and featuring a combination of trunk lines with branch lines while strengthening the technical transformation of old harbors to improve their handling capacity and efficiency. At present, China has 15 harbors each with an annual handling capacity of more than 10 million tons. In 1997 the volume of freight handled by the country's major coastal harbors totaled 905 million tons. In recent years China's coastal shipbuilding industry has shown a trend of rapid development, and in 1997 China's shipbuilding tonnage ranked third in the world.

China's marine tourism development policy features relying on the coastal cities, stressing marine characteristics, and developing it region by region and sector by sector. In recent years, the coastal areas have created more than 300 marine and island tourism and recreational zones, with a variety of marine features. Marine tourism is now a burgeoning industry. In 1997 this sector received more than 10 million overseas tourists.

China was one of the world's pioneers in making salt from seawater. Some of China's new industries are associated with this aspect of marine resources development and exploitation: salt, salt chemicals, direct seawater utilization and seawater desalination. With an area of 430,000 ha, China's salt pans produced 29.281 million tons of raw salt in 1997. The major salt chemical products are potassium chloride, bromide, anhydrous nitre and magnesium chloride. The

annual output of potassium chloride and bromide each exceeds 500,000 tons. In addition, Tianjin, Dalian, Qingdao, Yantai, Qinhuangdao and other coastal cities are now making efforts to use more seawater directly as industrial chilled water and non-potable water, which is of great significance for alleviating China's serious shortage of freshwater resources.

The Chinese government has listed the exploration and exploitation of the mineral resources of the Pacific Ocean as a long-term development project for which it intends to offer special investment. Meanwhile, it has established

a special institution in charge of coordinating and administering China's exploratory and exploitative activities in the international seabed region. China is the fifth-largest investor in international efforts for seabed development, and has obtained an exclusive exploration and development area of 75,000 sq km. In the future, China will continue to actively participate in the administration and development of international seabed areas, and develop new exploration and exploitation technologies to make its due contribution to the peaceful utilization of international seabed resources for the benefit of the whole of mankind.

III. THE PROTECTION AND PRESERVATION OF MARINE RESOURCES

China attaches great importance to the protection of the marine environment. Organs and laws aimed at marine environmental protection have been gradually established, and the people's consciousness of the importance of protecting the marine environment and abiding by the laws have been further strengthened, both of which have speeded up the work of marine environmental protection. As a result, the momentum of serious marine pollution has been slowed; the environmental quality of some of the country's sea areas has been improved; and most offshore waters are of good quality, despite the drastic increase in the amounts of pollutants brought about by the booming economy of the coastal areas.

In 1982 the Marine Environmental Protection Law of the People's Republic of China, a basic law of the country to protect the marine environment, was approved by the NPC Standing Committee to prevent damage to the marine environment resulting from coastal construction projects, offshore oil exploration and exploitation, navigation of ships, wastes dumping, and discharge of land-sourced pollutants. Later, several concrete regulations were issued by the Chinese government, such as the Regulations of the People's Republic of China on the Prevention and Control of Marine Pollution Caused by Ships, Regulations of the People's Republic of China on Environmental Protection and Control Pertaining to Offshore Oil Exploration and Exploitation, Regulations of the People's Republic of China on Control of the Marine Dumping of Wastes, Regulations of the People's Republic of China on the Prevention and Control of Environmental Pollution from Ship-breaking, Regulations of the People's Republic of China on the Prevention and Control of Pollution Damage to the Marine Environment from

Land-Sourced Pollutants, and Regulations of the People's Republic of China on the Prevention and Control of Pollution Damage to the Marine Environment from Coastal Construction Projects. In addition, a dozen rules and standards were enacted concerning marine environmental protection by government departments. All of these laws, regulations and rules have formed a legal framework for marine environmental protection. Besides, programs and plans for marine environmental protection, professional plans for the protection of wetlands and biological diversity, an overall marine monitoring network and a nearshore environmental monitoring network have also been put in place by related state organizations.

In recent years, an administration system for marine environmental protection has been gradually set up: State environmental protection departments are in charge of marine environmental protection for the whole country; state marine administrations are responsible for the organization of survey, monitoring and surveillance of the marine environment, the conduct of scientific research and the prevention of pollution damage to the marine environment resulting from offshore oil exploration and exploitation and the dumping of wastes at sea; state harbor administrations are responsible for the supervision, investigation and disposal of pollutant discharge by ships, the surveillance of harbor waters and the prevention of pollution damage to the marine environment caused by vessels; state fishing port administrations are responsible for the supervision of pollutant discharge by fishing boats and the surveillance of fishing grounds; environmental protection organs of the armed forces are responsible for the supervision of pollutant discharge

by military vessels and surveillance of naval port waters; and environmental protection organs of the local people's governments in coastal areas are responsible for the environmental protection work of preventing pollution damage resulting from coastal construction projects and land-sourced pollutants. This coordinated network plays an important role in the implementation of the related laws and the efficient protection of the marine environment.

China carries out the policy of putting prevention first and combining prevention with control in managing existing marine pollution. While endeavoring to make a success in the protection of marine biological resources and the prevention and control of marine pollution, China makes the prevention and control of land-sourced pollution the focal point of its marine environmental protection work. A series of regulations have been drawn up to check land-sourced pollutant emission, and enhance the monitoring, surveillance and control of the main pollutant-emission outlets. Large and medium-sized cities have paid constant attention to readjusting the distribution of industries, improving technical transformation, and recovering waste gas, waste water and industrial residue (the «three wastes») for multipurpose use. Enterprises creating serious pollution are required to take effective measures to control it within a definite period of time; otherwise they have to close down, suspend operations, merge with other plants, change their products or move to other places. Besides, a number of sewage treatment plants have been built to control new pollution sources and reduce the amount of land-sourced pollutants dumped into the sea. To prevent marine pollution resulting from ship and port discharge, in addition to the formulation of the Crash Program to Combat Ships' Oil Pollution, oil-water separators have been installed aboard ships of all types in accordance with relevant stipulations, and oil-polluted water treatment equipment, including emergency treatment equipment, has been installed at all sea ports. This equipment can help dispose of 3.7 million tons of oil-polluted water from vessels and recover 42,000 tons of waste oil a year. Similarly, to prevent marine environment pollution resulting from offshore oil exploitation, besides the formulation by offshore oilfields of the Crash Program to Com-

bat Oil Spills During Offshore Oil Exploration and Exploitation, oil-polluted water treatment equipment has been installed on all drilling platforms, engine-room oil-water separators have also been installed aboard all drilling ships, and oil barriers, chemical de-oiling agents and spill recovery ships provided in all China's offshore oilfields.

As one of the contracting parties to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters signed in 1972 in London, China attaches great importance to the fulfillment of the provisions under the convention and is steadily improving its control of the dumping of wastes into the sea. So far, China has designated 34 dumping areas for dredged materials of the third category and four areas for midair oil discharge. It has issued about 2,000 dumping permits and tightened up the monitoring of the environmental quality of dumping areas. Besides, it has strictly prohibited the disposal of any radioactive substance and incineration of toxic waste at sea, and plans to gradually stop the dumping of industrial waste into the sea.

To protect the ecological environment of fishing grounds, the Water Quality Standards of Fishing Grounds have been drawn up by the Chinese government and the Regulations on the Supervision and Control of the Environmental Sanitation of Shellfish-Raising Areas and other regulations have been drawn up by departments concerned. In addition, a sequence of measures have been taken to further strengthen the eco-environmental protection of spawning grounds of saltwater fish and shrimps, feeding grounds, wintering grounds, migration channels and aquatic farms. A multilevel setup for the protection of the fisheries environment has been established by the state and coastal region authorities, including 15 monitoring stations at and above the provincial level around the country and a number of marine life protected areas in major fishing grounds. In 1995 the department concerned worked out the Procedures for the Administration of Marine Reserves, based on the guiding principle of "conservation first, appropriate exploitation and sustainable development," and divided each marine nature reserve into core, buffer and experimental zones, in order to improve the building and management of the marine nature reserves. At present

59 marine protected areas, covering gulfs, islands, estuaries, coasts, coral reefs, mangrove swamps, coastal lagoons, marine natural history sites, seaweed beds and wetlands, have been built, covering a total area of 12,900 sq km.

China is one of the countries which are most vulnerable to marine calamities. The economic losses suffered by the coastal areas from storms, tidal waves, ice floes, seaquakes, coastal erosion, typhoons, fog and red tides account for about 10 percent of the total of all natural disasters afflicting China. After making unremitting efforts for decades, China has installed a basic marine environment and disaster observation network and forecast-alarm system, covering both offshore areas and distant waters, with the cooperation of several departments. This network engages in analysis, forecast and grading of major marine calamities, and runs maritime rescue centers and coastal emergency stations. As a result, a marine disaster alleviation framework has been put in place.

The rapid economic growth and steady population increase in the coastal areas, coupled with the constant expansion of marine exploitation, mean that China continues to face problems of marine environmental protection and disaster alleviation. To cope with this situation, China has adopted the Ninth Five-Year Plan (1996-2000) and Long-Term Program to the Year 2010 for National Marine Environmental Protection, which further advances the three major policies of "putting prevention first,

combining prevention with control," "making the causer of pollution responsible for treating it" and "improving the control of the environment." The following are the principal measures China will take to protect the marine environment:

- Control of pollution sources will be enhanced by setting quality standards for the water in all parts of rivers which flow into the sea, establishing a system to control the total amount of pollutant discharge into the key sea areas, identifying the marine discharge indices of the main pollutants, and strictly restricting discharge above the initial amount;
- The investigation, monitoring and control of marine pollution will be stepped up by improving the pollution monitoring network, strengthening surveillance by satellites, ships and offshore monitoring stations, and perfecting the law enforcement system;
- Fees will gradually be levied for pollutant discharge, and all walks of life will be encouraged to develop marine environmental protection technologies and industries;
- The construction of the system of marine monitoring and disaster forecasting and alarm will be stepped up, complete with an observation network, a data collection and communication network, a forecast-alarm and service network and a data quality control system.

IV. THE DEVELOPMENT OF OCEANOGRAPHIC SCIENCE, TECHNOLOGY AND EDUCATION

In recent years China has made further efforts to promote the investigation and exploration of marine resources and the marine environment, search actively for new exploitable resources, study new techniques and methods of marine resources exploitation and protection, train technical personnel in marine development and protection, and spread oceanographic knowledge among the general public in order to rouse the whole nation to protect the marine environment.

On the basis of a multidisciplinary oceanographic research setup, which consists of 109 research institutes and 13,000-some research personnel, China has many achievements to its credit in oceanographic survey and research, studies in basic oceanographic science, development and protection of ocean resources, marine monitoring technologies and manufacturing of oceanographic technical equipment.

Since the founding of the People's Republic of China in 1949 a large amount of work has been done in the field of oceanographic surveys and research, which started in offshore areas with surface observation of the sea and later expanded to deep-sea regions by means of aerospace remote sensing and underwater detection, as well as surface observation. As early as in the period 1958-1960 a national comprehensive survey of China's offshore waters was made; later, from 1980 to 1986, a comprehensive survey of coastal zones and shoals resources was conducted nationwide, along with the launching of a number of pilot projects on the comprehensive development and utilization of coastal zones; and from 1988 to 1995 a general investigation of the country's island resources and an experiment on their comprehensive development were carried out.

China signed the Antarctic Treaty in 1983 and began to make surveys of the Antarctic and the surrounding sea areas in 1984. By 1997 the country had completed 14 programs of scientific investigation in this region, using the Great Wall and Zhongshan survey stations as bases. Thus, China has made positive contributions to the world's peaceful exploitation of the Antarctic. In 1996 China joined the International Scientific Committee on North Pole Research, and has taken an active part in international cooperation projects in the Arctic, such as "The Role of the Polar Region in Global Change."

With more attention paid to the study of the inshore shelf oceanography, China has established a multidisciplinary oceanographic research system with regional characteristics. Under the direction of the oceanographic development strategy and the support programs and plans for the development of oceanography drawn up by relevant state departments, marked progress has been made in recent years in physical oceanography, biological oceanography, marine geology and marine chemistry. These achievements have provided scientific directions and references for the promotion of offshore fishing and oil and gas exploitation, protection of the marine environment, and reduction and prevention of marine disasters.

China makes vigorous efforts for the development of oceanographic technologies, building up an oceanographic technology system focusing mainly on the marine environment, exploration and exploitation of marine resources, and general marine engineering, and covering more than 20 technological fields. The country has now turned its attention to implementing a marine high-tech program, a program for tackling key problems in marine science and technology and one for marine development by reliance on science and technol-

ogy. In its marine high-tech research China gives priority to technologies covering marine monitoring, marine exploration and resources exploitation, deep-sea exploration and marine biology. The program for tackling key problems in marine science and technology centers on fields directly related to modern marine development, such as sustainable exploitation of the resources and environment of coastal zones, desalinization of seawater, exploitation of marine energy and comprehensive utilization of seawater resources. In 1996 government departments concerned jointly formulated the National Plan for Implementing the "Program for Marine Development by Reliance on Science and Technology" in the Ninth Five-Year Period (1996-2000) and to the Year 2010, which focuses on research, development and dissemination of the technologies of marine reproduction and mariculture, fine processing of marine biological resources, exploration and extraction of marine pharmaceuticals and exploitation of chemical resources in seawater. Through implementation of this plan, China hopes to foster marine technology enterprises, improve the productivity of the marine industries, and make the technological progress factor rise from 30 percent to 50 percent in the output increase of the marine industries.

China has basically evolved an oceanographic education system embracing professional education, vocational education and popular knowledge education. Oceanography as an area of study is taught in 37 institutions of higher learning and 29 secondary specialized schools in China, training large numbers of technical and managerial personnel. The vocational schools, offering courses in more than 20 oceanographic fields, have trained more than 8,000 people in the past three years. The mass media is frequently

used in China to inform young people about oceanographic topics and educate the people living in coastal regions in the proper way to exploit marine resources and protect the marine environment.

In addition, a service system providing oceanographic data and information headed by the National Oceanographic Information Center has been established in China in the wake of the progress in the past dozens of years in this field; it provides comprehensive information services for ocean development, oceanographic research and marine environmental protection. Besides, in the early 1990s China built up a basic network jointly run by government departments concerned, enterprises, research institutes and coastal zones to promote oceanographic information exchanges.

To give a further boost to oceanographic technology, offshore development and marine environment protection, the Chinese government has worked out the Medium- and Long-Term Program for the Development of Oceanographic Science and Technology, the Oceanographic Technology Policy (Blue Paper) and a number of concrete development plans. The main tasks for oceanographic technology development in the future are to: strengthen research into basic oceanographic science; tackle the key technologies of marine resources exploitation and environmental protection; promote the application of oceanographic technologies to marine industries; improve marine resources development and service support for marine disaster prevention and reduction; improve marine environmental protection; and narrow the gap between China and the developed countries in oceanographic technology.

V. THE IMPLEMENTATION OF A COMPREHENSIVE MARINE MANAGEMENT

The UNCED Agenda 21, formulated at the United Nations Conference on Environment and Development in 1992, recommends that a comprehensive marine management system be established by countries with sea coasts to ensure sustainable utilization of the sea and coordinated development of the marine programs. This recommendation has received endorsement from all the countries in the world, including China. In recent years China has established and perfected state marine management organs as well as local organs in coastal regions, with a fairly large contingent of personnel engaged in marine law enforcement, management, monitoring and scientific research. Marine-related laws and regulations have been formulated and comprehensive management exercised.

China has also improved its legislation work concerning maritime matters. The National People's Congress has adopted the Law of the People's Republic of China on Its Territorial Seas and Adjacent Zones, Marine Environmental Protection Law of the People's Republic of China, Maritime Traffic Safety Law of the People's Republic of China, Fisheries Law of the People's Republic of China, Mineral Resources Law of the People's Republic of China and other related laws. The State Council has promulgated administrative regulations, encompassing the Regulations on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises, Regulations on the Administration of Sino-Foreign Oceanographic Surveys, Regulations Governing the Laying of Submarine Cables and Pipelines, and Procedures for the Registration and Administration of Mineral Resources Survey Zones and

Sectors. In content, these laws and administrative regulations are all consistent with the principles and relevant provisions contained in the UN Convention on the Law of the Sea. The formulation and implementation of these laws, rules and regulations has, on the one hand, protected China's state sovereignty and marine rights and interests, and on the other, promoted the rational development of marine resources and the effective protection of the marine environment. Comprehensive management of China's marine areas is beginning to be contained within a legal framework.

Aiming at the scientific, effective and comprehensive management of marine areas, from 1989 to 1995 a total of 3,663 marine zones have been divided into different functional types by the relevant departments of the central and coastal area governments, encompassing development and utilization zones, control and protection zones, nature preservation zones, special function zones and reserved zones. From 1991 to 1994, these departments worked out the National Plan for Marine Development, in which the strategic objective of marine development, marine industrial production and distribution planning, and regional marine development planning were put forward, along with policies and measures to promote marine development.

In recent years, China has achieved gratifying successes in comprehensive management experiments in the coastal zones. The Comprehensive Survey of China's Coastal Zones and Tideland Resources, which was carried out from 1979 to 1986, has accumulated abundant infor-

mation for further efforts to be made in this field. Since 1994, construction of the Coastal Zone Model Comprehensive Management Area has been going on in Xiamen, with joint efforts by the Chinese government, the UN Development Program (UNDP) and other organizations. This project, which has achieved good results, has been praised by international organizations and provided experience for China and other countries to draw on for work in this regard. In 1997, China again cooperated with the UNDP in coastal zone comprehensive management experiments carried out in Fangcheng in the Guangxi Zhuang Autonomous Region, Yangjiang in Guangdong Province and Wenchang in Hainan Province.

The basic objective of comprehensive marine management is to ensure a healthy marine environment and the sustainable utilization of marine resources. To make a greater success in this, China will make further efforts in this field, as follows:

- It will perfect the legal system pertaining to the use and administration of sea areas;
- It will set up and perfect an information system to bolster comprehensive marine management, and expand the survey and appraisal of marine resources and the marine environment;
- It will formulate large-scale offshore functional divisions and plans for comprehensive marine development and protection;
- It will set up an overall policy-making mechanism to promote the coordinated development of marine programs;
- It will gradually perfect the multi-functional force of marine supervision and law enforcement personnel so as to form an integrated air, sea and onshore marine surveillance and management system;
- It will mobilize people from all walks of life to take part in the protection of marine resources and the marine environment and enhance their consciousness of the need to cherish and protect the ocean.

VI. INTERNATIONAL COOPERATION IN MARITIME AFFAIRS

As the world's oceans are an integral whole, the research, development and protection of the oceans require common efforts by all countries in the world. As an important developing country, China is well aware of its responsibilities and obligations concerning international maritime affairs. China has consistently insisted that the ocean be peacefully utilized, and jointly developed and protected, and disputes over maritime matters be settled in a fair manner. China has always taken an active part in international and regional maritime affairs, promoted cooperation and exchanges in this field, conscientiously fulfilled its duties and contributed its share to international development of the oceans.

China has always supported and actively participated in the various forms of marine-related activities promoted by the United Nations. China has joined nearly 20 international organizations, including the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (UNESCO/IOC), Scientific Committee on Oceanic Research (SCOR), Commission on Maritime Meteorology (CMM), International Maritime Organization (IMO), UN Food and Agriculture Organization (FAO), North Pacific Marine Science Organization (PICES), and Pacific Conference on Science and Technology (PACON). China has also engaged extensively in cooperation and exchanges in maritime affairs with scores of countries in the world.

In addition, China has attended all the sessions of the Third Conference on the Law of the Sea of the United Nations (UNCLOS) and joined the formulation of the United Nations Convention on the Law of the Sea, thus becoming a contracting

party to the latter. It has also attended the meetings of the preparatory committees on the International Seabed Authority (ISA) and the International Tribunal on the Law of the Sea. China took part in the establishment of the ISA and was elected as one of its first B-level council member states. As one of the first investors in international seabed development, China has put large amounts of capital, technology and qualified personnel into seabed exploration, which has not only safeguarded China's rights and interests in the international seabed but it also constitutes a contribution to man's endeavors to exploit marine resources. Moreover, a Chinese scientist was elected as one of the first judges of the International Tribunal on the Law of the Sea, playing a positive role in international marine affairs.

China sets store by the protection and management of the high seas and their resources. From 1993 to 1995, China participated in the formulation of the Agreement for the Implementation of the Provisions of the December 10, 1982 *United Nations Convention on the Law of the Sea* Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. China has successively engaged in negotiations with Russia, the United States and Japan on the development and protection of the fisheries resources of the Bering Sea, and signed and ratified the Convention on the Conservation and Management of Pollack Resources in the Central Bering Sea. In order to protect fisheries resources on the high seas, China has taken part in international activities to protect tunas, whales and other endangered species of marine life, acceded to the International Convention for the Conservation of Atlantic Tunas, and participated in the formulation of the Agreement to Promote

Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas.

Oceans being a main artery across the world, international cooperation in sea transportation is of great importance for promoting the inter-flow of commodities and economic development globalwide. As a member of the IMO China has signed bilateral maritime transportation agreements with 51 countries, making positive efforts to promote international cooperation and exchanges in maritime transportation. At the 16th to 20th sessions of the IMO, China was successively elected as an A-level council member state. China has also acceded to the 30-some conventions formulated by the IMO, such as the 1965 Convention on Facilitation of International Maritime Traffic, 1990 International Convention on Oil Pollution Preparedness, Response and Cooperation, International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended, 1974 International Convention for the Safety of Life at Sea, International Convention for the Prevention of Pollution from Ships, 1973, as modified by the protocol of 1978 relating thereto (MARPOL, or 73/78 Convention on Pollution Convention), Athens Convention Relating to the Carriage of Passengers and Their Luggage by Sea, 1974, and International Convention for the Unification of Certain Rules of Law with Respect to Collision Between Vessels.

China has also taken part in global oceanographic activities, including the GSMMP (global studies and monitoring of marine pollution), the TOGA (tropical ocean and global atmospheric project), the WOCE (world ocean circulation experiment), the JGOFS (joint global ocean flux study), the LOICZ (land-ocean interaction in the coastal zone), and the GLOBEC (global ocean ecosystem dynamics), making positive efforts to promote worldwide oceanographic cooperation. From 1985 to 1990, China sent three ships and more than 300 scientific workers to conduct the coupled ocean and atmospheric response experiment in the tropical Western Pacific (COARE). Large amounts of scientific data were obtained, providing important materials for understanding the influence of that kind of response in the Western Pacific's "Warm Pool" on global climate

changes, for improving global ocean and climate forecast modes and studying the El Niño Phenomena. China joined the North Pacific Marine Science Organization (PICES) and the Regional Committee for the Western Pacific of the Intergovernmental Oceanographic Commission in 1990 and 1992, respectively. China also joined the Working Group on Marine Resources Conservation of the Asia-Pacific Economic Conference and other regional organizations, as well as the Global Ocean Observation System (GOOS) initiated by the UNESCO/IOC and other international organizations, and helped to initiate and organize the Northeast Asia Ocean Observation System.

Since the 1980s, China has engaged in extensive scientific cooperation in marine projects with dozens of countries, including the United States, Germany, France, Canada, Spain, Russia, the DPRK, the ROK and Japan, resulting in fruitful achievements in projects concerning the deltas of the Yangtze and Yellow rivers, Kuroshio, air-sea interaction, and the bio-diversity of Hainan Island. During the Kuroshio survey, jointly conducted by China and Japan from 1986 to 1992, more than 100 field operations were carried out, and meetings of over 20 scientists were arranged, which helped to accumulate a rich store of information for understanding the movement of Kuroshio, its regular pattern of changes and its origin, as well as the resources variations in the fishing grounds of the Western Pacific.

China has made strenuous efforts to foster cooperation in regional marine fisheries on the principles of equality and mutual benefit. Under the Agreement of Fisheries Between the Government of the People's Republic of China and the Government of Japan in 1975, China and Japan arranged for the development and protection of their fisheries resources every year through negotiations. In 1997, China and Japan signed a new agreement on fisheries, laying the foundation for long-term cooperation between the two countries in this regard. China has held talks with the ROK, the Philippines and other neighboring countries on the development and protection of fishery resources in the surrounding sea areas.

China is also committed to helping developing countries train people for marine development

and comprehensive management work, and has hosted many international maritime conferences. In 1987, the training course on ocean management of the International Ocean Institute was offered for the first time in Beijing. In October 1994, the China Center of the International Ocean Institute was set up. So far, it has held three training seminars for over 50 people from 19 developing countries, majoring in marine development. In 1996, the Pacem in Maribus XXIV Conference was held in China, at which positive results were attained and a Beijing Declaration was announced.

While making great efforts for the development and protection of the ocean, China is clearly aware of the fact that, as a developing country with inadequate level of development and limited economic strength, China has lagged behind some of the developed countries in this regard. The marine scientific and technological level in China is relatively low, the equipment used in marine development is backward and many develop-

ment areas are still in rough shape. Especially, the increasing population and rapid economic growth in the coastal areas in recent years have put great pressure on the marine environmental protection and hampered the rational development of marine resources. China has put the issue of rational utilization and protection of marine resources and the marine environment into the overall, cross-century plans for national economic and social development, and has adopted the sustainable development of marine programs as a basic strategy. With the continuing growth of the forces of social production, the further building-up of comprehensive national strength and the gradual awakening of the people's consciousness of the importance of marine protection, China's marine programs will definitely enjoy still greater development. Together with other countries and international organizations concerned, China will, as always, play its part in bringing mankind's work for marine development and protection onto the road of sustainable development.

National Ocean Policy of **COLOMBIA**

DATED: 2007

PURPOSE

National Ocean and Coastal Regions Policy: To promote the sustainable development of ocean and coastal regions and the maritime interests of the nation.

ADDITIONAL INFORMATION

This document was prepared by the Colombia Ocean Commission (CCO). The Colombian Oceanographic Commission was restructured and renamed as Colombian Ocean Commission (CCO) in 2000, under Decree No. 347, following Article 24 of Law 489 (1998) in which it is stipulated that the the Government may create intersectoral commissions for the coordination and advanced supervision of various public functions and services.

The CCO's principal role was to propose a National Ocean and Coastal Regions Policy (PNOEC) to the Government, combining administration and sustainable development and building on the progress of previous national and sectoral policies related to marine issues.

4

NATIONAL OCEAN AND COASTAL REGIONS POLICY

NATIONAL OCEAN AND COASTAL REGIONS POLICY (PNOEC)

COLOMBIAN OCEAN COMMISSION

"The borders of Colombia are those established in international treaties approved by the Congress, duly ratified by the President of the Republic, and those defined by arbitration awards in which Colombia takes part. The borders identified in the form provided for by this Constitution may be modified only by treaties approved by the Congress and duly ratified by the President of the Republic.

Besides the continental territory, the archipelago of San Andrés, Providencia, Santa Catalina, and Malpelo are part of Colombia, in addition to the islands, islets, keys, headlands, and sand banks that belong to it. Also part of Colombia is the subsoil, the territorial sea, the contiguous zone, the continental shelf, the exclusive economic zone, the airspace, the segment of the geostationary orbit, the electromagnetic spectrum and the space in which it operates, in accordance with international law or the laws of Colombia in the absence of international regulations" (Art. 101 of the Constitution of Colombia).

INTRODUCTION

Since the birth of the Republic and even as far back as the colonial era, Colombia has identified its marine and coastal regions as a major factor in its development. These regions include the coastline, islands, islets, keys, banks and the continental shelf in the Caribbean Sea and the Pacific Ocean, over which the country has always exercised peacefully and without interruption sovereignty and jurisdiction.

Article 45 of Law No. 489 (1998) stipulates that the Government may create intersectoral commissions for the coordination and advanced supervision of various public functions and services. The commission may be created provided that two or more ministries, administrative departments or decentralised organizations are responsible for those functions and services, either by legal mandate or due to their nature, without prejudice to their specific powers. The Colombian Oceanographic Commission was thus restructured and renamed the Colombian Ocean Commission (CCO) in 2000, under Decree No. 347. The CCO's principal role was to propose a National Ocean and Coastal Regions Policy (PNOEC) to the Government, combining administration and sustainable development and building on the progress of previous national and sectoral policies related to marine issues.

In accordance with the country's needs, the CCO Executive Secretariat led the analysis and development process for a comprehensive ocean and coastal regions policy. It did so by convening intersectoral and interagency meetings attended by the Commission's members, technical institutions and private companies from the national marine sector. This interdisciplinary effort produced a draft document entitled "Draft National Ocean and Coastal Regions Policy" in December 2001. In 2002, the CCO Executive Secretariat continued its efforts to ensure interagency coordination and to concretise the work done previously. This culminated in the approval of the document entitled "National Ocean and Coastal Regions Policy Guidelines" which was then adopted by CCO members in July 2002 and

publicised through national workshops organized for this purpose.

The CCO Executive Secretariat is aware of the need to develop a comprehensive state policy that identifies, and tackles in a cross-cutting way, various problems affecting the public and private sectors. It thus decided in 2006 to produce a final, consolidated version of the Policy. This new document shall coordinate initiatives and new circumstances that are of national importance, such as sectoral policies, the 2019 Strategic Vision for Colombia (a long-term strategic planning document) in its second centenary and development plans.

In July 2006, the CCO Executive Secretariat established the National Inter-agency Committee for the National Ocean and Coastal Regions Policy (CNI PNOEC) as an advisory body for the CCO. It is responsible for preparing the PNOEC and is comprised of officials representing each CCO member and other competent organizations.

Five subcommittees of the CNI PNOEC developed an instrument based on the evaluation of previous results of the PNOEC Guidelines and other documents such as the part of the 2019 Vision of Colombia document dealing with the oceans. It provides the country with a long-term tool that outlines the future challenges for institutional, territorial, economic and socio-cultural development, as well as the development of the ocean and coastal regions.

The PNOEC fulfills the need for a comprehensive outlook for the ocean that takes account of its ability to unite and integrate in spite of diversity and division. The ocean represents unity because it sustains networks of people, goods and services, cultures, traditions and a distinctive social structure. As a result, it must be managed within a specific government framework, since it is a public good destined for the use and enjoyment of all Colombians and subject to the surveillance and control of the organizations that act as guarantors of national sovereignty.

NATIONAL MARITIME INTERESTS

National maritime interests include: protecting the national sovereignty and integrity of the national marine territory, creating legislation for marine and coastal regions, protecting the marine and coastal environment while ensuring the sustainable use of its natural resources, promoting national social and

economic development, promoting the recognition of national marine culture, promoting education on marine issues and developing scientific, technological and innovative research on the country's marine and coastal regions.

GUIDING PRINCIPLES OF THE POLICY

The following principles, on which the PNOEC is based, are intended to ensure accomplishment of its main objectives:

Territorial unity of the State: ocean and coastal regions are an integral part of sovereign territory. The policy shall thus use the territorial unity stipulated by national sovereignty as a reference, along with the participatory and decentralized planning, organization and management of the entire territory, based on respect for and recognition of cultural and natural diversity.

Interest of the State: the State emphasizes the importance of pursuing the development of the potential of the ocean, continental shelf, islands, islets, keys, promontories and banks, and coastal regions. It recognises the value of the resources they provide and of their uses and tries to make full, sustainable use of them for the sake of present and future generations of Colombians in accordance with national sovereign rights.

Balancing economic development and sustainability: the State uses various principles and measures to balance socioeconomic development, conservation and the sustainable use of its resources, in accordance with the right to exercise full and permanent national sovereignty.

Multisectoral and multidisciplinary approach: various marine sectors and disciplines participate in the comprehensive management of ocean and coastal regions. These entities come together under the guidance of the CCO to develop strategies in response to challenges related to national marine interests.

Community participation: due to its democratic, participatory and pluralist nature, the Colombia State recognises and promotes the active participation of all its citizens in the planning, use and conservation of its ocean and coastal regions through a practical and sustainable plan to use its resources.

OBJECTIVE

The objective is to promote the sustainable development of ocean and coastal regions and the maritime interests of the nation. This can be achieved through the joint planning and implementation of strategies that shall ensure proper administration

and economic use, public benefit, environmental conservation, socio-cultural development, surveillance and control of these regions under Colombia's jurisdiction.

1. CROSS-CUTTING ASPECTS

Within the PNOEC there are three inter-related aspects which cut across all elements of the Policy, namely: international issues, intersectoral issues and finally scientific, technological and innovative issues.

1.1 INTERNATIONAL ISSUES

In a world that is constantly changing, the Colombia State must play a consistent, guiding role determined by identifiable goals. These goals must be geared towards promoting the development of ocean and coastal regions in the broadest sense, from the political, social, territorial, economic, cultural and environmental points of view.

This effort must begin with the recognition of challenges inherent in the development of marine regions including the country's coastal zones. Efforts to reinforce multidisciplinary and interagency work in this field must continue to produce results on the national and international levels to facilitate and encourage the country's marine and coastal development.

Strategic international objectives

- Respecting principles and standards of international law ratified by Colombia

Colombia's foreign policy is based on the respect of principles and standards of international law enshrined in international instruments to which Colombia is a signatory and which, having been ratified, are part of its domestic legislation. These include sovereign equality, non-interference in the internal affairs of other States, good faith in contracted agreements, peaceful settlement of disputes and the duty of cooperation among States.

Colombia defends its sovereign right to use its own resources while respecting its environmental policy,

without prejudice to the provisions of ratified international agreements. It assumes its responsibility to ensure that activities carried out in its jurisdiction or under its control do not have a negative impact on other States or areas located outside of its national jurisdiction. Colombia also upholds the precautionary principle as the central point of international agreements on the environment.

- Protecting national sovereignty and integral development of land and sea borders

For the purposes of the PNOEC, Colombia fully exercises its sovereignty over its jurisdictional waters, continental shelf and coastal regions.

The State shall continue to employ various measures to guarantee the integrity of its marine, island and mainland territory. These measures include the protection of sovereignty by its military forces and national and international measures that reaffirm Colombia's jurisdiction over its marine, island and mainland territory. They respect the principles and standards of international law and the socioeconomic development of these areas, and guarantee the sustainable protection of biodiversity and natural resources.

- Protecting and promoting national marine interests on a multilateral level

Colombia's foreign policy respects its commitment to multilateralism concerning marine issues. Under the direction of the Ministry of External Relations, Colombia shall maintain and strengthen the consistent and organized protection of the country's interests through various multilateral forums already in existence or that are being created for this purpose. This is especially the case for those concerning the integral development of marine areas, as well as those that promote respect for sovereign territory and environmental protection and conservation.

- Consolidating strategic international relations

Colombia, along with other public and private international partners, shall maintain and improve a comprehensive development strategy for marine and coastal areas.

In order to promote multidisciplinary projects or measures of national interest, efforts shall continue to be made to strengthen ties with Latin America and the Caribbean. Relations shall also be deepened with public and private partners with extensive knowledge and experience in marine issues. Participation in organizations such as the Permanent Commission for the South Pacific (CPPS) and the Association of Caribbean States (ACS) shall thus increase and measures shall be proposed within the organization that could benefit Colombia.

As a Latin American country on the Pacific Basin, Colombia shall strengthen its ties and relations with Asia-Pacific countries.

In terms of the use of fishery resources, Colombia, which borders two oceans, has a key interest in the conservation and regulated use of living marine resources.

In this regard, Colombia shall try to obtain the necessary support to guarantee a fair and practical system for the distribution and exploitation of fishery resources, by using the mechanisms established in the international community.

In the same manner, Colombia shall support international consensus procedures in which related policies to prevent the overexploitation of marine resources are analysed.

- Negotiating, signing and following up international treaties on marine and coastal regions

The Ministry of External Relations, with the assistance of the competent national institutions, is responsible for negotiating, signing, following up and evaluating the outcome of international legal instruments. In the present document, this applies to marine and coastal regions.

Without prejudice to its international decision-making authority, the Ministry of External Rela-

tions convenes and presides over interagency meetings, as appropriate. These meetings shall provide access the necessary information to determine Colombia's position in bilateral and multilateral negotiations on marine and coastal issues. The Ministry of External Relations shall also methodically monitor international organization recommendations or mandates, as well as legal instruments for marine and coastal issues, at the intra- and interagency levels.

In order to adequately and efficiently meet the criteria of various organisations and international bodies and to maintain accurate national archives, all current record-keeping systems shall be improved in all the national agencies related to the marine and coastal sector.

Led by the Ministry of External Relations, the competent institutions shall propose the necessary measures to fulfil international obligations stipulated by legal instruments to which Colombia is party.

- International cooperation in marine and coastal regions

The Ministry of External Relations, with the assistance of the competent national bodies, is responsible for formulating international cooperation policies for issues related to the marine and coastal resources which are national priorities. With official development assistance and the help of Technical Cooperation among Developing Countries (TCDC) it shall attempt to enhance knowledge, skills and the use of marine and coastal resources so as to improve various sectors of the national economy and the standard of living of the inhabitants of these areas. The international cooperation policy should be in line with the objectives of the National Development Plan and the fulfilment of the United Nations Millennium Development Goals.

- Supporting inhabitants of marine and coastal regions in keeping with the State's defining constitutional obligation to serve the population

State institutions shall promote support for citizens, businesspersons and investors who stimulate socio-economic development, particularly by opening up

markets for domestic goods and services. They shall also consolidate commercial and investment ties and produce socially advantageous programmes in marine and coastal regions.

The country's Ministry of External Relations, diplomatic missions and consulates abroad are committed to supporting these initiatives. In order to do so, the Ministry of Trade, Industry and Tourism, PROEXPORT and other relevant bodies shall work together to develop ways to optimize work done in this field, and shall support and complement the work of embassies and consulates.

Insomuch as resources are available, the State must also stimulate and support various scientific, technical, social, environmental, cultural and educational efforts for the comprehensive development and advancement of marine and coastal issues.

The growing importance of non-governmental actors such as the academic, scientific, corporate and social sectors is now recognized and the independence and critical sense developed as a result of analysing, proposing and following up national and international marine and coastal issues are appreciated.

- Institutional strengthening of the Ministry of External Relations regarding marine and coastal issues

As the authority on international relations, the Ministry of External Relations must propose, guide, coordinate and implement Colombia's foreign policy.

With these duties in mind, the Ministry must guide, integrate and harmonize the sectoral policies and programmes of various State institutions related to foreign policy. Likewise, the law stipulates that it must nominate and determine the level of the delegations representing the country in bilateral and multilateral international meetings related to the marine and coastal sector.

The Ministry of External Relations and National Planning Department (DNP) shall continue to coordinate and follow up development plans and programmes for land and sea border areas,

and ensure that they are implemented by the competent national and regional authorities.

The Ministry of External Relations shall adopt measures geared towards functional, thematic and human capacity-building regarding marine and coastal issues, for the proposals outlined in this document.

The San Carlos Diplomatic Academy, Colombia's external relations training establishment, shall promote the development of training programmes and workshops on the law of the sea, regional fishery bodies and similar organizations that encourage learning, research and developing strategic thinking in terms of foreign maritime policy.

1.2 SCIENCE, TECHNOLOGY AND INNOVATION-RELATED ISSUES

The country owns territorial waters, the continental shelf, and coastal spaces in both the Caribbean Sea and the Pacific Ocean. Several kinds of activities and processes are carried out in these areas, including some related to tourism, fishing, maritime transport, mining, alternative energy generation, biodiversity conservation and recovery, science, technology and innovation, maritime culture, global climate change and governance.

For this reason, efforts must be made towards organizing, developing, reinforcing and consolidating marine science and technology in Colombia, so that the country may benefit from solid scientific and technological foundations that allow it to manage its coastal and marine zones and resources in a way that strikes a balance between conservation and productive development (sustainable use).

In line with the foregoing, strategic lines of research in the PNOEC's subject areas, as drawn up in conjunction with the National Environmental Policy for the Sustainable Development of Colombian Ocean Areas and Coastal and Island Regions, shall be developed, reinforced, and supported by the entities making up the CCO and other marine science and technology related public and private institutions.

- Actions for the development of science, technology and innovation

The State, through marine science and technology-related research bodies, shall encourage international cooperation and promote the inclusion of national research groups into international marine research communities.

The bodies forming the CCO and other public and private institutes working in marine science and technology shall assess and disseminate the results of national research in marine science, technology and innovation, which may provide solutions to national or global issues that involve the quality improvement and sustainable use of marine ecosystems and resources, and consequently, the standard of living of Colombians.

The State, through marine science and technology-related research bodies, shall promote and reinforce the joint efforts of academia and industry in order to consolidate the relationship between research and innovation in marine science-related areas, geared towards technological development for the productive and social transformation of the country.

A Marine Science and Technology Information System shall be developed and implemented as a tool for gathering data on research carried out in the country. The system shall include data from both public and private bodies with research projects in marine sciences, which shall disseminate existing knowledge as well as the results of future studies.

The State, under the responsibility of the Environment Ministry (MADVT), in conjunction with the Colombian Institute for the Development of Science and Technology "Francisco José de Caldas" (COLCIENCIAS), shall promote and create a network of marine research centres, which shall link all public and private bodies engaged in developing research activities in Colombian coastal areas for the rational use of the country's existing scientific capacity.

Marine science and technology-related bodies shall draw up strategies for coordinating work with other areas of knowledge that deal with

coastal zones, their uses and resources, and for coordination and joint action with the scientific community and users of research, such as private and public bodies and community associations.

The State, through marine science and technology-related research bodies, shall promote, publicize and highlight national marine science research and its associated socio-economic benefits, in order to build public awareness of its importance in the country's development.

The State, led by the National Navy and DIMAR, with the support of marine science and technology-related public and private bodies, in coordination with COLCIENCIAS and through the National Science and Technology System, shall promote, publicize and highlight national scientific maritime research in areas relating to national security and defence, maritime strategy, oceanography, hydrography, the maritime industry and other ocean-related fields, considering the associated social, economic, political and military benefits.

The State shall allocate special resources intended for research and technological development in the field of marine science and technology, naval strategy and the naval industry.

The State, under the responsibility of the Navy, shall establish the Centre for Strategic Naval and Maritime Studies, to encourage and orient technological research and development in the field of naval sciences and maritime and naval strategy and industry.

The State, led by the Environment Ministry, with the support of marine science and technology-related public and private bodies, in coordination with COLCIENCIAS and through the National Science and Technology System and INVEMAR, shall promote, publicize and highlight basic and applied environmental research on renewable natural resources and the environment, and coastal and oceanic ecosystems, as well as technical concepts regarding the conservation and sustainable use of marine resources, lending scientific and technical aid to the National Environmental System (SINA).

The State, led by the Environment Ministry (MAVDT) through INVERAM, with the participation of all public and private bodies involved in scientific and technological research into the coastal and marine environment, in coordination with COLCIENCIAS, shall review and pursue the development of existing long-term national programmes on marine biodiversity, biological marine surveys, control of marine pollution, and other programmes currently in preparation.

1.3 INTERAGENCY ISSUES

Colombia reaffirms the maritime orientation and geostrategic strength afforded by its prime location in the centre of the American continent, with jurisdiction and sovereignty over the aforementioned waters, continental shelf and coastal areas in both the Caribbean Sea and the Pacific Ocean. Moreover, it lies in the path of international marine routes, and holds sovereign and jurisdictional rights over richly biodiverse marine, coastal and island ecosystems.

On this basis, the State, in its ocean policies, shall increase socio-economic growth and the quality of life of its inhabitants, through the sustainable use of its coastal and marine resources. As such, policy management should emphasize the sea's influence in the State's life cycle, within the framework of ocean policy.

The State shall continue to envisage strategic action for its coastal and marine areas, anchored in aspects that involve a range of areas such as production and support, environmental management, research, sustainable economic exploration and development, freight, sovereignty, defence, comprehensive security, territorial law and protection of the country's historical, cultural and natural heritage, consolidating sea-related matters as a whole, through effective cross-cutting ocean, coastal and island management.

Likewise, and from the viewpoint of the State structure, maritime issues require reorganization of the country's institutions, from the national to the local level (territorial and decentralized national levels), which in turn implies that there should be coordinated action and genuine commitment on the part of each of the bodies

involved, to provide a mechanism for activities undertaken in the framework of the PNOEC.

- National maritime establishment

The Colombian establishment in sea matters is marked by cooperation in all ocean- and coastal-related aspects, integrated in an intersectoral and multidisciplinary manner, along with harmonious, cross-cutting actions coordinated by the State. For this reason, the marine establishment shall continue to develop around the interaction between ministries, national and territorial bodies at both central and decentralized levels, and other organizations duly designated in the context of a national legal framework.

The fact that ocean and coastal issues are common to the different institutions in the Colombian State indicates the importance of overall management. Aware of this, the Government established the Colombian Ocean Commission (CCO) by means of Decree No. 347 of 2000 (decree amending the composition and organization of the Colombian Oceanographic Commission, created by Decree No. 763 of 1969 and restructured by Decree No. 415 of 1983) as an intersectoral body to advise, consult, plan and coordinate with the Government in matters relating to the national ocean and coastal regions policy and the related strategic, scientific, technological, economic and environmental themes regarding the development of Colombian waters and their resources, which should be reinforced and resolutely supported by its members and, in general, by the Government, in order to benefit from the country's maritime development.

The CCO is composed of the Office of the Vice-President of the Republic, who serves as the Commission's Chairperson, the Ministry of External Relations, the Ministry of National Defence, the Ministry of Agriculture and Rural Development (MADR), the Ministry of Trade, Industry and Tourism, the Ministry of Mines and Energy, the Ministry of Education, the Ministry of Transport, the Ministry of the Environment, Housing and Territorial Development (MAVDT), the Navy, the National Planning Department (DNP), the General Maritime Directorate (DIMAR), COLCIENCIAS, the Colombian Association of Universities (ASCUN), a

delegate of the President of the Republic for the maritime industry sector and a delegate of the President of the Republic for environmental non-governmental organizations.

The State, through each of the bodies comprising the CCO, carries out several complementary functions that give rise to various policies, instruments and standards, defining its application and scope of execution, while facilitating the interdependence of the member bodies, in order to develop areas of competence. It follows that members must act in a coordinated, harmonious manner, through the Executive Secretariat.

- Strategic action

In order to reinforce the establishment in the country and develop the PNOEC, national actions directed at shoring up existing structures must be defined. This can be accomplished by the creation of national management and information systems, and the inclusion of organizations involved in the field, according to their respective areas of expertise, and in keeping with the functions assigned to the CCO.

National System for the Integrated Management of Ocean and Coastal Areas

It is therefore relevant to create a National System for the Integrated Management of Ocean and Coastal Areas, whose goal would be to coordinate the different local, regional and national State bodies. The participation of relevant socio-economic agents is needed to achieve unified management through an institutional structure, which shall lead to the planning, administration, monitoring and evaluation required for the development of the PNOEC in a coordinated, harmonious manner.

The System shall use the following as benchmarks: the three Integral Territorial Legislative and Planning Regions adopted by the PNAOCI – the Caribbean Oceanic and Continental Region, the Caribbean Island Region, and the Pacific Region. These areas shall make it possible to match up national development policies with the specific problems faced in coastal regions.

The System shall be made up of the CCO and other competent bodies, as established by the PNAOCI, coordinated by a National Committee for the Integrated Management of Ocean and Coastal Areas, which shall be made up of its representatives and shall have power of decision. The entire System shall be complemented by the coastal environmental units and the local and regional committees. These shall be defined by the National Committee.

The National System for the Integrated Management of Ocean and Coastal Areas shall coordinate its actions with the following National Systems: Planning, Environment, Environment Information System for Colombia (SIAC), (Marine Environment Information System - SIAM), National Natural Park Systems (SPNN), Science and Technology, and Disaster Prevention and Response.

In tandem with this, a National System on Ocean and Coastal Information (SINOC) shall be designed based on the information systems of the different bodies making up the CCO as well as other relevant bodies. SINOC shall act as a support tool for the planning, monitoring and evaluation of this policy's programmes. The System should make it easier to give feedback and ensure continuous improvement in the way the State manages the ocean and the coasts. SINOC shall take advances made by the country's other coastal and marine systems into account, drawing up strategies that are compatible with and complementary to existing ones.

Colombian Ocean Commission – CCO

The State, under the coordination of the CCO, shall reinforce national development through the sustainable use of resources found in its territorial waters, coastal areas and continental shelf. The PNOEC shall be constantly revised and redesigned in order to remain up-to-date and adapted to the needs of national and global ocean policy, as well as the demands of society, markets, security, the environment, and future global technologies.

In the same manner, it shall continue to take the lead in marine issues in Colombia, the intersectoral organization that has enabled integration

and national coordination of the maritime nation at the highest government levels, in strict compliance with its mission.

The CCO's Executive Secretariat shall continue to serve as the national technical focal point to the UNESCO Intergovernmental Oceanographic Commission (IOC) and the IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE), as well as in other relevant international settings, under the direction and coordination of the Ministry of External Relations.

Starting with the identification of the strengths and weaknesses of the public and private institutions involved in the PNOEC, the State, through the CCO, shall reinforce the national establishment regarding the country's oceans, coasts and island territories, expanding the said Commission in order to provide room for the new national institutions dealing with these aspects, providing a legal basis for this restructuring through the

enactment of new legislation, and increasing its budget through the Ministry of Finance, in order to drive the socio-economic development and environmental sustainability of the country.

The State, through the CCO, shall draw up strategies to develop the said policy. Such strategies shall include the actions needed to ensure that institutions and organizations have the capacity to discharge the responsibilities assigned to them.

The CCO, through its Executive Secretariat, shall form an Internal Technical Working Committee, of a legally inter-agency nature, for consultation, analysis and evaluation of the legal framework currently in force for the integrated management of ocean and coastal areas. Likewise, proposals for the necessary changes shall be submitted before Congress by the respective Ministries, to harmonize the national legal framework governing the ocean and coastal areas.

2. THEMATIC AREAS

Recognizing that the country needs to continue reinforcing the integration of the ocean and coastal spaces into national development, the PNOEC has identified five thematic areas: Institutional Development, Economic Development, Territorial Development, Development of the Ocean and Coastal Environment, and Social and Cultural Development, all of which, through their consolidation, shall allow continuous reinforcement of the maritime theme in Colombia.

2.1 INSTITUTIONAL DEVELOPMENT

The country shall continue to exercise control over the sea in its territorial waters, and shall continue to show its national naval power through the Navy. The Navy, along with the bodies placed under its command and operational control, shall plan and carry out ongoing naval, fluvial and terrestrial operations in areas under its jurisdiction, with the purpose of maintaining national sovereignty, conserving the relevance of the institutions, ensuring internal order and territorial integrity, developing maritime power and protecting the nation's interests. In conjunction with this, the DIMAR, as the highest maritime authority, in close coordination with the appropriate local, national and regional, bodies, shall be responsible for both the administration and the technical and operational management of maritime activities.

2.1.1 Naval power

Colombia's strategic position in the regional setting requires naval power that is adapted to the needs of a country with the second largest population in South America (after Brazil), and is its only country with coasts in two oceans. The land, submarine, naval air, and coast guard resources that currently comprise the nation's naval power are insufficient, when a comparative analysis of the strategic potential of the other

countries in the region is made, and considering the real and potential threats to national security from both internal and external sources. Many of them need to be modernized or replaced, as they have reached the end of their useful life or are obsolete.

This situation hampers in practical terms the ability to meet the constitutional function that calls for maintaining a capacity for the deterrent and/or effective use of force, to defend the vital interests of the nation.

Furthermore, other tasks of fundamental importance shall be assigned. These include: maritime embargoes, protection of resources in the exclusive economic zone, control of maritime traffic, protection of human life at sea, and environmental protection.

The current situation of the Navy in relation to its available means and what can be considered its naval power, is a reflection of the efforts that the institution had to make to face the threat represented by narco-terrorist organizations, which required the reinforcement of the fluvial and terrestrial components, and to a certain extent, the coast guard component, thus relegating the elements of force characterizing any naval power to the sidelines.

LINES OF ACTION

- The State, along with the Navy and the DIMAR, shall develop ongoing programmes to provide effective surveillance and control in all territorial waters. These programmes should take into account the existence, maintenance, modernization and replacement of naval, naval air and coast guard resources to this end, so that they remain sufficient.
- The State, in permanent coordination with the Ministry of National Defence and the Navy, shall ensure the existence of a naval power capable of facing up to the real and potential threats against

national security, thus allowing efficient contributions towards ensuring the defence of independence, sovereignty and territorial integrity.

- The State shall continue to apply the precepts established by national laws and international instruments ratified by Colombia on the repression of the illegal use of marine zones for the trafficking of illegal goods, the prevention, reduction and control of marine pollution, and the protection of human life at sea.
- The State shall develop the necessary mechanisms to support and promote naval and scientific activities, as well as activities maintaining island inhabitation by humans, aimed at consolidating sovereignty over the exclusive economic zone, the continental shelf, and island areas.
- It shall strengthen the development and implementation of the concept of maritime security, which is headed by the Ministry of National Defence, through the active, proper, appropriate and beneficial management of the national committee and the local protection committees.

2.1.2 Marine authority

DIMAR is the National Maritime Authority executing government policy on maritime matters. It directs, coordinates and monitors maritime activities¹ according to the terms laid out in Decree-Law No. 2324 of 1984 for the promotion and stimulation of the country's maritime development, exercising its competence as a port State, flag State, and coastal State.

It is the jurisdictional authority for the investigation of matters relating to maritime disasters and the administrative authority for investigating and sanctioning violations of merchant marine standards and the illegal occupation of public property under its jurisdiction.

The DIMAR, under the coordination of the Ministry of External Relations, shall represent the nation in international fora and conferences relating to maritime activities, and shall act as a consultant to the Government in all matters dealing with the knowledge and action of international maritime instruments.

It is the authority² designated by the Government to carry out the functions of maritime protection in relation to port and ship installations, under the terms established by Decree No. 730 of 2004.

In the face of economic, political, and social challenges on the regional, national and global levels, it is essential to reinforce the DIMAR as it must implement the following lines of action:

LINES OF ACTION:

The Government, through the DIMAR, shall establish the Master Plan for Coasts. It shall rely on the support and participation of the different institutions involved in marine and coastal activities, to ensure that their use complies with the concept of the sustainable use of ecosystems, and their potential is considered in territorial organization plans.

- The Government, through the Ministry of Defence, shall enact a law that defines the scope of DIMAR's national maritime authority role. It shall be tasked with, among other things, enforcing standards in maritime matters, dealing with and aiding in the protection of national territorial integrity, and sovereignty as a legal attribute enshrined in the constitution, just as it shall specify the mechanisms of cooperation with other bodies working in the maritime field. It shall serve as the body connecting, facilitating and coordinating the activities being carried out in the country's territorial waters and coastal areas.
- The Government, headed by the Ministry of Defence, shall reinforce the DIMAR, providing improved staffing and a new organizational structure, in order to increase the number of professionals specializing in the technical, scientific and legal aspects of maritime issues, to shore up the presence of the maritime authority throughout the national territory through its regional units.

1. The following are considered maritime activities: Maritime navigational aids and lighthouses, control of maritime traffic, domestic and foreign vessels and naval equipment, maritime navigation for vessels and naval equipment, the merchant marine and maritime transport, maritime communications, the use, protection and preservation of coastal areas, all disciplines of marine science research, systems for the exploration, use and survey of marine natural resources, the search and extraction or recovery of antiquities or shipwreck treasure, marine sports and recreation, maritime search-and-rescue operations, marine conservation, preservation and protection, the laying of any type of structure or fixed or semi-fixed works on or below the sea floor, sea and weather forecasts, filling, dredging, and other ocean engineering works, administration and development of coastal areas, shipbuilding and naval construction, and other marine uses and/or applications.

2. Ruling C - 212 of 1994 of the Constitutional Court and Procedural Act No. 227/90, Procedural Act No. 228/90, Procedural Act No. 521/90, Procedural Act 3207/96 and Concept No. 1605 of 2004 of the Council of State.

2.2 ECONOMIC DEVELOPMENT

As the State develops its economic policy for ocean and coastal areas, it shall manage the relevant resources for the purposes of modernizing and optimizing public infrastructure, encouraging private investment and free competition in the system of ports and port infrastructure, maritime transport, merchant marine and naval industry, fisheries and aquaculture, the tourist and mining industries, among others, in order to secure the bases of a balanced, sustainable and competitive development, in order to consolidate Colombia's entry into international markets through trade and regional integration agreements, within the framework of international standards and the principles of security and defence.

In this vein, the Government, through industrial development aid mechanisms, shall work with the regions in managing the use of living marine resources, in order to highlight the importance of ocean and coastal areas in national and international trade. These resources include fishery and aquaculture resources, minerals, oil and gas, energy sources and tourism, all of which play a role in the country's socio-economic development.

2.2.1 Ports and port infrastructure

The national ports policy reflects the need to connect Colombia with the rest of the world through maritime communication channels to face new market challenges, increase port capacity, and integrate ports into the transport network, in order to obtain better results by optimizing multimodal transport.

LINES OF ACTION:

- The State, through the Ministry of Transport or the body serving in its stead, shall instigate a balanced and sustainable development of the ports, through the involvement of private capital and state aid.
- The State, through the Ministry of Transport or the body serving in its stead, shall optimize the use of port infrastructure.
- The State, through the Ministry of Transport or the body serving in its stead, shall protect areas of public use and existing environmental resources.
- The State, through the Ministry of Transport or the body serving in its stead, shall continuously improve the levels of efficiency in port services.

- The State, through the Ministry of Transport or the body serving in its stead, shall guarantee a modern port system that interconnects with the supply logistics chain.
- The State, through the Ministry of Transport or the body serving in its stead, shall create the conditions that allow the development of industry in port catchment areas.
- The State, through the Ministry of Transport or the body serving in its stead, shall generate the conditions that encourage social development in port catchment areas.

2.2.2 Marine transport

Maritime transport exercises a fundamental role in the integration and development of national and international trade. To formulate and frame policies for maritime transport, the merchant marine and the naval industry, the existing institutional framework must be updated and reinforced, in order to consolidate current investments and encourage future ones.

LINES OF ACTION:

- Public transport services shall be provided by private bodies through the mechanisms established by law. In exceptional cases, the State, through State bodies, can provide this service when it is not provided by private bodies, or in the case of practices that affect the interests of users.
- The State, through the DNMP and other competent ministries, shall define the economic, financial and legal framework to promote, facilitate and encourage national and foreign investment that encourages and allows the development of maritime transport, the merchant marine, and the naval industry.
- The State, through the Ministry of National Education, the DIMAR, and the National Training Service (SENA), shall facilitate the full training of seafarers, according to the principle of safety of human life at sea and the preservation of the marine environment, in keeping with national needs, standards, and international agreements ratified by the country.
- The State, through the Ministry of Social Protection, shall create the conditions needed to guarantee the social protection and safety of seafarers, in accordance with the international agreements of the International Maritime Organization (IMO) ratified by Colombia.

2.2.3 Merchant marine and shipping industry

The merchant marine and the shipping industry provide the basic structure necessary for domestic and international trade. However, the State's economic policy must promote technological development so as to ensure that they are on equal footing with foreign companies in terms of efficiency and competitiveness. Consequently, the following lines of action are proposed.

LINES OF ACTION:

- The State, through the relevant competent authorities, shall revise the current conditions of vessel registration and related activities, so as to create incentives for national or foreign investors to take interest in - and thereby contribute to the recovery and development of - the merchant marine and the shipping industry. This should be in keeping with the relevant international agreements ratified by Colombia.
- The State, through the competent authorities, shall promote and maintain the capacity of the national merchant marine required to meet and satisfy economic, social and national security requirements, in coordination with ministries involved in the sector.
- The State, through the Ministry of Defence, the Science and Technology Corporation for Development of the Ocean and River Naval Industry (COTECMAR) and the shipping industry, in coordination with competent ministries and authorities, shall foster the development of the shipping industry in Colombia, with an aim to attaining self-sufficiency in maritime and river naval technology, through the use and expansion of its infrastructure and private investment.
- The State, through ministries and relevant authorities, shall revise the administrative procedures and regulations applicable to the shipping industry, with a view to developing its activity and improving competitiveness.
- The State, through the Colombian Institute for the Development of Science and Technology (COLCIENCIAS) shall provide the necessary resources for technological research and development for the shipping industry.
- The State, through the competent authorities and with support from the private sector, shall foster the development of the shipping industry in Colombia, with an aim to satisfying the needs

of the national merchant marine and the Navy, and attaining self-sufficiency in river and general maritime naval technology through the use and expansion of its infrastructure and private investment. It is hoped that this activity shall fuel sustained growth of the GDP via the exportation of goods and services.

- The State shall revise the administrative procedures and regulations applicable to the shipping industry with a view to increasing fluidity in this sector.
- The State shall establish special sources of funding for research and development in naval technology.

2.2.4 Fishing and aquaculture

In accordance with existing legislation, sea fishing and aquaculture in Colombia shall be rational and sustainable, generating the necessary labour force for extraction, processing and commercialization in domestic and foreign markets, and incorporating these activities in the country's economy.

LINES OF ACTION:

- The State, through COLCIENCIAS, the Colombian Institute of Rural Development (INCODER) or any agency serving in its stead, the academic sector and research centres, shall programme and carry out research in the fields of sea fishing and aquaculture, using clean technology and eco-labelling devices, in order to determine the real potential of the resources present in Colombia's territorial waters and in international waters, so as to use them rationally and sustainably.
- The State, through the competent authorities, shall supervise the creation of an organizational structure fully responsible for handling sea fishing and aquaculture and the appropriate inter-agency coordination between government bodies for the surveillance, control, management and registration of the different sector activities, so as to guarantee the nation an activity that is safe, efficient and competitive.
- The State, through the competent authorities, shall promote domestic consumption of resources from fishing and aquaculture, as well as opening new channels of international marketing for these products.
- The State, through the Ministry of Agriculture and Rural Development (MADR), INCODER or any agency serving in its stead, shall encourage diver-

sification in fishing to reduce the fishing effort on resources that show clear signs of over-fishing and as a result, recover stocks, in accordance with applicable national and international legislation.

- The State, through the Navy, the DIMAR, INCODER or any agency serving in its stead, shall strengthen programmes for the control and surveillance of fishing operations carried out by local or foreign vessels, in accordance with applicable national and international legislation.
- The State, through the Ministry of Social Protection in coordination with the National Training Service (SENA), shall establish a special social security system for artisanal and industrial fisherfolk and broaden capacity-building programmes for people employed in the fishing industry, bringing the programmes into line with the National Plan for Fisheries Development.
- The State, through the MADR and the Fund for the Financing of the Agro-Pastoral Sector (FINAGRO), shall set up credit lines designed specifically to meet the needs of the fishing and aquaculture sectors, so that they may provide their services as broadly as possible, taking into account the special circumstances particular to the execution of their operating and financial activities.
- The State, through the competent authorities governing sea fishing, shall regulate activities in the international arena, as well as all actions relating to the use of these resources by other countries, and in the national territory.
- The State, through the Ministries of Agriculture and Rural Development; Defence; External Relations; the Environment, Housing and Territorial Development; Trade, Industry and Tourism; Social Protection; Transport and the Department of Administrative Security (DAS), shall assess and update existing legislation as necessary to continue to ensure judicial security for current and future investors as well as clear rules for the normal and effective running of their operations, the main grounds being the principle of non-discrimination towards investors and free access to their investments.

2.2.5. Tourist industry

As of 2001, Colombia identified, for its Vision 2020, basic products in which regions have since been specializing: sea and sun, history and culture, agro-tourism, ecotourism, sport and adventure, ferias and

fiestas and capital cities (for activities such as shopping, health, seminars and conventions, incentive trips etc.). The regions' offers have diversified considerably around these products. The challenge facing Colombia's tourism is increasing the competitiveness of its products and destinations so as to attract the high-income tourist sector.

Ocean tourism has much to offer. On the one hand, the sea and sun product should improve in quality so as to compete with rival destinations in the Caribbean and other regions of the world. On the other hand, it must be complemented by other options such as nautical tourism and cruises, which are still in the early stages of development in Colombia.

LINES OF ACTION:

- The State, through the Ministry of Trade, Industry and Tourism and subsidiary bodies and in coordination with other competent authorities, shall support the management of beaches to cater for tourism activities so as to offer quality service to tourists.
- The State, through the Ministry of Trade, Industry and Tourism and subsidiary bodies, shall devise mechanisms to attract investment to provide backing for the development of coastal tourism.
- The State, through the Ministry of Trade, Industry and Tourism and subsidiary bodies, shall promote projects geared towards tourism development in coastal areas.
- The State, through the Ministry of Trade, Industry and Tourism and subsidiary bodies, shall ensure that Law No. 300 of 1996 is implemented, particularly with respect to following up the declarations of "Priority Tourism Development Zones" and "Tourism Resources", with focus on coastal areas.
- The State, through the Ministry of Transport, shall regulate all matters pertaining to transport in tourism provided for in Law No. 300 of 1996 and the amendments or additions thereto (Law No. 336 of 1996, Article 8).
- The State, through the MAVDT, INVEMAR and UAESPNN, shall evaluate the carrying capacity of beaches under any form of protection within the National System of Protected Areas (SINAP), providing relevant and timely information to the Ministry of Trade, Industry and Tourism and subsidiary bodies, in order to coordinate their development.
- The State, through the competent authorities, shall formulate strategies to strengthen ecotour-

ism programmes in the country's maritime and coastal regions.

2.2.6 Minerals, hydrocarbons and non-conventional sources of energy (FENC), and alternative or renewable energy

National policy for the mines and energy sector in line with the PNOEC allows the State to continue as a facilitator and promoter of industry, building the requisite infrastructure for the expansion of each of the sectors, and taking an active stance both on the domestic and international markets, in a framework of sustainability and harmony with natural resources and in compliance with applicable environmental legislation.

LINES OF ACTION

2.2.6.1 Minerals

Mining legislation of 2001 (Mining Code) ended the State's business management role and instead assigned it the role of facilitator, promoter and regulatory body for the Colombian mining sector.

- The State, through the Ministry of Mines and Energy, shall draw up legislation, guidelines, procedures and precise information relating to the maritime sector, so as to ensure legal certainty.
- The State, through the Ministry of Mines and Energy, shall encourage the increase of mining activity in all coal-mining projects in the north, such as Cerrejón North Zone, Cerromatoso in the Department of Córdoba and the mining area in the Department of Cesar.
- The State, through the ministries of Mines and Energy and Transport and through regional and national environmental authorities, shall manage the enhancement of infrastructure to facilitate, promote and increase the competitiveness of the exploitation of gold, platinum, coal and construction materials among others; as well as assess, prevent, reduce and control the pollution resulting from these activities and their impact on coastal marine zones.
- The State, through the Ministry of Mines and Energy, shall promote Colombia's insertion as a mining country on the international scene, attracting investment from large companies to coastal zones to implement polymetal mining projects, and improving the competitiveness of existing mining facilities.

- The State, through the Ministry of Mines and Energy, shall complete the mining legalization programme, thereby reducing illegal and informal activity with a view to controlling the environmental impact in marine and coastal regions.

2.2.6.2 Oil and gas

Oil

Oceans and coastal areas are vital to maintaining the Colombian petroleum industry as the driving force of the nation's economy. To this end, the following action shall be taken:

- The State, through the Ministries of Mines and Energy, the Interior and Justice, and the MAVDT, together with the Directorate for Disaster Prevention and Response, shall optimize the country's efficiency regarding contingency plans in the event of oil spills both on the coast and in the ocean.
- The State, through the Ministry of Mines and Energy and subsidiary and related bodies, shall continue its programme of geological exploration in Colombia's Caribbean region, which shall assist in assessing the country's real oil potential and offer better opportunities to the industry, as an important area of investment. By the same token, the State shall begin exploration activities in Colombia's Pacific region, a zone with great potential for Colombia, with a view to deepening knowledge of the country's geology.
- The State, through the Ministry of Mines and Energy, shall continue to back the pipeline project with Venezuela for the transport of Venezuelan crude or derivatives to Colombia's Pacific or Caribbean coasts.
- The State, through the DIMAR and the national and regional environmental authorities, shall strengthen monitoring and control of oil production activities on the continental shelf in terms of inspection and control, with a view to protecting human life and the marine environment.

2.2.6.3 Gas

- The State, through the Ministry of Mines and Energy, subject to compliance with existing environmental and maritime legislation, shall guarantee expansion of natural gas transport capacity, allocating the appropriate payments on account for use by gas distribution companies, in compliance with gas transport contracts for the realization of projects.

- The State, through the Ministry of Mines and Energy – National Hydrocarbons Agency, shall create the infrastructure to facilitate exploration activity via the promotion of off-shore projects.
- The State, through the Ministry of Mines and Energy with its special administrative unit, the Energy and Gas Regulatory Commission (CREG), shall define a general framework for the exportation of natural gas and shall expand the policy of international networks, developing in particular the project with Panama and Venezuela. To this end, it shall produce the regulatory plans needed to ensure balanced development of the export trade while satisfying internal demand and ensuring the viability of networks, with regard to their effect on marine and coastal areas.
- The State, through the Ministry of Mines and Energy, shall strengthen domestic supply by means of the network connecting the main natural gas production fields of the Caribbean coast – Balle-nas - and the hinterland (Cusiana – Cupiagua) to the country's main regional markets, with regard to their effect on marine and coastal areas.

2.2.6.4 Non-Conventional Energy Sources (FENC), and Alternative and Renewable Energy

- The State, through the Ministry of Mines and Energy with the support of the Intersectoral Commission for the Rational Use of Energy and Other Forms of Non-Conventional Energy (CIURE), shall encourage the rational and efficient use of conventional and non-conventional sources of energy, including through cogeneration systems both in the national network and zones not connected to the network, with regard to their effect on marine and coastal areas.
- The State, through the Ministry of Mines and Energy, shall guarantee the continuity of the studies carried out in the framework of the COLCIEN-CIAS – ISAGEN agreement which are aimed at identifying the potential of tidal and wave energy.
- The State, through the Ministry of Mines and Energy and the Institute for the Promotion and Planning of Energy Solutions (IPSE), shall guarantee increased coverage of the service by implementing programmes and projects geared towards searching for energy solutions both on the national network and for unconnected zones, using the possibilities of non-conventional energies and broadening rural coastal routes.
- The State, through the Ministry of Mines and

Energy, shall lead via CIURE the proposal for environmental tax incentives in science and technology for developing coastal and marine projects.

2.3 Territorial development

Land development is an integral part of advancing and strengthening the economic and socio-cultural competitiveness of a country, being one of the basic components of the nation's relations with its environment and neighbours, in addition to providing concrete elements for the appropriate use and management of available natural resources.

The management of Colombia's oceanic spaces and coastal areas thus gained renewed importance by becoming one of the main aspects of land development. It should therefore be implemented following an integrated approach, given its multifaceted nature. To this end, the relevant bodies shall be responsible for proposing to the Government land planning and its scope of competence in the country's marine and coastal jurisdiction.

2.3.1 Integrated coastal area management (ICAM)

The ICAM, as defined for Colombia by the PNAOCI, is a special planning process designed for a complex and dynamic area, which focuses on the sea-land interface and which takes into account some fixed and some flexible concepts that characterize it, an ecosystem conservation ethic, socio-economic goals, a pro-active and problem-solving management style and a strong scientific base.

Integrated management of oceanic spaces and coastal areas shall be carried out in a rational and operational manner, in accordance with applicable legislation and based on the characteristics and environmental, socio-economic and cultural resources specific to each oceanic and coastal region of the country, including and promoting permanent consultation with the population and sectors concerned.

Maritime beaches, low tide zones and territorial maritime areas are public property belonging to the nation and are of strategic importance to the territorial unity and sovereignty of the State.

LINES OF ACTION:

- The State, through its competent authorities, shall maintain administration and control on a national level, with participation and coordination regarding regional and local bodies for suitable management and development.
- The State, through the CCO, shall formulate strategies to constitute, coordinate and control inter-agency actions to ensure the synergy and complementarity thereof, with a view to enhancing governance and institutional capacity, clarifying roles, coordination mechanisms and participation.
- The State, through the DIMAR, shall formulate a Master Plan for Coasts, for which it shall be assisted by the institutions with competence in activities carried out on the coast and marine areas, so that the exploitation of these activities complies with the sustainable use of the ecosystems, and their potential is included in land management plans.
- The State, through the Environment Ministry (MAVDT), shall establish the directives for including marine and coastal ecosystems in Colombia's territorial management, recognizing them as an integral and strategic part of the territory, to harmonize the use of and activities carried out in these zones and determine the environmental guidelines for the development of production activities in oceanic spaces and coastal areas, via the implementation of the PNAOCI.
- The State, through the CCO and local and regional environmental and administrative authorities, shall form a committee to include the ICAM guidelines in the processes of municipal and regional land management, basic sanitation, risk assessment for natural threats, such as tsunamis, hurricanes, coastal erosion and sea-level rise, with special emphasis on the current problems facing zones such as the Gulf of Morrosquillo, Cartagena, Buenaventura and Tumaco.
- The State, through the Environment Ministry and other SINA bodies, shall work with regional and local administrative authorities from coastal areas as necessary regarding overall themes of planning, land management, ecosystem management plans and urban environmental management, among others.

2.3.2 Disaster prevention and response

The theme of disaster prevention and response should be considered as a fundamental input in land

planning. The State shall operate with a risk management approach to natural and human-generated events, through risk reduction and disaster prevention, effective response in the event of disaster and the rapid recovery of affected areas in accordance with the National Disaster Prevention and Response Plan (PNPAD), with emphasis on strengthening institutional, technical and scientific capacities and local governance and on coordination with environmental land management.

The implementation of the aforementioned Plan for the prevention of and response to disasters with relation to risk management in oceanic spaces and coastal areas shall be accompanied by protection programmes (rehousing, protection and adaptation) for communities settled in high-risk areas on the coasts.

LINES OF ACTION:

- The State, through the Ministry of the Interior and Justice and the Directorate for Disaster Prevention and Response (DPAD), in coordination with the bodies that are part of the National System for Disaster Prevention and Response (SNPAD), shall promote the development and implementation of local and regional emergency and contingency plans in the country's coastal areas. In the same way, it shall amend, at the national level, existing national risk management plans and encourage the realization of plans considered necessary.
- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the bodies that are part of the SNPAD, shall adopt and implement the National Disaster Prevention and Response Plan with relation to risk management in oceanic spaces and coastal areas. The implementation of the Plan should be accompanied by protection programmes (rehousing, protection and adaptation) for communities settled in high-risk areas on the coasts.
- The State, through the institutions and bodies that are part of the SNPAD, shall focus its efforts on risk management regarding natural and human-induced events, through the dissemination of information and by strengthening institutional, technical and scientific capacities and local governance, and coordination with environmental land management.
- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with

the bodies that are part of the SNPAD, shall play a leadership role in structuring and developing the National Warning System for Tsunamis and other Coastal Threats, for its two coasts. The system shall be coordinated with similar international systems.

- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the bodies that are part of the SNPAD, shall complete and implement the National Tsunami Risk Management Plan (PNGRT) provided for under the PNPAD and develop the respective sectoral contingency plans.
- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the bodies that are part of the SNPAD, and with the backing of territorial bodies, shall formulate the respective regional and local emergency and contingency plans based on the natural coastal disasters that could occur.

2.3.2.1 *Natural disasters*

The conservation of coastal areas under threat of natural phenomena such as tsunamis, El Niño, tropical cyclones, sea-level rise causing floods, saline encroachment and loss of coastal areas and other events due to climate change, is a priority for the State. Accordingly, it shall adopt all measures in its power to mitigate and prevent, as far as possible, the effects on the population and settlements of Colombia in the event of one of these disasters.

LINES OF ACTION:

Tsunami

- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the bodies that are part of the SNPAD, shall play a leadership role in structuring and developing the National Warning System for Tsunamis and other Coastal Threats, for its two coasts. The system shall be coordinated with similar international systems.
- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the SNPADs, shall complete and implement the National Tsunami Risk Management Plan (PNGRT) provided for under the National Disaster Prevention and Response Plan (PNPAD).

“El Niño”

- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the SNPAD member bodies and the respective minis-

tries, shall update, promote, strengthen and implement the Action Plan of the Integral and Multidisciplinary Programme for the Study of the El Niño Phenomenon (ERFEN Programme), developing the respective sectoral contingency plans. In turn, this plan shall be linked with regional initiatives in the matter, such as the ERFEN Programme of the Permanent Commission for the South Pacific (CPPS) and the International Research Centre on El Niño (CIIFEN).

- The State, through the DNP, shall draw up CONPES documents for the implementation of the Action Plan of the Integral and Multidisciplinary Programme for the Study of the El Niño Phenomenon and promote institutional strengthening in the face of possible occurrences.
- The DIMAR has gained experience in tsunami modelling for the town of Tumaco and specific prevention exercises for the community were carried out by the DPAD, with technical support from the Centre for Pollution Control of the Pacific (CCCCP), on response to the tsunami threat. This methodology must be applied for other settled areas on the Pacific coast.

Tropical Cyclones

- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the bodies that are part of the National System for Disaster Prevention and Response (SNPAD) and IDEAM, shall promote the creation and operation of a National Advisory Commission on Tropical Cyclones and designate a coordinator.
- This Commission shall formulate the National Tropical Cyclone Risk Management Plan which should incorporate a mechanism to promote preparedness of coastal populations for potentially threatening situations.
- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with territorial bodies, shall formulate Local and Regional Tropical Cyclone Plans.

Climate Change

- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the MAVDT, the DIMAR, Regional Autonomous Corporations (CARs) from coastal regions, the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM), the Institute for Marine and Coastal Research “José Benito Vives de Andreis” (INVEMAR)

and with the backing of territorial bodies and other national bodies that may be required, shall devise and implement the tools to reduce the vulnerability of the ocean and coastal spaces to the effects of global climate change, particularly those relating to sea-level rise and its consequences.

- The State, through the Ministry of the Interior and Justice and the DPAD, in coordination with the MAVDT, the DIMAR, CARs from coastal regions, the IDEAM, INVEMAR and with the backing of territorial bodies and other national bodies that may be required, shall implement the 2002 Action Plan for reducing the vulnerability of coastal areas.

2.3.2.2 Human-generated events

In addition to the methods for responding to the threat posed by natural phenomena to coastal zones, the prevention and mitigation actions that the State must have at the ready in the event of human-induced disasters that pollute the oceans, maritime spaces, beaches and other areas making up the different coastal ecosystems (for example spills of oil and other hydrocarbon derivatives and harmful substances) need to be clear, effective and timely.

LINES OF ACTION:

- The State, through the DNP, shall update the National Contingency Plan for Spills of Hydrocarbons, Derivatives and Harmful Substances in Seas, Rivers and Lakes, with a view to filling the legal voids and weaknesses in the current plan.
- The State, through the DPAD, shall consistently update existing plans and formulate necessary plans regarding human-induced events that could affect oceanic and coastal spaces.

2.3.3 Protected marine and coastal areas

Mangrove ecosystems, coral reefs, marine pastures, beaches and cliffs, and soft sea beds are the property of the State and call for conservation, recuperation and management programmes because they are a natural form of protection for the coast and stabilize the shoreline. They also help to minimize vulnerability in areas with high risk of natural (earthquakes, tsunamis, El Niño, flooding, sea-level fluctuation) and human-induced disasters. Furthermore, they foster ecotourism and assist in the return of artisanal fishing on the coast.

The ecosystems mentioned above must be protected and conserved for the social, environmental and economic good of the country.

LINES OF ACTION:

- The State, through the MAVDT and its subsidiary institutions, shall initiate and strengthen basic and applied research on the structure, composition and functionality of protection for different levels of biodiversity (landscapes, ecosystems, populations, species, genuses) in protected areas, with interagency and community participation, which contribute to their sustainable management and use.
- The State, through the MAVDT, its subsidiary institutions and the Corporation for the Sustainable Development of the Archipelago of San Andres, Providencia, and Santa Catalina (CORALINA), shall continue to formulate projects within its field of competence and in keeping with the carrying capacity of marine and coastal ecosystems and resources, in relation to human settlements and economic activities.
- The State, through the MAVDT, shall require that land planning and management processes be carried out in a coordinated manner, in keeping with an overall vision of the territory, so as to avoid environmental conflicts relating to the use and occupation of oceanic and coastal spaces.
- The State, through the MAVDT, shall draw up strategies to constitute, coordinate and control interagency actions to ensure the synergy and complementarity thereof, with a view to enhancing governance and institutional capacity; clarifying roles, coordination mechanisms and participation in the National Environmental System (SINA).
- The State, through the MAVDT and its National Natural Parks System (SPNN), shall contribute to consolidating the subsystem of marine and coastal areas protected under the SINAP, with a view to increasing the representativity of the protected marine and coastal biodiversity of Colombia.
- The State, through the MAVDT and its subsidiary institutions, shall adopt the ecosystem approach of the Convention on Biological Diversity in its approach to *in situ* conservation, considering individual protected areas as components of larger systems that assure the continuity of the ecological and evolutionary processes that maintain them.

2.4 DEVELOPMENT OF OCEANIC AND COASTAL ENVIRONMENTS

Colombia ranks among the countries with the greatest marine biodiversity on the continent. Significant progress has been made with regard to the consolidation of species inventories, characterization of ecosystems and thematic maps, organized in 18 natural eco-regions. There are also protected marine and coastal areas in the National Natural Parks System (SPNN), Civil Society Natural Reserves and other forms of protection established by the MAVDT and regional bodies. Despite this, approximately 2% of Colombia's marine territory is under some form of protection.

As provided for in Law No. 99 of 1993, the MAVDT, together with the President of the Republic, shall formulate the National Policy for the Environment and Renewable Resources so as to guarantee the right to a healthy environment and to protect the natural heritage and sovereignty of the nation.

The MAVDT is responsible for the environmental management of the territory, including areas in the coastal and island regions of Colombian territory, and coordinates the Environmental Information System for Colombia as well as the National Environmental System (SINA), which has brought the environment to the forefront in the country.

2.4.1 Conservation of strategic resources and ecosystems

Conservation is a priority for the wellbeing and development of society for it plays a fundamental role in the sustainability of natural ecological, social, economic and cultural processes of present and future generations. The management of these components must follow an environmental approach that takes into account the precautionary principle.

LINES OF ACTION:

- The State, through the MAVDT, the National Natural Parks System Special Administrative Unit (UAESPNN), its subsidiary bodies, CARs, academic and scientific institutions and other competent bodies, based on the consolidation of the National System of Protected Areas (SINAP), shall promote projects for gathering technical, scientific, socio-economic and cultural information in order to declare new protected areas (in the applicable categories) that

are representative of the country's natural marine and coastal heritage.

- The State, through the DIMAR in coordination with environmental authorities and the UAESPNN, under its jurisdiction, shall regulate the nautical, sub-aquatic and ecotourism activities related to environmental land management in compliance with applicable planning instruments.
- The State, through the MAVDT, IDEAM and INVE-MAR, shall strengthen the SIAM, which is part of the SIAC, spearheading interagency cooperation with the other SINA bodies to add to the information system on marine and coastal areas.
- The State, through the MAVDT, CARs and other territorial bodies, in accordance with the competencies and responsibilities assigned to them by law in island, marine and coastal areas, shall support the implementation of management plans for protected marine areas.
- The State, in the framework of policies defined by the MAVDT and through CARs, the DIMAR, territorial bodies, the academic and industrial sectors and other institutions involved in the matter, in accordance with their competencies, shall promote the development of Integral Environmental Land Planning and Management Units (UAC) and elaborate management plans and other necessary actions, as a strategy for the country's marine and coastal management.

2.4.2 Marine biodiversity

Thanks to its marine biodiversity, Colombia has significantly increased its natural heritage and its potential as one of the countries with the greatest biodiversity on the planet. Its importance lies both in the direct use that is made of this biodiversity and the life support functions it provides on all levels. The country must therefore pay attention to the conservation and sustainable use of its marine biodiversity, implement programmes aimed at diminishing the risks to endangered species, restoring habitats and assessing the risks related to the presence of invasive species, in accordance with applicable national and international environmental legislation.

2.4.2.1 Sustainable Use and Control of Marine Biodiversity

The use of the country's marine biodiversity must follow an approach of sustainable knowledge and exploitation, avoiding the deterioration of resources

by destruction or overfishing and causing sometimes irreversible changes in habitats. Classifying components and evaluating the state of essential populations and habitats, and the monitoring, surveillance and control of these via appropriate management of activities shall help to conserve the country's marine treasures.

LINES OF ACTION:

- The State, through environmental authorities (MAVDT and its subsidiary and/or related bodies - UAESPNN, CARs), rural development authorities (MADR), the DIMAR and its institutes – Centre for Pollution Control of the Pacific (CCCP) and Centre for Oceanographic and Hydrographic Research (CIOH) – and the administrative bodies for fisheries and fish farming (INCODER), in accordance with their competencies, shall formulate, coordinate and implement programmes for research, inventorying, monitoring, classification and management of coastal marine fishing resources to regulate the fishing effort and the environmental impact of fishing activities, taking into account the development of UACs and the SINAP.
- The State, through its environmental (MAVDT – UAESPNN, CARs) and rural development (MADR) authorities and the administrative bodies for fisheries and fish farming (INCODER), shall create, strengthen and/or coordinate basic and applied research for the sustainable use and conservation of marine resources and the use of landscapes and ecosystems, in a framework of interagency (academic, scientific and financial institutions) and community participation, taking into account the development of UACs.
- The State, through the MAVDT and the MADR, shall lead the revision and updating of applicable environmental and fishery legislation which shall allow the Government to adopt measures for the management of resources that are more in touch with the reality of the country and entail active social participation.
- The State, through its environmental (MAVDT - UAESPNN, CARs) and rural development (MADR) authorities and the administrative bodies for fisheries and fish farming (INCODER), in coordination with security and control forces (the Army, the DIMAR, Navy, National Police, Office of the Inspector General, Office of the Attorney General etc), shall coordinate and synchronize the necessary interagency control and surveillance of activities

exploiting the country's marine biodiversity, on the basis of a research programme to assess and design fishing management strategies.

2.4.2.2 Endangered Species

Factors such as the irrational and uncontrolled use of resources and the continued deterioration of habitats and ecosystems due to industrial development in recent centuries have led to the significant decline in the natural population of marine organisms to critical levels that place them at the risk of becoming extinct. For this reason, it is necessary to establish programmes, ratify conventions and implement activities to ensure the survival of these species.

LINES OF ACTION:

- The State, through the MAVDT, UAESPNN, INVE-MAR, CARs, MADR, INCODER and other scientific research institutions (NGOs, universities, among others), in accordance with their competencies, shall support studies and programmes for evaluating the state of and links between populations of endangered species. It shall also support programmes for the rehabilitation, restoration and protection of ecosystems that include systems of monitoring, control and surveillance to detect significant changes in populations and strengthen the legal framework for the management, control and protection of these ecosystems and species to allow the necessary measures to be taken to prevent their deterioration or extinction.
- The State, through the MAVDT, with the support of its subsidiary and related bodies, shall continue to enforce the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which regulates the global trade of such species, as well as other international conventions that have been ratified by the country.

2.4.2.3 Invasive Species

Globalization has led to a rise in maritime traffic, which brings with it organisms from different geographical regions in the ballast water³ of vessels. This has increased the risk of finding exotic species with invasive behaviour in Colombian ecosystems, thus making it necessary to regulate and control the disposal of ballast water. Otherwise, the country would

3. The water with its suspended matter taken on board a ship to control trim, list, draught, stability or stresses of the ship (International Convention for the Control and Management of Ships' Ballast Water and Sediments, Article 1, 2004)

be faced with bioinvasions that could give rise to inter-species competition for space, loss of habitat for native species, changes in the composition of species and in the food chain possible transmission of diseases, deterioration of the health of ecosystems and a sometimes irreversible reduction of biodiversity, in addition to socioeconomic and public health problems.

LINES OF ACTION:

- The State, through the institutions specialized in the matter (DIMAR, INVEMAR, universities, among other research bodies), shall back the studies required for the classification, evaluation, monitoring and management of invasive species that shall provide the tools for regulating and standardizing the control of such species through activities such as the handling of ballast water, or the management and control of exotic species cultivated *ex situ* and for applying national and international guidelines on the issue⁴ that are applicable in Colombia.

2.4.3 Marine environmental quality

The ability to use marine ecosystems and resources to develop the competitiveness of the country and production technology depends to a great extent on their “health” or environmental quality. Likewise, the sustainability of programmes and investments in industrial processes based on marine ecosystems and resources (including fishing, aquaculture, tourism, transport etc.) is dependent on such activities not endangering or deteriorating the environmental quality of natural ecosystems.

LINES OF ACTION:

- The State, through the competent authorities (DIMAR, MAVDT, IDEAM, INVEMAR, CARs of coastal regions, universities, NGOs, etc.), shall support the requisite actions for assessing risks and threats; diagnosing the current state of environmental quality; regulating, controlling and preventing the dumping of substances that pollute marine environments by vessels; developing technology for the prevention and mitigation of impacts; rehabilitating ecosystems; technology for bio-

remediation in the event of pollution and environmental degradation by hydrocarbons, harmful liquids transported in bulk, dangerous substances shipped in containers, sewage and waste from vessels; and for recovering resources, among other mechanisms and in application of international rules.⁵

- The State, through the DIMAR, MAVDT, IDEAM, INVEMAR, CARs of coastal regions, universities and NGOs, shall ensure the implementation of the National Programme for the Study, Evaluation, Prevention, Reduction and Control of Land and Sea-based Sources of Marine Pollution (PNICM). It shall also strengthen the guidelines derived from this Programme.
- The State, through the DIMAR, shall continue to implement merchant marine standards in the jurisdiction of the national maritime authority, with a view to preventing maritime disasters and the resulting marine pollution.
- The State, through the DIMAR, the MAVDT, INVEMAR, CARs of coastal regions, universities and NGOs, in accordance with their competencies, shall design and coordinate surveillance and control schemes with social participation and shall create knowledge with an aim to conserving and protecting the environment.
- The State shall complement local and regional efforts by co-financing research in and the implementation of new alternatives for the treatment of sewage that is dumped in rivers and eventually ends up in the sea, giving priority to basins due to high pollution levels.
- The State, through the environmental authorities (MAVDT-UAESPNN, CARs of coastal regions, etc.), territorial bodies, community councils, indigenous authorities and NGOs, shall coordinate clean-up activities and the collection of solid waste in marine and coastal areas. It shall also generate, promote and co-finance recycling and environmental education campaigns in the mass media on the dangers of dumping waste in the sea.
- The State, through the MAVDT and CARs of coastal regions, shall establish concrete actions for the identification and management of and compensation for environmental liabilities in marine and coastal zones.

2.4.4 Climate change

The monitoring of global climate change and natural

4. Resolution A868 of the IMO and the London Dumping Convention of 2004.

5. MARPOL 73/78

phenomena that affect the world's population – and, in particular, inhabitants of coastal regions – such as sea-level rise, beach and coast erosion, and lower agricultural productivity, is a vital tool for the planning and implementation of adaptation measures with the purpose of forecasting worldwide climate conditions and preventing and responding to the disasters that they may engender.

Despite the fact that Colombia emits only 0.25% of the world's carbon dioxide emissions⁶, the country is particularly vulnerable to the effects of this phenomenon. It is predicted that by 2050, there shall be a rise in average annual air temperatures of 1°C-2°C, an estimated 15% variation of precipitation, the disappearance of 78% of snow from snow-capped mountains and 56% from high plateaus and a sea-level rise of approximately 40 cm in the Colombian Caribbean Sea and 60 cm in the Colombian Pacific. Given this outlook, Colombia has begun work on studying the impact of climate change and adaptation measures.⁷

LINES OF ACTION:

- The State, through the MAVDT and its subsidiary and related bodies, shall draw up a CONPES document to implement the Environmental Policy Plan of Action in relation to the estimation of impact, the vulnerability of strategic coast and sea systems to climate change and the effects on socio-economic variables associated with those systems, based on the sustainable development of the oceanic spaces and coastal and island areas of Colombia.
- The State, through the MAVDT, IDEAM, INVEMAR, the DIMAR, territorial bodies and other competent authorities, shall monitor climate change based on the establishment of programmes for research in and follow-up and strengthening of the country's oceanographic and marine meteorology monitoring systems which forecast oceanographic and climatological conditions, and thus enable the country to prevent and respond to the disasters that these conditions may cause on Colombia's coasts and seas.

- The State, through the MAVDT, IDEAM, INVEMAR and other bodies in accordance with their competencies, shall determine in the national and international legislative and political framework the corresponding measures of adaptation to and mitigation of climate change, taking into account the results of studies, research and projects carried out by public and private bodies concerned by the matter.
- The State, through the DPAD, IDEAM and INVEMAR in accordance with their competencies, shall determine in the national and international legislative and political framework the corresponding measures of adaptation to and mitigation of climate change.

2.5 SOCIO-CULTURAL DEVELOPMENT

All reflection or conceptualization that take place to generate maritime awareness stem from the need that is felt to identify and acknowledge the existence of cultural practices and expressions specific to urban centres and rural areas located in coastal and island regions, as well as how these are perceived, understood and affected by outsiders. The comprehension of their significance involves cognitive elements that enable one to know and understand oceans and coastal spaces in terms of their geographic, historical, economic, social and cultural reality.

For this reason, it is not enough to know much about or have extensive experience in the sea: what is also important is allowing more Colombians to appreciate the sea, seeking its benefits and showing greater concern for its preservation and safeguarding. This also requires a greater number of professionals specialized in the field of ocean and coastal regions in order to analyse how this is assumed culturally, and exploited and institutionalized politically and economically, by training human resources to optimize the management of resources and the vital necessity to educate and raise awareness in the Colombian population, starting at the school level, on the importance and potential of the ocean.

Likewise, it is necessary to identify and preserve the resources and cultural expressions – both traditional and contemporary – of marine and coastal regions, which means studying, researching and sharing them and maintaining their sustainability. Other forms of

6. Results of the First National Communication to the United Nations Framework Convention on Climate Change

7. "Integrated National Adaptation Pilot: High Mountain Ecosystems, Colombia's Caribbean Insular Areas, and Human Health (INAP)" and "Japanese Grant For Integrated National Adaptation to Climate Change Pilot" (on water and carbon cycles in high mountain ecosystems).

cultural property include property in the archaeological, tangible (movable and immovable) and intangible heritage, which are practically never recognized for marine and coastal regions.

2.5.1 Maritime culture

Human presence in Colombia's insular regions dates back to around 4000 B.C., and was later joined by populations of European and African origin, which brought with them diverse practices linked to their proximity to the sea. These practices have kept traditions alive while introducing innovations in harmony with national and regional economic policies and social dynamics, which has resulted in a rather complex history.

Historically, the lure of brighter economic hopes and the problem of violence have led to the displacement and reconstitution of populations from these regions. The result was an exodus of traditional communities inland and the presence of new groups that never would have been connected with coastal and insular regions, which led to the introduction of different practices that affect the ownership and use of maritime and coastal resources. This, in turn, has given rise to a perception of the situation from other spheres and instances – be they institutional, economic, or religious – laden with prejudice or, worse yet, ignorance.

This is why it is necessary to acknowledge the traditions, practices, movements, disputes and claims of the groups living in these regions and enter into dialogue with the public and private institutions and enterprises there present in order to improve the management of resources, while understanding and respecting the particularities and interests of all those involved.

LINES OF ACTION:

- The State, through the Colombian Institute of Anthropology and History (ICANH), shall enhance the archaeological, anthropological and historical studies leading to the identification of human presence, its adaptations and evolution in oceanic and coastal spaces.
- The State, through the Ministry of Culture, the Ministry of the Interior and Justice and the ICANH, shall promote intercultural dialogue between groups settled in coastal regions as well as between these groups, public and private institutions and enter-

prises and other stakeholders, for the mutual recognition of interests and needs.

- The State, through the Ministry of Culture, the ICANH and the Ministry of Trade, Industry and Tourism, shall formulate programmes for tourism and industrial development, with an aim to improving the living conditions and projects of groups settled in or benefiting from oceanic and coastal regions.
- The State, through the ICANH, shall encourage research into the perception and management practices of the marine environment and shall propose alternatives regarding appropriate conditions of adaptation and settlement in oceanic and coastal spaces.

2.5.2 Ocean education

Education is an individual right and a public service that has a social function. Through education, individuals seek access to knowledge, science, technology and the other benefits and values of culture. In this framework, it is necessary to include the theme of the ocean in all levels and modalities of the national education system, promote technical, technological and professional training programmes in ocean-related themes, boost the development of scientific competence in marine fields, encourage masters' and doctorate research programmes related to these topics, and support teachers and seafarers to build capacity in these programmes.

The country needs maritime education that shall teach people about seas and coastal areas not only in terms of their geographical, historical and cultural reality, but also about the wide range of possibilities for industry and the development of economic activities so that they are considered as a real development alternative.

LINES OF ACTION:

- The State, through the Ministry of National Education, in cooperation with higher education institutions, shall promote and encourage the creation of academic programmes relating to the use and preservation of the ocean and coastal areas.
- The State, through the Ministry of National Education, shall encourage higher education institutions that create academic programmes in the planning, design, construction and maintenance of vessels, naval equipment and maritime and port infrastructure.

- The State, through the Ministry of National Education, shall devise and apply educational strategies for raising awareness in the student population that are geared towards the dissemination of cultural, scientific, technological and technical knowledge on oceanic and coastal spaces.
- The State, through the Ministry of National Education shall promote teacher training in maritime themes by encouraging masters' and doctorate programmes.
- The State, through the DIMAR, shall enhance capacity-building and training of marine professionals and seafarers, in line with international standards and national needs.
- The State, through the Ministry of Education and the Association of Colombian Universities (ASCUN), shall recommend that existing academic training programmes in marine sciences be strengthened and propose the creation of new interdisciplinary programmes to fill the existing gaps, in accordance with maritime issues that are priorities for the country and incorporated in Vision 2019, the PNAOCI and the PNOEC.
- The State, through the Ministry of National Education and the DIMAR, shall coordinate management with an aim to determining the standards for training and capacity-building in the professions required for maritime and port activities.
- The State, through the Ministry of National Education in coordination with the MAVDT, shall encourage school environmental projects in order to build a citizen ethic of management of maritime and coastal resources.
- The State shall draw up education and dissemination strategies to build citizen awareness of the importance of the sea and its resources, protection of the marine environment and cooperating to find environmental and sustainable development solutions. Likewise, with private sector support, opportunities for access to higher education, in technical and professional fields applied to naval sciences and the shipping industry shall remain available.

2.5.3 Cultural heritage

The cultural heritage of the nation comprises all the cultural properties and values that are an expression of Colombian nationality, such as tradition, customs and habits, as well as all tangible and intangible property, movable and immovable, that represent a special

historical, artistic, aesthetic, visual, architectural, urban, archaeological, environmental, documentary, literary, bibliographical, museological or anthropological interest and manifestations, products and representations of popular culture (Art. 4, Law No. 397 of 1997).

Also of special importance is heritage relating to archaeological remains found in marine areas, for the Constitution states clearly in Article 72 that "... The nation's archaeological heritage and other cultural resources that shape the national identity belong to the nation and are inalienable, unseizable, and inprescriptible..."

As a strategy for the recognition and preservation of these remains and tangible and intangible traditions associated with maritime culture, it is vital to identify, encourage the study of and publicize the cultural resources that exist in the coastal and island regions of Colombia. Cultural heritage is fragile: ignoring or placing it second to aggressive economic policies for exploitation of resources or for changing practices, or to uncontrolled industrial, tourism and urban development, is to deny the possibility of sharing with future generations important legacies that define and strengthen the national identity.

LINES OF ACTION:

- The Ministry of Culture and the ICANH shall enhance and expand the identification and inventory of tangible and intangible cultural archaeological property existing in oceanic and coastal spaces.
- The Ministry of Culture and the ICANH shall endorse legislation on the protection of archaeological and cultural heritage in oceanic and coastal spaces.
- The Ministry of Culture and the ICANH shall promote the elaboration of special protection plans for cultural property and management plans for archaeological sites.
- The Ministry of Culture and the ICANH shall encourage public awareness and the dissemination of expressions and tangible and intangible archaeological property to raise appreciation for the cultural heritage existing in oceanic and coastal spaces.
- The Ministry of Culture and the ICANH shall strengthen actions geared towards the prevention of the illicit trafficking of properties of cultural interest.

3. ADMINISTRATION AND FINANCING

The resources for the execution of the plans, programmes and projects of this policy must be provided through appropriate provision in the general national budget that are coordinated by the Ministry of Finance and Public Credit and the DNP. In the same manner, the PNOEC must be elevated to the category of CONPES document and serve as input for the formulation of documents such as the National Development Plan, sectoral administrative development plans, development plans for territorial bodies, and territorial management plans.

Once the PNOEC is approved, the Plan of Action shall be recommended to the Government for the implementation of the present Policy and its follow-up through the SINOC, coordinated by the Executive Secretariat of the CCO, periodically and systematically throughout its implementation and execution, independently of the evaluation carried out by the relevant oversight bodies.

The PNOEC shall be assessed under the coordination of the Executive Secretariat of the CCO, taking into account various criteria of efficacy, efficiency and equity, to ensure that it remains up-to-date and continues to be the optimal basis for adjusting the actions of the Government, in line with the changing realities of the environmental, economic, social, institutional and technological context.

The Government shall identify within the National Development Plans (PND) the purposes and objectives in the Policy, and in turn shall establish the necessary appropriations within the Investment Plan for National Public Bodies, with the aim of carrying out the actions established in the said Policy.

In the same way, the bodies responsible for the execution of the lines of action laid out in the present Policy and its corresponding Plan of Action shall incorporate as appropriate within their investment plans the budgetary resources for the effective fulfilment of the goals defined.

National Ocean Policy of **JAPAN**

DATED: 27 April 2007

PURPOSE

To set out basic principles, to clarify the responsibilities of central and local government, business operators and members of the public in regard to the oceans, to formulate a basic plan in regard to the oceans and prescribe other basic matters concerning measures relating to the oceans and, lastly, by establishing a Headquarters for Ocean Policy, to promote measures relating to the oceans in a comprehensive and systematic manner and thus contribute to the sound development of the economy and society of Japan, improve the stability of life for its people and promote the peaceful coexistence of humanity and the oceans.

ADDITIONAL INFORMATION

The National Ocean Policy of Japan was approved by the The National Diet of Japan (Japanese Parliament).

The Act stipulates as Basic Plan on Ocean Policy (Act n.33 of 27 July 2007) in the Chapter II, but the Basic Plan has been examined by the Japanese Government and not finalized yet. Headquarters for Ocean policy which is provided in the Chapter IV was launched in July, 2007.

6

BASIC ACT ON OCEAN POLICY

I. GENERAL PROVISIONS

Article 1 Purpose

Given that the oceans, which cover a large portion of the globe, are indispensable to all life, including the human species, and that, amidst international efforts to achieve the sustainable development and exploitation of the oceans, it is important for Japan, surrounded as it is by sea, to become a new ocean-oriented nation striving for harmony between the peaceful and positive development and exploitation of the oceans and the conservation of the marine environment, in cooperation with the international community and in accordance with the *United Nations Convention on the Law of the Sea* and other international agreements, the purpose of this Act is to set out basic principles, to clarify the responsibilities of central and local government, business operators and members of the public in regard to the oceans, to formulate a basic plan in regard to the oceans and prescribe other basic matters concerning measures relating to the oceans and, lastly, by establishing a Headquarters for Ocean Policy, to promote measures relating to the oceans in a comprehensive and systematic manner and thus contribute to the sound development of the economy and society of Japan, improve the stability of life for its people and promote the peaceful coexistence of humanity and the oceans.

Article 2 Harmonization of the development and exploitation of the oceans with conservation of the marine environment

Given that the development and exploitation of the oceans is the basis for the existence of the economy and society of Japan, and that securing marine biodiversity and otherwise conserving good marine environmental conditions are essential to the survival of humanity and indispensable if the Japanese people are to enjoy full and prosperous lives, the development and exploitation of the oceans must be pursued in a positive manner, with a view to making possible the sustainable development and exploitation of the oceans while promoting the conservation of the marine environment, so that the people may enjoy the benefits of the oceans into the future.

Article 3 Ensuring the safety and security of the oceans

Given that it is important for Japan, which is surrounded by sea, that the safety and security of the oceans should be ensured, positive efforts shall be made to this end.

Article 4 Advancing scientific knowledge of the oceans

Given that scientific knowledge of the oceans is indispensable for the appropriate development and exploitation of the oceans and for the conservation of the marine environment, and that many matters relating to the oceans have yet to be explained in scientific terms, measures shall be taken to advance scientific knowledge of the oceans.

Article 5 Sound development of ocean industries

Given that industries concerned with the development, exploitation and conservation of the oceans (hereinafter referred to as “ocean industries”) are essential to the sound development of Japan’s economy and society and to the stabilization and improvement of the life of the Japanese people, measures shall be taken to promote their sound development.

Article 6 Comprehensive governance of the oceans

Given that issues relating to ocean resources, the marine environment, maritime transport, and the safety and security of the oceans are closely inter-related and need to be considered as a whole, governance of the development, exploitation and conservation of the oceans shall be pursued in a comprehensive and integrated manner.

Article 7 International partnership with regard to the oceans

Given that the ocean is the common heritage of all humanity, and that the economy and society of Japan are closely dependent on those of other countries, measures relating to the oceans shall be pursued through international partnership, so that Japan may play a leading role in the establishment and development of international order in regard to the oceans.

Article 8 Responsibilities of the State

The State shall be responsible for comprehensively and systematically formulating and implementing measures relating to the oceans, in accordance with the basic principles set out

in Articles 2 to 6 (hereinafter referred to as the “basic principles”).

Article 9 Responsibilities of local government

Local government shall be responsible, in accordance with the basic principles and subject to an appropriate division of labour between local government and central government, for the formulation and implementation of measures relating to the oceans that reflect natural and social conditions in the area managed.

Article 10 Responsibilities of business operators

The business operators of ocean industries shall strive to conduct their business in accordance with the basic principles and to cooperate in regard to ocean measures implemented by central and local government.

Article 11 Responsibilities of members of the public

Members of the public shall recognize the benefits of the oceans and shall strive to cooperate in regard to measures relating to the oceans implemented by central and local government.

Article 12 Cooperation and partnership among the parties concerned

Central and local government, business operators in ocean industries, organizations undertaking ocean-related activities and other parties concerned shall strive to establish partnerships and to coordinate among themselves with a view to implementing the basic principles.

Article 13 Events on Ocean Day

Central and local government shall endeavour, on Ocean Day, proclaimed in Article 2 of the National Holidays Act (Act No. 178 of 1948), to hold events that enable members of the public to gain a better understanding of and develop a greater interest in the oceans.

Article 14 Legislative and other measures

The Government shall take any legislative, fiscal, financial or other measures necessary for the implementation of measures relating to the oceans.

Article 15 Preparation and publication of documents

The Government shall draft documents regarding both the state of the oceans and measures relating to the oceans implemented by the Government and shall publish them in an appropriate manner, as and when necessary.

II. BASIC PLAN ON OCEANS

Article 16

1. The Government shall formulate a basic plan relating to the oceans (hereinafter referred to as the "Basic Plan on Oceans") in order to promote the comprehensive and systematic pursuit of measures relating to the oceans.
2. The Basic Plan on Oceans shall prescribe the following matters:
 - (i) basic policy on measures relating to the oceans;
 - (ii) measures relating to the oceans that the Government should implement in a comprehensive and systematic manner;
 - (iii) in addition to the matters listed in the preceding two items, any matters necessary for the promotion of measures relating to the oceans in a comprehensive and systematic manner.
3. The Prime Minister shall seek cabinet approval of the draft Basic Plan on Oceans.
4. When the cabinet approval prescribed in the preceding paragraph has been granted, the Prime Minister shall publish the Basic Plan on Oceans without delay.
5. The Government shall review the Basic Plan on Oceans every five years and shall make any necessary changes, taking into consideration any changes in situation with regard to the oceans and an evaluation of the effects of measures relating to the oceans.
6. The provisions of paragraph 3 and paragraph 4 shall apply *mutatis mutandis* to any changes made to the Basic Plan on Oceans.
7. The Government shall strive to take such measures as are necessary for the smooth implementation of the Basic Plan on Oceans, for example, by appropriating in its budget each financial year, to the extent permitted by the nation's finances, the funds necessary to ensure payment of the expenses required for implementation of the plan.

III. BASIC MEASURES

Article 17 Promotion of the development and exploitation of ocean resources

The Government shall take such measures as are necessary for the conservation and management of fishery resources, the conservation and improvement of the habitat of ocean fauna and flora, the enhancement of fishing ground productivity and the promotion of the development and exploitation of petroleum, combustible natural gas and other mineral resources, including manganese ore and cobalt ore, found on or under the sea bed, as well as other measures necessary for the establishment of organizations for the management of the above, in order to promote the positive development and exploitation of the oceans, while taking into consideration the conservation of the marine environment and the need to permit the sustainable development and exploitation of ocean resources well into the future.

Article 18 Conservation of the marine environment

1. Given that the oceans play an important role in the conservation of the global environment, for example, in the prevention of global warming, the Government shall take such measures as are necessary for the conservation of the marine environment, including measures for the preservation of the biodiversity of the oceans through the conservation and improvement of habitats, the reduction of the pollution load of water flowing into the oceans, the prevention of the discharge of waste materials into the oceans, the prompt control of oil spills caused by shipping and other accidents and for the conservation of natural seascapes.
2. In addition to implementing the measures prescribed in the preceding paragraph, the Govern-

ment shall endeavour to review them as appropriate, on the basis of scientific knowledge, with a view to preventing adverse effects on the marine environment.

Article 19 Promotion of the development of the exclusive economic zone

Given that it is important to strengthen initiatives relating to the development, exploitation and conservation of the exclusive economic zone (hereinafter referred to as “the development of the exclusive economic zone”; “exclusive economic zone” as defined in Article 1, paragraph 1, and “continental shelf” as defined in Article 2 of the Law on the Exclusive Economic Zone and Continental Shelf (Law No. 74 of 1996)), the Government shall take such measures as are necessary for the promotion of the development of the exclusive economic zone, including measures to promote development reflecting the characteristics of the sea areas falling within the exclusive economic zone and measures to prevent the infringement of the sovereign rights of Japan in the exclusive economic zone.

Article 20 Securing maritime transport

The Government shall take such measures as are necessary to secure efficient and stable maritime transport, including measures for the securing of Japanese vessels, the training and recruitment of mariners and the construction of hub ports that will serve as bases in an international maritime transport network.

Article 21 Ensuring the safety and security of the oceans

1. Given that ensuring safety and security in the development and exploitation of ocean

resources and of maritime transport and maintaining order on the oceans is essential for the economy and society of Japan, which is surrounded by sea and depends on imports for a major part of its resources, the Government shall take, with regard to the oceans, such measures as are necessary to ensure the peace and security of Japan as well as to ensure maritime security and order.

2. The Government shall take such measures as are necessary for the prevention of natural disasters, together with measures to limit and repair damage in the event of natural disasters (hereinafter referred to as "disaster prevention"), in order to protect Japan's national territory and the persons and property of its citizens from disasters such as tsunamis and high tides.

Article 22 Promotion of ocean surveys

1. In order to ensure the appropriate formulation and implementation of measures relating to the oceans, the Government shall undertake such surveys as are necessary, including surveys serving to maintain an understanding of the state of the oceans and to predict changes in the maritime environment (hereinafter referred to as "ocean surveys"), and shall strive to establish systems for observation, monitoring, measurement and other necessary ocean survey activities.
2. The Government shall endeavour to make the information obtained from ocean surveys available to the public in order to contribute to the formulation and implementation of measures by local government in regard to the oceans and to facilitate the activities of business operators and other entities.

Article 23 Promotion of research and development in marine science and technology

The Government shall take such measures as are necessary to promote research and development in sciences and technologies relating to the oceans (hereinafter referred to as "marine science and technology") and the dissemination of their results, including the establishment of research systems, promotion of research and development, fostering of researchers and technicians and strengthening of partnerships among research institutions operated

by the central government, independent administrative agencies (independent administrative agencies as defined in the Law on General Rules for Independent Administrative Agencies (Act No. 103 of 1999), Article 2, paragraph 1) prefectural authorities and local independent administrative agencies (local independent administrative agencies as defined in the Law on Local Independent Administrative Agencies (Act No.118 of 2003), Article 2, paragraph 1), universities, private sector bodies, etc.

Article 24 Promotion of ocean industries and strengthening of their international competitiveness

The Government shall take such measures as are necessary to promote ocean industries and strengthen their international competitiveness, including the promotion of advanced research and development, the improvement of technology, the training and recruitment of human resources, the strengthening of operational bases and the development of new businesses through the improvement of competitive conditions and other measures.

Article 25 Integrated management of the coastal zone

1. Given that the origins of problems in coastal seas lie in activities on land and that the implementation of measures in respect of coastal seas alone is insufficient to ensure enjoyment of the benefits of the resources and natural environment of coastal seas well into the future, the Government shall, in regard to coastal seas and coastal land areas where natural and social conditions warrant measures to be implemented in a unified manner, take such measures as are necessary to ensure that the regulations and other measures applied to activities on land are managed appropriately by being implemented in an integrated manner.
2. Given that, of all coastal sea and coastal land areas, the coast in particular is subject to severe natural conditions, is the habitat and breeding ground for a wide variety of life and possesses unique natural beauty, the Government shall, when implementing the measures set out in the previous paragraph, make due provision to protect the coast from damage caused by tsunamis, high tides, ocean waves and other movements

of seawater or the earth's crust, to maintain and conserve the coastal environment and to exploit the coast in an appropriate manner.

Article 26 Conservation of isolated islands

Given that isolated islands play an important role in preserving Japan's territorial waters and exclusive economic zone, in ensuring the safety and security of maritime transport, in the development and exploitation of ocean resources and in the conservation of the marine environment, the Government shall take such measures as are necessary for the conservation of isolated islands, including measures to conserve the coast, ensure the safety and security of maritime transport, establish facilities for the development and exploitation of ocean resources, conserve the natural environment in surrounding waters and maintain the infrastructure for the inhabitants.

Article 27 Securing international partnership and promoting international cooperation

1. The Government shall take such measures as are necessary to secure international partnership in regard to oceans, including taking the initiative in the establishment of international agreements relating to the oceans.
2. To enable Japan to fulfil its role in international society in respect of the oceans, the Govern-

ment shall take such measures as are necessary to promote international cooperation in relation to ocean resources, the marine environment, ocean surveys, marine science and technology, crime prevention at sea, disaster prevention, sea rescue and other matters.

Article 28 Promotion of understanding of the oceans among members of the public

1. To enable members of the public to gain a better understanding of and develop a greater interest in the oceans, the Government shall take such measures as are necessary to promote ocean education in the context of both school education and of public awareness raising, the dissemination of information on the *United Nations Convention on the Law of the Sea* and other international agreements and international initiatives aimed at achieving the sustainable development and exploitation of the oceans, and also the popularization of ocean-related recreation.
2. With a view to securing a pool of people who hold the knowledge and skills required to address the political issues in an appropriate manner, the Government shall take such measures as are necessary to promote interdisciplinary education and research in universities and other institutions.

IV. HEADQUARTERS FOR OCEAN POLICY

Article 29 Establishment

In order to promote measures relating to the oceans in an intensive and comprehensive manner, a Headquarters for Ocean Policy (hereinafter referred to as “the Headquarters”) shall be established within the Cabinet.

Article 30 Matters under jurisdiction

The Headquarters shall hold responsibility for the matters listed below:

- (i) matters relating to the drafting and promotion of the execution of the Basic Plan on Oceans;
- (ii) matters relating to the overall coordination of measures implemented by the administrative bodies concerned, on the basis of the Basic Plan on Oceans;
- (iii) matters relating to the planning, proposal and overall coordination of key measures relating to the oceans other than those listed in the preceding two items.

Article 31 Organization

The Headquarters shall consist of a Director-General of the Headquarters for Ocean Policy, Deputy Directors-General of the Headquarters for Ocean Policy and members of the Headquarters for Ocean Policy.

Article 32 Director-General of the Headquarters for Ocean Policy

1. The Headquarters shall be led by a Director-General of the Headquarters for Ocean Policy (hereinafter referred to as “Director-General”), which post shall be held by the Prime Minister.
2. The Director-General shall be responsible for the overall supervision of the affairs of the Headquarters and shall direct and supervise the officials assigned to the Headquarters.

Article 33 Deputy Directors-General of the Headquarters for Ocean Policy

1. Deputy Directors-General of the Headquarters for Ocean Policy (hereinafter referred to as “Deputy Director-General”) shall be appointed to the Headquarters. These posts shall be held by the Chief Cabinet Secretary and the Minister for Ocean Policy (a Minister of State whose role is to assist the Prime Minister in the intensive and comprehensive promotion of measures relating to the oceans under the orders of the Prime Minister).
2. The Deputy Directors-General shall assist the Director-General in his or her duties.

Article 34 Members of the Headquarters for Ocean Policy

1. Members of the Headquarters for Ocean Policy (hereinafter referred to as “members”) shall be assigned to the Headquarters.
2. The members shall consist of all Ministers of State other than the Director-General and Deputy Directors-General.

Article 35 Submission of materials and other forms of cooperation

1. The Headquarters may, as it may consider necessary for the performance of tasks under its jurisdiction, request the submission of materials, statements of opinion, explanations and other forms of cooperation required from the heads of the relevant administrative agencies, local government bodies, independent administrative agencies, and local independent administrative agencies and from the representatives of special public corporations (corporations established directly by Acts or corporations established according to a statute provided by special Act, under the provisions of Article 4, paragraph 15 of the Act Establishing the Minis-

try of Internal Affairs and Communications (Act No. 91 of 1999)).

2. The Headquarters may also request any necessary cooperation from parties other than those listed in the preceding paragraph, if it considers this to be particularly necessary for the performance of tasks under its jurisdiction.

Article 36 Clerical work

Clerical work relating to the Headquarters shall be performed within the Cabinet Secretariat and administered, under commission, by the Assistant Chief Cabinet Secretary.

Article 37 Competent minister

The competent minister, as established in the Cabinet Law (Law No. 5 of 1947), for matters relating to the Headquarters shall be the Prime Minister.

Article 38 Delegation by Cabinet Order

In addition to the matters prescribed in the present Law, any other necessary matters concerning the Headquarters shall be prescribed by Cabinet Order.

SUPPLEMENTARY PROVISIONS

Effective Date

1. This Law shall come into force on the date specified by Cabinet Order, within a period not exceeding three months from the day of promulgation.

Reviews

2. A comprehensive review of the Headquarters shall be undertaken approximately five years after this Law comes into force and such measures as are determined to be necessary on the basis of the results of the review shall be taken.

National Ocean Policy of **NORWAY**

DATED: 2002

PURPOSE

- to provide the prerequisites for a clean and rich sea, *inter alia*, through the establishment of external conditions that allow Norway to strike a balance between the commercial interests connected with fisheries, aquaculture and the petroleum industry within the framework of a sustainable development.
- to focus on some areas and sources where there is a need for new policies, and/or that are not been dealt with thoroughly enough in previous reports.

ADDITIONAL INFORMATION

Recommendation of 15. March 2002 by the Ministry of the Environment, approved in the Council of State on the same date. (The Bondevik II Government)

This Parliamentary Report is a prelude to a long-term, comprehensive policy for the protection of the marine and coastal environment. Long-term because many of the measures proposed will only demonstrate their full effects after some time has elapsed. Comprehensive, because the goal can only be achieved by assessing pressures and encroachments on this environment in their overall context.

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REPORT NO 12 TO THE STORTING (2001-2002): **PROTECTING THE RICHES OF THE SEAS**

1. INTRODUCTION

1.1 PROTECTING THE RICHES OF THE SEAS

Norway has always been surrounded by a sea rich in resources. We have a long tradition of utilising these riches given to us by the sea. Fishing and harvesting of marine resources have been the basis for settlements along the coast. For a long time, the sea was the only way of transporting goods along the coast. The sea gave the coastal population a means of contact with the rest of the country and other countries and was a source of recreation and a better quality of life. The sea and the coastline have left their mark on our culture. The close contact with the sea was what led to the development of the Norwegian shipping industry. When oil was found in the North Sea around 1970, a completely new era in the utilisation of the riches of the sea began.

For a long time, the sea was also a clean sea and for a long time most people thought that the sea could stand anything: The sea could endure the dumping of waste and pollution from industry and other business activities, from settlements and from shipping without suffering any damage.

For a long time little was known about ocean currents carrying pollution from faraway countries

to the Norwegian coast, and about the fact that discharges of hazardous substances on other continents could be transported all the way to Svalbard. Not until the last decade did we become aware that not only rivers, lakes and coastal areas can be seriously polluted. Only then did we realise that the environment on the high seas can be threatened by pollution.

This Government's vision is to safeguard a clean and rich sea, so that future generations can harvest the wealth of resources that the sea has to offer. The challenges are many and they are daunting, but the rewards will also be huge if we succeed. There are great opportunities for industrial and commercial development in the aquaculture and fishing industries in the future.

This Parliamentary Report is a prelude to a long-term, comprehensive policy for the protection of the marine and coastal environment. Long-term because many of the measures proposed will only demonstrate their full effects after some time has elapsed. Comprehensive, because the goal can only be achieved by assessing pressures and encroachments on this environment in their overall context.

Norway has legal rights to marine areas containing substantial amounts of oil and gas deposits. In the last few decades the petroleum industry has been the main element shoring up the Norwegian economy. Oil and gas will continue to be of great importance in the future, even though they are not renewable resources. In the future Norway's wealth and prosperity will have to be based on further development and growth in other industries as well. Our coastal and marine areas are among the most productive areas in the world in terms of living marine resources. The harvesting of these resources will not be limited in terms of time if they are managed in a long-term perspective. The aquaculture industry has huge potential for further industrial and commercial development along the coast of Norway.

Norwegian seafood must be competitive in a market where the consumers constantly are becoming more conscious regarding health and environmental issues. The consumers want to be confident that the food they are eating is healthy. Food from a clean ocean is a great competitive advantage for Norway, but we have to maintain the conviction among the consumers that our products really are clean and environmental friendly: that they don't contain poisonous substances, and that they are not harvested in ways that are exhausting the sea's resources.

A healthy marine environment is a condition for future industrial and commercial development and settlement based on living marine resources. There are many threats and trends that could put obstacles in the way of a healthy marine environment. To trigger off the potential for industrial and commercial development so that good conditions for habitation and a high standard of living along the coast can be maintained in the long run, a substantial effort must be made to secure clean and productive ecosystems along the coast and in the sea. Industrial and commercial development, human settlements and a good environment are mutually dependent on each other. It is therefore crucial for an overall policy on the marine environment to be developed in collaboration between the Government and trade and industry along the coast.

1.2 THE PURPOSE OF THIS PARLIAMENTARY REPORT

The purpose of this Parliamentary Report is:

- to display overall goals for a comprehensive policy on the marine environment;
- to display tools and processes for how such a policy can be developed and implemented in the short and in the long-term, including ensuring a better co-ordination between the different sectors and industry; and
- to display proposals for a new policy in areas of major importance for the marine environment.

The overall goal is to provide the prerequisites for a clean and rich sea, *inter alia*, through the establishment of external conditions that allow us to strike a balance between the commercial interests connected with fisheries, aquaculture and the petroleum industry within the framework of a sustainable development.

This Government intends to develop tools and processes which help lay the foundations for an overall policy on the marine environment, i.e. a policy where the sum of all influences is assessed on the basis of what is known about the structure of the ecosystem, the way in which it functions and its condition. Up until now different kinds of pollution, exploitation of the different species and different kinds of interference have been assessed and managed in relative isolation. This Government is therefore preparing a future system of management that will be ecosystem-based and that will extend across all sectors.

Chapter 2 gives an overview of the state of the environment in our marine and coastal areas and of the challenges ahead. The chapter ends with a description of how this Government will work towards an overall and integrated policy on the marine environment.

The overall target can only be reached by strengthening today's policy for the areas of greatest importance for the environment and resource situation in the future. Many important players must contribute to this work; central, regional and local authorities, industry and other

organisations such as industrial, environmental and other voluntary organisations.

Chapter 3 contains a report on measures that will be introduced by the Government for selected areas as part of the overall policy on the marine environment. Chapter 4 examines the international treaties and processes that have an influence on the environment and resources in the sea and coastal areas, while Chapter 5 looks at the economic and administrative consequences.

The marine environment is affected in many different ways and this Parliamentary Report does not deal with all areas of concern that might be relevant in a paper of this nature. Chapter 1.3 outlines the scope of the report and contains references to, *inter alia*, the Parliamentary Reports on the Government's Environmental Policy and State of the Environment.

1.3 DELIMITATIONS OF THE CONTENTS IN THE PARLIAMENTARY REPORT

In this Parliamentary Report the Government wishes to focus on some areas and sources where there is a need for new policies and/or that are not been dealt with thoroughly enough in previous reports.

Discharges of nutrients from households, agriculture and industry are not addressed. The problem of eutrophication is addressed in Parliamentary Report No. 24 (2000–2001) on the Government's Environmental Policy and the State of the Environment (RM). The national target in this area is that discharges of the nutrients phosphorous and nitrogen into areas of the North Sea affected by eutrophication should be reduced by about 50 % between 1985 and 2005. The reduction target has been achieved for phosphorous, but Norway, like the other North Sea states, has not achieved the reduction target for nitrogen. The national target for discharges of nitrogen will be evaluated after the Fifth North Sea Conference in March 2002, where the ministers will discuss future goals in this area. The Government will get back to the Norwegian Parliament (Stortinget) concerning this issue in the next RM.

The marine environment is affected by hazardous substances from land-based sources, the petroleum industry and polluted sediments in coastal and fjord areas. Ambitious targets have been adopted for the work on reducing discharges and the use of chemicals harmful to health and the environment. The discharge of chemicals constituting a threat to health and the environment shall be phased out by 2020 (see Parliamentary Report No. 58 (1996–97) and No. 24 (2000–2001)); these Parliamentary Reports also outline strategies and measures adopted to achieve the targets in this area.

The work on reducing the discharges of chemicals from land-based activities which are harmful to health and environment is not further addressed in this report. The discharge of chemicals harmful to health and the environment from the petroleum industry has taken on increased significance in terms of the state of the environment in the marine areas. This report therefore contains a description of measures and means for reducing this pressure on the marine environment.

Tidying up after hazardous substances discharged into the coastal and fjord areas in the past constitutes a particular challenge in the work to achieve a clean and rich sea. This is a problem area that offers substantial legal, technological and economic challenges. In this report the Government is therefore proposing an overall strategy for the future work on this area to ensure sufficient progress through cleanup operations.

When it comes to shipping, the Government has in this report, chosen to focus on preventive measures to reduce the danger of accidents that might lead to discharges of oil and subsequent damage to the environment. The discharge of ballast water will be treated as a source for introduction of alien species. Other kinds of pollution from shipping such as illegal discharges of oil and chemicals are, *inter alia*, described in Parliamentary Report No. 24 (2000–2001).

This report does not address the problem of marine litter. This issue will be discussed at the Fifth North Sea Conference in March, and the Government will return to this subject in the next RM. When it comes to outdoor life and recreation reference is made to Parliamentary Report No. 39 (2000–2001). Climate

change that might be of significance for the state of the sea is not dealt with in this report. However, reference is made to Parliamentary Report No. 54 (2000–2001) on Norwegian climate policy and to the Government's supplementary report that will be put forward this spring.

2. DEVELOPMENT OF COMPREHENSIVE MANAGEMENT SYSTEM FOR COASTAL AND MARITIME AREAS

2.1 CURRENT STATE OF THE ENVIRONMENT AND TRENDS IN THE FUTURE

2.1.1 Present state of the environment¹

The global picture: the state of the environment in the world's coastal and maritime areas is deteriorating constantly as a result of land-based activities and activities close to the coasts. As a rule, the damage to the environment is greatest in coastal and shallow waters close to densely populated areas where the inputs of most pollutants are at their height and where physical intervention, disturbance and pressures on living resources are most extensive. It is also along the coasts and on the continental shelves that the most productive ecosystems and the most important harvestable stocks and petroleum deposits are to be found.

This is why both fishing activities and oil operations are concentrated relatively close to the coast where shipping is also at its heaviest. The sea is also affected by land-based activities located far from the coast through input from watercourses, marine currents and airborne pollution. These effects are also greatest in waters close to the coast and in particular near the mouths of rivers, which flow through densely populated industrial and farming areas. The open oceans are far less productive and also far less exposed to human activity.

The UN Expert Group on the Marine Environment (GESAMP) has identified pollution from land-based sources, destruction of habitats of marine species, effects on fisheries and the introduction of non-indigenous species as the main threats to the marine environment in the global context. Climatic changes caused by human activity may also

have serious consequences for the marine environment, e.g. via changes in temperature, shifts in the major ocean currents, effects on fisheries and rising sea levels.

The regional picture: the scenario of threats varies from one area to another. As far as the North Sea is concerned it is fishing, organic hazardous substances and nutrients which emerge as the main factors affecting the environment. But, oil spills, local discharges of heavy metals and organic hazardous substances such as tributyltin (TBT) from anti-fouling paints on ships, along with introduced species have been identified as significant factors influencing the environment. By and large the Norwegian Sea and the Barents Sea are less hard hit. Here it is fisheries and inputs of organic hazardous substances transported over long distances that affect the marine ecosystems the most. Local discharges of hazardous substances, such as TBTs, and increasing aquaculture in coastal areas are also important factors, while oil spills are a potential hazard in general.

2.1.2 A complex interaction between different factors

A range of different activities and discharges affect the state of the marine environment in coastal waters and out to sea. The accumulated load on the marine ecosystems is therefore a result of a wide range of different factors such as eutrophication, discharges of chemicals, contaminated sediments, harvesting of living resources, introduction of non-indigenous species and the physical destruction of habitats. Added to all this are the pollutants which are carried into our areas from outside and activities in other countries which affect the ecosystems in our areas, e.g. through fishing of joint stocks.

1. Please see Annex, Reference 1.

Thus, the state of the environment in the Norwegian maritime areas is not merely a product of our own activities, but also a result of which pollutants are swept into Norwegian areas by sea currents or by the wind. It also depends on how we interact with other nations in respect of common resources.

The state of the marine environment is governed by a complex pattern of interaction between a natural interplay and variation in the ecosystems and effects caused by human activity. Impact on just one component will produce consequences in other parts of the ecosystem even though the actual effects may often be difficult to discern. If key species, i.e. species on which many links in the chain depend, are negatively affected, this can lead to changes in the entire system.

2.1.3 The individual industries and sectors are facing major challenges

The North Sea, the Norwegian Sea and the Barents Sea are among the most prolific marine areas in the world. Fishing and the catches of fish along with aquaculture are of vital importance as a source of income in the communities along the Norwegian coast. The fishing industry is dependent upon renewable, but not unlimited resources. This is why it is important to develop management strategies, which take account of the ecosystem as a whole and of how the fish stocks are influenced by a variety of environmental factors and by fishing activities. A clean sea and sustainable outtake of the living marine resources is a sine qua non if the generation of revenue in the fishing industry is to be maintained and increased and is thus an important part of the coastal population's basis for existence.

Outtake leads to a change in the dynamics of stocks and of the ecosystems. Most of the species, which are of importance to our economy, have the ability to adapt to different types of effects. Productivity does in fact increase in the presence of a moderate load in that the individual fish grow more quickly and start reproducing at a younger age. But, when the pressure on the fish exceeds a certain level, the stocks are no longer in a position to adapt and the situation becomes one of overload. By-catches are a problem both in commercial fisheries and for individual populations of sea birds and marine mammals. In

addition, there are effects on ecosystems in the form of damage to the seabed. Overfishing is regarded as a major problem in the global context and the UN Food and Agriculture Organisation, the FAO, has estimated that between 15 and 18 % of the world's fish stocks are being overfished. If something is not done to reduce the amount of overfishing, catches from these stocks will shrink considerably.

Present-day fisheries management is based on the main principle of sustainable fishing activity based on the best available scientific advice. One of the major problems is that the overall, global fishing capacity far exceeds available resources. This overcapacity is perhaps the main force driving overfishing. Overcapacity is a problem even in Norway. In general, the fishing fleet is too large in relation to the resources available.

As much as 90 % of Norway's fisheries involve stocks shared with other countries. This means that the Norwegian authorities cannot decree how these stocks are to be managed on their own and instead have to co-operate with other nations in this regard.

The central environmental challenges in terms of fisheries management are linked to improving our basic knowledge of management, implementation of ecosystem-based management, including application of the precautionary principle, limitations on by-catches and damage to important areas of the seabed and more effective enforcement of regulations.

Over the past 30 years farming of salmon and trout has grown into an industry with an export value of over 13 billion Norwegian kroner. Aquaculture is a growth industry in Norway and of vital importance to the development of the coastal areas. It is our long coastline and our clean waters which together with the wild salmon stocks form the basis for this branch of activity. Only by maintaining our marine environment clean can we ensure the production of safe and good foodstuffs. It is therefore in the interests of Norwegian aquaculture to ensure good conditions for fish and shellfish to grow along the Norwegian coast. The industry has been faced with major environmental challenges which to a large extent have been dealt with through development of this branch. But, when it comes to the actual

environment there are still quite a few challenges. Primarily, it is a question of managing the effects of the fish farms on their immediate environment, the run away of fish from the farms, and the occurrence and spread of salmon lice.

The world market for fish and other seafood is highly sensitive to rumours of pollution, for instance radioactive pollution. Even though the levels of radioactive pollution in Norwegian waters are low, it indicates the presence of unwanted substances. The nuclear reprocessing plant in Sellafield is the main source of radioactive pollution today, but there is also a risk of accidents which can lead to radioactive pollution from nuclear installations, nuclear-powered vessels and vessels carrying radioactive materials through waters close to Norway's coasts. At international level Norway is active in trying to get reductions in discharges of radioactive pollutants into the marine environment and in trying to limit the risks of nuclear accidents which could contaminate Norwegian maritime areas. The fishery authorities monitor the presence of alien substances in Norwegian fish and seafood on an ongoing basis as part of the important work being done on documenting the good quality of Norwegian seafood. Monitoring of the marine environment is of vital importance in this regard.

The spread of species to areas where they do not occur naturally has become much more common over the past decade. At the same time we are seeing more and more examples of how this can have major effects on ecosystems and on indigenous species along with serious consequences for the branches which use the living resources.

Examples from Norwegian waters are the introduction of the harmful *Chatonella* spp. of plankton algae, which was probably introduced via ballast water from ships arriving from Asia, and the proliferation of American lobster which could supplant the indigenous stocks. Although we have been spared the most dramatic consequences in Norwegian waters so far, it is becoming increasingly clear that non-indigenous species are a major threat even in Norway. There is therefore an urgent need to develop means of reducing the negative effects.

Large amounts of numerous chemicals we know to be harmful to the environment and also potentially

detrimental to health, are still being discharged into the environment and are a source of concern. Even though we have engineered considerable reductions in discharges of known hazardous substances into our seas and coastal areas, these substances will continue to be present in the natural environment in concentrations which represent a threat to the ecosystems. This is attributed to the fact that many of these hazardous substances are only marginally degradable and can easily be stored in food chains in our seas. This means that they will remain a threat to the ecosystems for many decades to come, even if discharges cease entirely. It is impossible to fix safe levels or limits of tolerance for hazardous substances in the natural environment. Discharges of these substances must therefore be stopped completely.

Discharges of toxic substances into Norwegian waters occur both from local, land-based sources, from petroleum exploitation operations and from vessels. However, they are also to a large extent brought to us by the wind and by marine currents after having been discharged in other parts of the world. If we are to succeed in stopping these inputs of environmental toxins into our marine areas, we will have to find solutions at international level, and we must therefore focus on international co-operation in this area.

In the case of most chemicals we lack basic knowledge of their effects on health and on the environment. We know even less about how they influence the environment either alone or when interacting with other substances. We need to know much more about this in order to be able to obtain a full picture of the challenges facing us. For the sake of the environment it is particularly important to establish which substances are only marginally degradable and are easily stored in the food chain since these properties give the substances the potential to inflict long-term damage on the environment of the type we have experienced from, for instance, PCBs. In addition, there are the endocrine disrupters, which can affect the reproductive capacity of fish and marine mammals, and we need to learn more about these.

Discharges over a long period of time have caused sediments in a number of coastal areas and fjords to currently exhibit extremely high concentrations of

environmental toxins. This type of pollution damages the environment in the areas concerned and also limits the use of many areas for the purposes of fishing and aquaculture. Furthermore, contaminated sediments represent a threat to other areas since environmental pollutants can spread and contaminate them as well. Up to now, high priority has been given to stopping fresh discharges of environmental pollutants. We must continue to give high priority to work on these issues, but at the same time it is important to get started on the extensive cleanup operations necessary to ensure that the environment is in an acceptable condition in all of Norway's coastal areas.

Oil pollution in Norwegian waters have their origins both in normal drilling operations and in accidental discharges from platforms, along with shipping and land-based sources. The oil industry is constantly expanding to cover new parts of our maritime areas and even to sensitive environments close to the coast. At the same time, operational discharges of oil and chemicals are on the increase without our knowing enough about their long-term effects on the environment. This can give rise to a growing conflict of interests between fisheries interests and those anxious to protect the environment. The big challenge is to reduce the operational discharges of oil and chemicals harmful to the environment and to improve our knowledge of the effects of these discharges. It is also important to limit territorial conflicts and the risk of damage to stocks and vulnerable areas.

Shipping is an important source of major oil spills via accidents and through illegal discharges. Major oil spills from shipping often occur close to land in vulnerable areas, and in the future tankers will be carrying large amounts of crude oil from North-western Russia and travelling close to the Norwegian coast. Together with increased interest in petroleum exploitation in the Barents Sea, this calls for preventive measures and preparedness for emergencies in order to limit damage. This demands close co-operation with the Russian authorities. But, in the Barents Sea region there is limited scope for effective protection against oil spills during the dark part of the year. There is also a great deal of tanker traffic connected with our oil refineries and oil terminals in Southern Norway.

A considerable increase in shipping from Russia and the Baltic States is also expected through the straits of Øresund and Store Belt. In the light of the recent spate of shipwrecks and the expected increase in transports of environmentally hazardous cargoes, for instance cargoes of oil, along the Norwegian coast, it is clearly necessary to improve the safety and response systems in place along the coast.

Thanks to our long coastline and in places low population density we still have areas along our coasts, which have been little affected by human activity. But, in Norway too there is still considerable pressure on areas in the coastal zone near to the most densely populated areas. Conflicts between different users are also increasing. We have also left our mark on the seabed. It is estimated that between one third and half of the deep-water coral reefs to be found along the Norwegian coast have been either damaged or destroyed as a result of bottom trawling. Important results have been achieved both nationally and internationally to protect the maritime and coastal areas from environmental damage.

Substantial reductions have been made in our own discharges of substances hazardous to the environment and of nutrients, and at international level work has been started on drawing up global and regional regulations designed to reduce discharges of pollutants into the sea. Similarly, progress has been made at both national and international level in providing better protection for living marine resources. But, even though much has been achieved there are still major problems which need to be solved, problems linked to pollution, physical intervention and management of living resources. More details are given in Chapter 3 of the challenges we face in different areas and how the Government intends to deal with them in the future.

2.2 NEED FOR MORE COMPREHENSIVE MANAGEMENT

The above shows how important it is to carry out a thorough assessment of how we manage our coastal and maritime areas, if we want to achieve the goal of having clean waters full of marine life.

2.2.1 Need for better co-ordination of different areas of interests

More and more use is being made of coastal and maritime areas throughout the world and this applies to Norway too. The range of activities affecting the environment is increasing and measures to counter their influence are often introduced without sufficient knowledge of the correlations between loads and their effects on the ecosystems.

Given the growth in fish farming activities the demand for space will also increase. We are witnessing a generalised increase in activities in the coastal and maritime areas and there is thus an increased risk of conflicts over use of space available. The oil industry is moving closer to shore and more vulnerable areas. Shipping along the Norwegian coast is on the increase, thus increasing the risk of accidents. We now also know more about the vulnerability of our marine and coastal environment. All this means that conflicts between different user interests will increase in the years to come.

Traditionally, various forms of pollution, outtake of different species and different types of intervention have been assessed and managed in a fairly isolated way and without taking account of the fact that the existing ecosystems and species are prey to a range of other environmental effects. At national level each sector draws up its own policy for the coastal and maritime areas, and this policy is very much influenced by sectoral and industrial interests. What the different policies have in common is that they influence the environment in a way that is of significance to many other legitimate interests. Most users do nevertheless consider the environment to a greater or lesser degree, but there is little co-ordination of measures introduced in the different sectors. Taken together, the implementation of these plans can lead to overload on the environment and overexploitation of resources.

It is neither possible nor practical for all sectors and users to have a comprehensive picture of how their activities influence other sectors and activities or ecosystems in the broader sense. This is why it is important for the authorities to put things right and ensure that activities and interventions in the coastal and maritime areas are governed by an overall plan whereby every operation is not

assessed isolatedly, but as part of the whole range of impacts and interactions.

The increasing level of conflict and the need for better co-ordination is also a typical problem at the international level. The EU has adopted a framework directive on water, which focuses on the need for more co-ordinated management of water resources. The different countries are to develop integrated management plans accompanied by specific programmes of action for each individual water district based on environmental quality objectives. Norwegian compliance with the directive is described in Chapter 2.3.2.

Many of the marine resources in the maritime areas under Norwegian jurisdiction are shared with other countries. The international agreements set out overall objectives for how the resources are to be managed. The principle of sustainable use and a precautionary approach are of central importance. More precise objectives as to how the fish stocks are to be managed are, however, not set out in international agreements.

It is important to establish an overall system for co-ordination of activities to ensure integrated management of our seas and coastal areas. All sectoral authorities and other interested parties must co-operate in co-ordinating the management exercise. Integrated environmental protection policy must face up to both national and international challenges and ensure that international environment protection efforts tally with national.

Furthermore, organisation of work in individual target areas needs to be reviewed in order to improve its effect. An obvious example is organisation of safety and emergency routines along the coast. The way in which things are organised today is fragmented and not effective. A number of authorities are responsible for different preventive measures, while measures to repair damage are in the hands of other authorities. Better co-ordination between the different sectors and levels of the administration is needed.

2.2.2 A lot at stake...

The abundant biological diversity and production capacity of our coastal and marine areas must be

managed in a manner which preserves them for future generations. Lost diversity can seldom be restored and lost production capacity can only be built up again slowly or if at all. This should be a principal consideration when setting the basic conditions for all forms of activity, which may have a negative effect on maritime and coastal areas.

The value of marine and coastal areas has traditionally been estimated on the basis of the scope they offer for utilization of resources, whether this be in terms of extraction of oil or catches of fish. It is possible to calculate such values, but Reference II of Annex I shows that biological diversity is associated with a range of other values which cannot so easily be calculated in monetary terms. For instance, it is difficult to put a price on what may be termed «ecological services».

2.2.3 The ecosystem approach to management of maritime and coastal areas²

The Government takes the view that co-ordination between different authorities must be increased if we are to achieve our goal of having clean seas rich in marine life. The Government is therefore preparing a plan for total and integrated management of our maritime and coastal areas based on the system approach. This is necessary in order to ensure that the accumulated effect on the environment in the long term is not greater than what the structure of the ecosystems, the way in which they function and their biological diversity can tolerate.

Ecosystem-based management of the marine environment means management which takes account of the basic conditions set by the ecosystem itself in order to maintain production and conserve biological diversity. The concept of the «ecosystem approach» has been developed and integrated into a number of international agreements over the past 10 years and is, for instance, a central element in complying with the convention on biological diversity. General criteria have also been developed in connection with this convention for the implementation of ecosystem-based management (the Malawi principles), which Norway has endorsed.

In 1997 the Ministers responsible for fisheries and environmental protection meeting in Bergen reached agreement on further integration of measures within the area of fisheries management and environmental protection through the development and use of the ecosystem approach. They also agreed that any such ecosystem approach would be based on co-operation between the authorities in different sectors, on getting the necessary research started, on assessing the effects of human influence on the ecosystems and on organising the integration of these various aspects. The authorities in the countries around the North Sea were asked to analyse progress and remaining problems for the implementation of this type of management and to report to the Fifth North Sea Conference to be held in Bergen in March 2002.

Subsequently, the principle of ecosystem-based management was integrated into work being done within the framework of the OSPAR Convention on the Protection of the Marine Environment in the Northeast Atlantic and the EU's new water framework directive.

The Government intends to build on what has already been done in this area and on other global and regional conventions and agreements designed to establish frameworks for ecosystem-based management of the Norwegian coastal and maritime areas.

2.2.4 Sectoral responsibility and the need for co-ordination

We still have a long way to go in terms of being able to implement the ecosystem approach to management as an overall principle across all sectors and different factors affecting the environment. A central element in the Government's policy of environmental protection is sectoral responsibility and trade and industry's own responsibility. Chapter 2 in Parliamentary Report No. 24 (2000–2001) «Government Environmental Policy and the State of the Environment» contains a general outline of the system chosen to steer the course of the country's environmental protection policy.

Sectoral responsibility means that sectoral authorities and the different branches of trade and industry are independently responsible for including

2. Please see Annex I, reference II and III.

environmental considerations in the organisation of activities which affect the environment in maritime and coastal areas and that they therefore must integrate environmental factors into their own management. The Ministry of Fisheries, the Ministry of Petroleum and Energy and the Ministry of Trade and Industry are pivotal ministries in this respect and have a special responsibility for central measures and policies within important sectors such as fishing, aquaculture, petroleum exploitation and shipping. A prerequisite if sectoral responsibility is to work in practice is for there to be common, national goals and a distinct division of responsibility between the different authorities.

The Ministry of the Environment has the main responsibility for national goals, steering systems and follow-up of results in the field of environmental protection policy. This Ministry also has an important co-ordinating function vis-à-vis the ministries responsible for the different sectors. Implementation of co-ordinated environmental protection policy for the maritime and coastal areas must be firmly anchored in this system.

2.3 THE GOVERNMENT'S PLAN FOR TOTAL MANAGEMENT

The Government intends:

- to establish an integrated plan for management of the Barents Sea;
- to develop integrated plans for management of waters close to the coast and in the fjords pursuant to the EU water framework directive; and
- to introduce a long-term policy focussed on ecosystem-based management of coastal and maritime areas which is based, *inter alia*, on environmental quality goals for the ecosystems.

This chapter deals with the overall policy that the Government wants to initiate to develop a more integrated and ecosystem-based form of management. The Government takes the view that the general pool of knowledge on Norway's marine and coastal environment is sufficient to allow us to start the processes necessary to carry out comprehensive analyses and develop management plans as a tool for more integrated and comprehensive management. With regard to the maritime areas, the

Government wants to start with an initiative aimed at drawing up an integrated management plan for the Barents Sea. In the case of the coastal areas the work will be carried out as part of complying with the new EU water framework directive.

The framework directive, which will be part of the EEA Agreement, requires the development of total management plans, including for the coastal areas. Parallel to this, the Government will be speeding up work on improving the basic reserve of information available, through, *inter alia*, monitoring and research with a view to developing a more comprehensive and long-term system for ecosystem-based management of human activities affecting the marine and coastal environment. Norway will be placing great emphasis on international cooperation in this area.

2.3.1 An integrated management plan for the Barents Sea

The Government aims to have integrated management plans established for the Norwegian waters which fix clear basic conditions for the use and protection of the coastal and maritime areas. These plans must have sustainable development as a central objective, and management of the ecosystems must be based on the precautionary principle and be implemented with respect for the limits that nature can tolerate. An important element will be the ecosystem approach including the establishment of environment quality objectives. A general description of the structure of such plans is given in Chapter 2.3.3.

Work on drawing up ecosystem-based management plans for maritime areas is a necessary step in order to ensure a more co-ordinated management of the maritime areas and the resources there. This is why it is necessary to move forward step by step and to learn from experience along the way. As a first step the Government envisages drawing up an integrated management plan for the Barents Sea where overall account is to be taken of the environment, fishing activities, oil operations and shipping. Experience gained from this work can then be used as a basis for a decision to develop similar, integrated management plans for the Norwegian Sea and the North Sea. There are many reasons why the Government wants to start with the Barents

Sea and to establish frameworks for future activities in this area which ensure the preservation of the quality of the environment. This is a maritime area, which is exposed to human activities to a relatively small extent. It is one of the areas in the world, which has the most abundant populations of fish, sea birds and marine mammals that it is important to preserve for future generations. Many of the stocks merit international protection. The main characteristics of the ecosystems are known, but we know very little about how pollutants affect species and systems. Low temperatures and drift ice mean a lengthy degradation period for oil and chemicals discharged into the environment. These factors, along with high waves at times during the dark season of the year considerably reduce the scope for effective systems to deal with acute oil pollution. A weaker infrastructure in the provinces of Nord-Troms and Finnmark than that found in other parts of the country also makes it more difficult to deal with emergencies.

Before the southern part of the Barents Sea was opened up for petroleum exploitation in 1989 a survey was carried out to assess what the consequences of this would be. This was the first area-specific investigation of possible consequences of petroleum exploitation on the Norwegian continental shelf since the advent of the Oil Act of 1985 and led to time limits being fixed for prospecting drilling operations out of consideration for vulnerable natural resources. Pursuant to legislation this survey only covered the consequences of prospecting for oil and not the consequences of any extraction operations.

The Government takes the view that better tools need to be developed to make it possible to strike the right balance between the different areas of interests linked to the Barents Sea. This can best be achieved by drawing up an integrated management plan based on the impact assessments for the different sectors. As far as the oil industry is concerned this will involve an impact assessment of year-round oil operations for the area stretching from the Lofoten Islands and northwards from there. Parallel to this, work is to be started on impact assessments, for instance, shipping, fishing and fish farming activities. These surveys will identify and assess problems caused by the

overall effect of human activities on the maritime area.

Each sector will have to describe its own field of activity and expected development and map out the consequences for the ecosystems and for other stakeholders in society. In that context it will also be important to establish where we need to know more, which areas are vulnerable etc.

The management plan is to cover the entire Barents Sea and the analysis of the consequences of the petroleum exploitation is to include a reassessment of existing knowledge of the whole Barents Sea area. However, it is not the intention of the Government to trigger a process which opens up the North Barents Sea for petroleum exploitation.

The main aim of the plan is to help achieve consensus among different trade and industry interests, local, regional and central authorities, environment protection organisations and other stakeholders on the management of this maritime area in accordance with the principle of sustainable development. The integrated management plan drawn up by the authorities will create an overall framework, but will need to be supplemented by more detailed plans for the individual sectors, e.g. for the oil industry, fisheries, shipping and so on.

Close co-operation with Russia will be necessary and also important when carrying out surveys to chart the consequences since this maritime area is shared with Russia. The issue has already been raised bilaterally in connection with co-operation between Norway and Russia on the environment and will also be raised in the context of the Norwegian-Russian Fisheries Commission and the Norwegian-Russian Forum on Energy and the Environment.

The Government plans to set up a steering group comprising representatives of the ministries concerned under the leadership of the Ministry of the Environment which is to co-ordinate the drawing up of the integrated management plan. It is essential that authorities and other interested parties in this part of the country become involved in the work, and the Government intends to make sure that procedures are established that take account of this requirement in an appropriate manner. Fishing is part of the basic way of life of the Same peo-

ple (Lapps) in the areas they occupy along the coast and fjords adjacent to the Barents Sea. The Lapp Parliament (Sametinget) will therefore be involved in the work.

Drawing up the management plan will be a big and demanding job. First, there must be a thorough assessment of the different interests to be taken into account via the sectoral impact assessments. This process will obviously take some time, but the Government aims to give this work high priority to ensure that an integrated management plan is in place as soon as possible. The Government will report to Stortinget on the work via the Parliamentary Reports on the Government's environment protection policy and the state of the environment throughout the country.

A follow-up system will be established for the management plan to ensure that it is up-dated as needed, e.g. in the light of new findings emerging through monitoring and research. The plan will fix the basic conditions for activities in the area, and it is important that these conditions are as predictable as possible for the individual branches.

The total management plan for the Barents Sea will thus be the first integrated management plan for the Norwegian maritime areas. The plan now about to be drawn up must therefore be viewed as a first-generation plan which will also help us to gain useful experience which can be called upon in future work on similar plans (cf. Chapter 2.3.3).

2.3.2 Integrated management of the maritime areas and parts of fjords close to the coast

An obligation to carry out more comprehensive and integrated management of the maritime areas and parts of fjords close to the coast is already enshrined in the European Parliament and Council Directive 2000/60/EC on the establishment of a framework for the Community's water policy (the water framework directive). The directive is designed to conserve, protect and improve existing water resources and the aquatic environment, while also ensuring sustainable aquaculture. A series of directives and international conventions exist whose purpose it is to protect water resources and the aquatic environment. The framework direc-

tive creates a superstructure for all these directives and provides guidance on how water should be managed within the European Community.

The directive is viewed as one of the most important parts of the community legislation on protection of the environment. The directive came into force on 22 December 2000 and must be transposed into Norwegian legislation by virtue of the EEA Agreement by the end of 2003.

Watercourses, groundwater and coastal waters up to one nautical mile outside the baseline fall within the scope of the directive. Implementation of the directive will therefore be an important element in the management of waters close to the coast. The main objective of the directive is to protect and where necessary improve the quality of the water by 2015. All forms of use must be sustainable over time. Each country must divide its water resources into districts to be responsible for the total rainfall area including the adjoining coastal area; they will be known as catchment areas. The directive requires that water resources be charted and monitored. Specific environmental goals must be fixed for water, and by 2009 a management plan for each catchment area must have been drawn up. The management plans must be accompanied by a program of action setting out the measures which must be introduced in order to meet the objectives. The management must be based on environment goals defined in the light of both chemical and biological factors in the watercourses and in sea areas.

The directive presupposes that plans will be drawn up via a broad-based process involving authorities and professional and industrial bodies. The work on trying to achieve the objectives fixed in the directive will also indirectly affect the rights and obligations of private individuals. Management plans, trends in water quality, organisational solutions etc. must be reported to the EFTA supervisory authority, the ESA.

The directive also aims at increasing protection of the aquatic environment from pollution by substances toxic to the environment. In the case of priority substances present on a list adopted by the European Parliament and the Council, harmonised standards for water quality, necessary limitations

on discharges and product-specific measures will apply at community level. The first version of this list comprising 33 priority substances and groups of substances was adopted in November 2001. Discharges of the substances with the highest priority must be phased out within 20 years following their inclusion on the list. Discharges of the other substances on the list are to be progressively reduced to bring concentrations below the levels in the quality standards currently being drawn up for water, sediments and biota.

The Government regards the EU water framework directive as an important instrument for achieving a more comprehensive and integrated type of ecosystem-based management of areas close to the coast in that management of watercourses and land and sea areas in the coastal zone is seen in an overall context and based on environmental objectives. The Government is at present considering how the directive can best be applied in Norway. The Ministry of the Environment, the Ministry of Petroleum and Energy, the Ministry of Fisheries, the Ministry of Agriculture and the Ministry of Health are now together assessing how to divide up responsibility, tasks and duties. An inter-directorate group has been set up to help the ministries in this work. It is made up of representatives of the Norwegian Pollution Control Authority, the Directorate for Nature Management, the Norwegian Watercourses and Energy Directorate, the Norwegian Food Control Authority, the Norwegian Institute of Public Health, the Directorate of Fisheries, the National Coastal Administration and the agricultural authorities under the auspices of the Ministry of Agriculture. The Government plans to circulate a presentation of the consequences for Norway of implementing the directive for public comment this year. In addition, the authorities concerned, professional circles and organisations have been asked to comment on issues with administrative and professional connotations in connection with implementation of the framework directive.

In asking for comments the Government is anxious to focus in particular on the requirements the directive makes of authorities to implement in the short term. By 2003 Norway must have divided its territory into catchment areas, designated competent authorities and transposed the provisions of the directive into Norwegian legislation. By 2004

Norway must have established a register of all the areas in each catchment area, which require special protection, and produced a description of the characteristics of each catchment area. The hearing document will also refer to the requirements the directive makes of the authorities in the longer term up until 2015, but here a number of issues still need to be clarified; for instance, shaping of environmental objectives, establishing management plans, programmes of action and monitoring plans.

The directive requires the introduction of total water management on the basis of catchment areas, and this is something which will have consequences for the current system of water management in Norway. The system of water management in place today is the product of specifically Norwegian circumstances. This system works well in many areas, but can seem fragmented and not up to optimum standard in other areas. Compliance with the directive will help generate more comprehensive and planned management of water resources and a much better basis for decisions.

In seeking to achieve the environmental objectives the point of reference has to be the catchment areas, and the directive requires administrative units which coincide with the boundaries of the catchment areas, thus cutting across current municipal and country boundaries. The directive means that management by the authorities will cut across established lines of demarcation between authorities and administrative services at regional and national level. The authorities responsible at district and local levels will be given a number of important responsibilities; for example in connection with describing, monitoring, planning and implementing measures. The directive imposes a division into districts, which are also responsible for total rainfall in the adjoining coastal zone.

This directive is a minimum directive and the individual countries are at liberty to introduce more stringent provisions or a higher level of ambition than the directive itself requires. It specifies a high level of ambition in terms of development of water resources, while at the same time containing provision for exceptions. The authorities in the individual countries have considerable room for manoeuvre. Initially compliance with the direc-

tive may call for measures and restrictions in a number of areas. The detailed specification of the environmental objectives will come towards 2009, the deadline for having the management plans in place, along with the specific basis for decisions in the form of measures, benefits and costs.

2.3.3 More about the work on ecosystem-based management of our maritime and coastal areas

As has already been pointed out in the above, the Government's long-term objective is to develop integrated management plans for our coastal and maritime areas based on the present state of the ecosystems and with the focus on the ecosystems' capacity for self-renewal in order to avoid damage. Management plans drawn up to comply with the water directive (cf. Chapter 2.3.2) will be of a different nature and involve a different procedure than the management plans to be drawn up for the maritime areas. This is mainly due to the fact that the plans drawn up for compliance with the water directive must follow the systems laid down in the directive.

The technical basis must be improved via research into different loads and the establishment of environment quality objectives, which can be verified a posteriori. Monitoring of the environment must be co-ordinated so as to produce the best possible overview of environmental status and changes in the condition of the environment.

The Government presupposes that the integrated management plans for the maritime areas will be drawn up as an open procedure, as is also the case with the plans pursuant to the water directive, and will involve co-operation between all the sectors, branches of trade and industry and other stakeholders concerned. This will ensure consensus on the general direction and reduce the scope for conflicts between different areas of interests. International co-operation will be of central significance both with regard to the management of common maritime areas like the North Sea in terms of exchange of experience and joint further development of tools for steering the process.

The integrated management plans for the maritime areas will use the sectoral surveys of consequences

to provide a basis for the establishment of protected areas and offer general guidelines for activities in the maritime areas. The plans should also coordinate follow-up of activities and measures and provide guidelines for monitoring of the marine environment. It should, however, be the ministries responsible for the different sectors, which have responsibility for drawing up specific management plans for how to achieve the objectives in the total plan and follow up activities in their sector. The ministries' environmental action plans will be of central importance here. Similarly, authorities and branches of trade and industry at local level must also be involved. In this way the management plans will provide a total, overall system involving all operators and where the latter assume responsibility of achieving objectives and results in their respective areas.

Even though it is not expected that the plans will have legislative repercussions, it is essential that they should be able to fix predictable basic conditions for activities and initiatives. At the same time, there must be nothing to prevent the conditions being changed subsequently, if this is necessary in order to ensure that there is no serious damage to the environment. A central feature of the plans will be that they must divulge gaps in knowledge and highlight areas where research and initiatives are needed.

2.3.3.1 Basic know-how

There are still many gaps in what we know about the structure of the marine ecosystems and the way in which they work. We need to learn more if we are to be able to strike the right balances and make the right choices.

The Government intends:

- to ensure better national co-ordination of work being done by state institutions and private operators in the field of regular stocktaking and reporting on status, including assessing whether one institution should be given specific responsibility for co-ordinating and viewing living marine resources and the marine environment in an overall context;
- to increase, compile and improve access to data on the marine ecosystems;
- by considering the implementation of the proj-

ect entitled "Marine mapping and development of an area database for the Norwegian coastal and maritime areas" (MAREANO);

- by introducing a requirement whereby all relevant environmental data obtained from publicly funded research projects and from monitoring activities imposed by the public sector must be made accessible; and
- by establishing national programmes for charting and monitoring biological diversity, including setting up a national species database;
- to arrange for co-ordinated collection of data and investigate the setting up of common databases for the purposes of monitoring and research;
- to intensify and co-ordinate monitoring efforts in the maritime and coastal areas within the existing budgetary framework via better coordination of available staff and vessels resources, including assessment of common shipping pool covering all Norwegian vessels used for marine and fisheries research;
- to carry out research work in Norwegian maritime areas in order to learn more about the structure and workings of these ecosystems and the effect of human activities on them; and
- to support the implementation of a research programme on the ecosystems in the North Sea in collaboration with the EU and the other riverine states around the North Sea with the aim of improving basic knowledge on which to found an ecosystem approach to management.

Research provides knowledge of and insight into the structure of the ecosystems, their modus operandi and the correlations with human activities and their effects. Monitoring provides up-to-date information on the current situation in the physical, chemical and biological marine environment. Over time, monitoring provides time series of data which document changes in the marine environment, both natural changes and changes caused by man. What we learn from research and the information obtained from monitoring lays the foundations for assessments of status, trends and forecasts of future developments in our seas.

Knowing more about our marine species and habitats is a vital prerequisite for differentiated area management. In the international sphere a great deal of attention is being directed towards this field, and countries such as Australia, Canada and the USA are

running major national programmes designed to chart marine habitats in their maritime areas.

Norway has large maritime areas within its territory. There are, however, serious gaps in what we know about their status, while we also have great expectations in terms of possibilities for use. This is why it is important to increase our general knowledge of these areas while also obtaining a more detailed picture of the correlations between the physical environment, the abundance of species and the biological resources. It will also be important for Norway to learn more about the potential for use of our biological diversity.

A group made up of a wide range of state directorates and research institutions has developed the MAREANO project. This project entails essential studies and charting of depths, seabed types, geological conditions, pollution, types of environment, biological diversity and marine biology resources in selected areas. The information is to be made available via an internet-based marine area database (GIS). The database will also contain information on other sources of data and links to them. The Government will be carrying out an assessment of the MAREANO project with a view to making it a central component in the pool of data to be used for the management of our coastal and maritime areas.

The Norwegian Marine Data Centre (Norsk Marint Datasenter – NMD) is attached to the Institute of Marine Research (Havforskningsinstituttet – HI) and plays a role in co-ordinating surveys and storing data on the marine environment. It is important for data on the marine environment and living resources obtained via research projects to be made available for use in overall assessments of the status of the marine ecosystems. In the case of research projects financed by public funds it will be a requirement that relevant environmental data obtained through the projects be made available for this type of assessment of status.

A species database is to be established in Norway in the course of 2002. This species database will be attached to the University of Trondheim. It will interact with existing databases and constitute a generally available database of assured quality drawing on the other databases. For the first few years the species database will concentrate on data

access and will put forward proposals for revised, national red lists of species to the Directorate for Nature Management.

There is a need for better co-ordination of the work and use of the results of monitoring of the marine environment. A number of bodies are at present engaged in significant monitoring of the marine environment and living marine resources, while only co-ordinating that work to a limited extent and without this being part of an overall, common national plan.

Work on co-ordination of monitoring the environment and its resources by different institutions has already been started:

- In the autumn of 2001 the Institute of Marine Research (HI) initiated collaboration on monitoring of the marine environment with the Norwegian Meteorological Institute (DNMI), the Norwegian Institute for Water Research (NIVA), the Norwegian Polar Institute, the Norwegian Radiation Protection Authority and the Nansen Centre for the Environment and Remote Sensing (NERSC). This collaboration will help co-ordinate monitoring of the marine environment at national level across the different parts of the Civil Service.
- As part of the work on the national programme for surveying and monitoring biological diversity there will also be a co-ordinated plan in place by 2003 for charting and monitoring which will also comprise criteria for classification of marine environment types on the basis of their value.
- The various institutions compiling data in the northern areas have agreed to work together with the aim to produce an overall picture and multidisciplinary interpretation of environmental data in the northern region under the heading of MONA. This is one of several tools, which can lay the foundations for a total management plan for the Barents Sea.

The Norwegian vessels used for marine and fisheries research are today managed by a number of different institutions. There is considerable potential for more cost-effective operations via better coordination of the research work done by the vessels and use of periods at sea etc. The Government therefore wants to evaluate how co-ordi-

nated use of all of the Norwegian marine and fisheries research vessels can be arranged. The aim of this organisational change is to promote a higher level of activities within the same cost frame. The investigatory work will be carried out by the Ministry of Fisheries in co-operation with other ministries concerned.

The quality of the marine environment influences the ecosystems in different ways and assessments must take account of natural fluctuations and effects caused by human activities. It may be appropriate for a single state advisory institution to be given specific responsibility for co-ordinating the work and assessing the living marine resources and the marine environment in the overall context. This is the subject of further discussion at the moment.

In 2001 Norway and Iceland co-financed the UN Responsible Fisheries in the Marine Ecosystems conference. The declaration adopted by the conference highlights the need for a more ecosystem-oriented management of living marine resources. The International Council for the Exploration of the Seas (ICES) has established an advisory committee on ecosystems (ACE) and in so doing has created a scientific advisory mechanism for ecosystem-based management.

The Government wishes to stress that the different sectors and branches of trade and industry have a responsibility of their own to ensure an adequate pool of basic know-how. It also wishes to stress the importance of research on environmental consequences being integrated as a central theme into national research strategies for development of marine sources of nutrition.

A number of institutes in the field of environmental and fisheries research have submitted proposals for a programme for generating value and sustainable development in the Norwegian coastal zone. This programme may clarify the basic requirements for generating worth. The Government will be assessing these proposals and will then decide how these initiatives can be followed up. Co-ordination of the work being done in Norway on status assessment and status reports on the marine environment will be an important contribution to making a cost-effective contribution to

international work. At the same time international cooperation will give us a broader-based and better description and assessment which increases our understanding of the environmental situation in our own maritime areas. Our large marine ecosystems, the North Sea, the Norwegian Sea and the Barents Sea, are shared with other countries. Joint assessment and understanding of the state of the marine environment will be pivotal to good co-operation based on the ecosystem approach to management of these ecosystems.

2.3.3.2 Development of environmental quality objectives³

The goal of integrated management of the coastal and maritime areas assumes the establishment of goals for the state we want to achieve for the ecosystems. This will make it possible to control effects and to plan initiatives to ensure clean and abundant seas. We need a thorough knowledge of the structure, workings and state of the ecosystems to be able to fix environmental quality objectives for the coastal and maritime areas. The objectives for the different areas and ecosystems have to be fixed in relation to the quality of the environment in a corresponding ecosystem as unaffected as possible by outside factors. In fixing the objectives for the requisite environmental quality we must first know about the state of the environment in nearly unaffected areas. Integrated management involving assessment of different effects in the overall context demands a great deal of knowledge of the interplay between different forms of human influence and variations in natural factors.

Norway has along with the Netherlands been lead country for OSPAR work on developing criteria and methods for establishing marine environmental quality objectives. Initially such objectives are to be developed for the North Sea in collaboration with the international Council for the Exploration of the Seas (ICES). It has been proposed that objectives be fixed for a number of components in the ecosystem which together will contribute to conserving the productivity of the ecosystems along with their diversity. The first proposals for concrete environmental quality objectives will be presented at the Fifth North Sea Conference.

2.3.3.3 Local commitment and sectoral responsibility

The Government will aim at active participation by all parties concerned in the management of the maritime and coastal areas, while at the same time attributing the responsibility for management to the lowest appropriate level. The Government will fix the framework for management of the parts of the environment, which are of national significance, in the overall management plans, while activities and resources of primarily local significance to the environment should be managed locally. The Government intends to continue the work on developing an environmental protection policy which spans all sectors and which aims at harmonized use of means available across the board. At the same time the Government attaches great importance to dissemination of information and to clarification of national objectives and priorities for local authorities and trade and industry.

2.3.3.4 International co-operation on ecosystem-based management

A vital ingredient of ecosystem-based management of coastal and maritime areas is extensive co-operation with other countries and in particular with coastal states in our immediate vicinity. The Government therefore sets great store by international co-operation and negotiations. Chapter 4 refers in general terms to international work in the field of the marine environment.

In conjunction with co-operation in the North Sea area and within the context of the OSPAR Convention, Norway plans to work to promote the initiatives necessary to establish and meet environmental quality criteria for the North Sea and other maritime areas and to establish an internationally co-ordinated management based on the ecosystem approach. Norway will therefore continue to set its sights high in the context of the OSPAR Convention, North Sea co-operation and promotion of the ecosystem approach based on common environmental quality objectives. International co-operation in the management of living resources is also an area where Norway is anxious to promote the ecosystem approach based on scientific advice. Negotiations on fishing quotas with the EU and Russia among others represent a considerable challenge in terms of maintaining the total catches at a defensible level.

3. Please see Annex I, reference IV.

Joint research projects to support an ecosystem approach to the management of the North Sea will be given priority in co-operation with the EU and other countries around the North Sea.

ICES offers advice on the fixing of quotas in the area of fisheries management. With ecosystem-based management we will need to make more use of ICES as a scientific advisor and as a neutral body basing itself on scientific findings.

2.3.3.5 Follow up of results

On the basis of experience gained from an integrated management plan for the Barents Sea the Government plans to carry out frequent assessments of trends in the marine ecosystems and the

management of these systems. Any such status report will have to include proposals for initiatives, changes in priorities and a possible revision of the objectives. The process must involve experts from all relevant scientific areas and on the basis of the assessments and recommendations made the Government will undertake a review of the status and the need for initiatives. A report of the results will then be presented and proposals for the necessary initiatives will be put before the Norwegian Parliament in the appropriate way; for instance through the Parliamentary Report on the Government's Environmental Policy and the State of the Environment. The review will be in line with the reporting requirements linked to compliance with the water framework directive and the OSPAR Convention.

3. DEVELOPMENT OF COMPREHENSIVE MANAGEMENT SYSTEM FOR COASTAL AND MARITIME AREAS

3.1 INTRODUCTION

This chapter discusses a number of areas and sources for which a new policy is needed and/or which have not been dealt with thoroughly in previous proposals to the Norwegian Parliament.

3.2 PETROLEUM EXPLOITATION

Introduction

For a long time the oil industry has been a major contributor to the Treasury and to general prosperity. In the nineteen nineties this sector of activity made up 14 % of the Gross National Product (GNP) and 34 % of the total value of exports. In 2000 and 2001 this proportion was considerably larger, namely 23 % and 47 %, although this is largely attributed to higher prices of oil.

Ever since oil exploitation activities started on the Norwegian part of the continental shelf 30 years ago the authorities have been anxious to ensure that this industry co-exists peacefully with other branches operating in the maritime areas. Furthermore, since the very beginning of the oil industry in Norway an important requirement has been that it should operate within defensible environmental limits. Petroleum exploitation operations are gradually moving northwards, closer to the coast and vulnerable areas. In confronting the challenges associated with this trend it is important to build on experience already gained and to use the tools already developed. It is also important to ensure a solid basis for decisions relating to petroleum exploitation in the maritime areas stretching from the Lofoten Islands and northwards.

The Government wants to achieve this through, *inter alia*, carrying out an impact assessment of year-round petroleum exploitation in these areas. Technological development will also play an important part in terms of future challenges facing the oil industry with regard to profitability, co-existence with other branches of activity and future operations in the more vulnerable areas. There has been significant technological progress since oil production began in the Ekofisk field in 1971 and up until the present day. There are now safer and more environmentally friendly solutions for development. Continued focus on the environment when developing new, more cost-effective solutions will also mean reduced emissions into the air and reduced discharges into our waters.

3.2.1 Discharges into the sea⁴

The Norwegian maritime areas are exposed to pollution from operational discharges and accidental spills of oil and chemicals from land-based sources, shipping and petroleum exploitation. It has, however, been estimated that petroleum operations are only responsible for a small percentage of the inputs of oil from all the countries around the North Sea; the biggest source of pollution is discharges via the major European rivers and run-off from the soil. Natural leakage of oil from below the seabed is a significant source. Inputs from landbased sources mainly affect the areas close to the coast, while oil spills from shipping and petroleum exploitation are of greater significance out to sea.

4. Please see Annex I, reference V.

Discharges of oil-based drilling fluids were previously the most important source of oil pollution from the petroleum industry. Drilling fluids adhered to the rock masses displaced from the boreholes (drill cuttings) and discharged onto the seabed around the drilling installations. This had a significant impact on the seabed and led to major changes in the populations of benthic species. Changes were registered over up to 100 km² around some of these installations. The marked changes in animal life was primarily blamed on the oil in the drill cuttings and a ban on the discharge of drill cuttings containing oil was therefore introduced on the Norwegian continental shelf in 1991. The old heaps of cuttings predating that ban will, however, continue to have an impact on the seabed for a long time to come and the industry is now engaged in extensive investigations of what should be done in this regard.

The biggest discharges from the petroleum industry today come from produced water. The oilfields contain both oil and water and as the oil deposits shrink the voids are filled with increasing amounts of water. Most of the older fields therefore produce considerably more water than oil.

This water is separated from the oil and discharged after treatment. With the treatment techniques currently available it is mainly the dispersed fraction (drops of oil) of the oil which is treated, achieving an average level of 23 milligrams of oil per litre of produced water. The treatment techniques used today only remove the most hazardous compounds in the oil such as phenols and polycyclic aromatic hydrocarbons (PAHs) to a small degree.

Most substances hazardous to the environment, which are discharged during the operational stage, are discharged in conjunction with produced water. In addition to the chemicals that have been added, produced water contains a wide range of natural components originating from the deposits, including naturally occurring radioactive substances, heavy metals and other hazardous substances. A large number of chemicals are in use today during the different phases of petroleum exploitation activities. Approximately 98 % of the substances discharged are, however, regarded as nontoxic or only slightly toxic to the environment. Chemicals are discharged in connection with drilling opera-

tions and in produced water. In addition, smaller amounts of chemicals are discharged when cleaning pipes. As the age of the fields increases so does the need to add more types of chemicals and in larger quantities as a result of the growing production of water.

It is difficult to phase out hazardous substances which are present as contaminants in drilling components otherwise fairly harmless to the environment (such as barite) and of course in produced water. In the case of drilling fluids, weighting chemicals can be replaced to a certain degree by substances containing fewer elements harmful to the environment. As far as produced water is concerned both better treatment technologies and new techniques for the evacuation of discharges of produced water may be on the agenda for the future. With the exception of copper, the objectives fixed for discharge of hazardous substances on the priority list (see Parliamentary Report No. 58 (1996–97) pp. 62–63) will be achieved for chemicals added to products in the oil sector.

Today relatively small amounts of environmentally hazardous drilling fluids are used if drill cuttings (rock mass displaced by the drilling operation) need to be discharged. However, these discharges are not entirely without harmful effects, and in areas with coral reefs the discharge of rock masses as such can be a problem because the coral can be damaged through smothering. The commonest weighting chemical in drilling fluids, barite, can be found today in bottom sediment right inside the Skagerrak and in the outer part of the Oslo Fjord. This gives an indication of how fine particulate material from oil drilling operations can spread in maritime areas.

Very little is known about the possible longterm effects of the chronic impact of discharges. The Government is therefore anxious to step up research and monitoring associated with the longterm effects of discharges and one of the ways it intends to do this is by launching a research programme to study the long-term effects of discharges from the oil industry into the sea.

As a number of fields on the Norwegian continental shelf are closed down the question arises as to how decommissioned offshore installations are to be

disposed of. This is also an area with a lot of attention at international level. In 1998 the OSPAR Commission adopted a decision imposing a general ban on disposal of installations at sea (simply abandoning them there or dumping them). Waivers may be granted for the chassis of large steel platforms, large concrete installations and in exceptional cases when the overall assessment is that there are compelling reasons for disposal at sea. In such instances consultations must first take place with the other contracting parties (see Parliamentary Proposition No. 8 (1998–99) for further details of the decision). In accordance with the OSPAR decision most of the decommissioned installations in the Norwegian sector will be towed ashore for re-use or recycling. The Government takes the view that it is important to show consideration for the environment and for other users of the seas when it comes to disposal, and that having a rule whereby installations must be towed ashore, helps to return the maritime areas in question to their original state.

3.2.2 Trends

Environmental challenges in and among the different oil producing areas, i.e. the North Sea, the Norwegian Sea and the Barents Sea, vary.

The North Sea and the Norwegian Sea

The North Sea is the oldest and most mature of the oil-producing areas on the Norwegian continental shelf. With the exception of the Skagerrak the whole of the North Sea is open for oil exploitation. The oil industry has been present in this area for over 30 years and in 2000 oil and gas production in the North Sea represented a good 80 % of the total petroleum production in the Norwegian sector. The potential for finding large new deposits is, however, declining in this sector.

In the case of the Norwegian Sea the challenges are linked in particular to fisheries, sea birds and coral reefs. The areas off the Lofoten Islands and the area off the coast of Møre are judged to be particularly vulnerable in this regard. To tackle these challenges the Government will be introducing a range of different initiatives, including block-specific conditions in connection with awarding of concessions, along with surveys and research of a more general nature.

A number of block-specific environmental and fisheries conditions were set in connection with the seventeenth round of awarding concessions. Stringent limitations have been set in a number of the areas concerned with regard to seismic surveys and prospecting drilling. This has been done out of consideration for the sea birds and fish stocks. At the same time it is true to say that very strict limits have been fixed for the prospecting and production phases with regard to discharges of produced water (zero discharges of produced water). Limits have also been set for the number of test drillings that may take place simultaneously.

In addition, the Government, still in connection with the seventeenth round of awards of concessions, will be extending the existing biological monitoring of living marine resources in the Norwegian Sea in order to chart the possible effects of petroleum operations. A dedicated monitoring programme has been proposed and further details of this are to be given in the parliamentary report on petroleum operations coming soon. The authorities also want the concessionaires to make suggestions for a programme to chart the presence of sea birds in connection with any plans for extension or new operations.

The Barents Sea

The southern part of the Barents Sea was opened up in 1989, cf. Parliamentary Report No. 40 (1988–89) on opening up the Barents Sea for oil prospecting. Up to now 59 test wells have been drilled and according to the Norwegian Petroleum Directorate it is no more complicated to drill in the Barents Sea than in other parts of the Norwegian continental shelf. However, the areas around the Lofoten Islands and northwards from there contain some of the world's most important resources in terms of fish, sea birds and marine mammals. The physical and climatic conditions make the ecosystems very vulnerable to any impact, and the Government is therefore of the opinion that an impact assessment of year-round petroleum exploitation should be carried out for the areas stretching from the Lofoten Islands and northwards.

The Barents Sea (North of 74° 30') is not open for prospecting operations. An investigatory programme for the area was drawn up by the Ministry of Petroleum and Energy in 1991, but no impact

assessment of the consequences of petroleum exploitation for the area has been undertaken. Many of the surveys planned pursuant to the investigatory programme were, however, carried out and the results of these are presented in a synthesis report.

3.2.3 Measures

The Government intends:

- to ensure that the objective of zero discharges into the sea is achieved;
- to start a research programme in co-operation with the industry to study the long-term effects of discharges into the sea from petroleum exploitation operations;
- to maintain a high level of safety and emergency services in the petroleum exploitation sector;
- to carry out an impact assessment of year-round petroleum exploitation operations in the maritime areas stretching from the Lofoten Islands and northwards. Until a plan is in place the Barents Sea will not be opened up further for petroleum exploitation; and
- to carry out an assessment of possible petroleum-free fisheries zones in the area from Lofoten and northwards from there.

The authorities' objective is to strike a good balance between petroleum operations and environmental and fisheries-related considerations and to ensure that the oil industry is integrated into an overall model for co-existence with other branches and areas of interest even in the northern maritime areas. Another goal has been to ensure that discharges into the sea from petroleum exploitation damage the marine environment to the least possible extent. These are challenges, which will also be confronting the oil industry in the context of future operations and are particularly pertinent in the northern maritime areas.

Zero discharges of potentially hazardous substances into the sea

Over the past 15–20 years Norway has introduced increasingly stringent rules regarding the discharge of oil and chemicals by the petroleum industry. These days there are strict requirements regarding documentation on the content of environmentally

hazardous substances present in the chemicals operators plan to use. There are also strict requirements relating to which and what quantities of chemicals may be used and discharged from each and every offshore installation and in each area of operations. The operators have an obligation to reduce discharges in accordance with specific requirements drawn up by the authorities and in accordance with the plans they have filed.

However, these requirements do not cover discharges of naturally occurring environmentally hazardous substances in produced water. Parliamentary Report No. 58 (1996–97) on environment protection policy for sustainable development fixes the objective of zero discharges of oil and chemicals potentially hazardous to the environment into the sea. This objective became immediately applicable for all new developments, while for existing fields a step-by-step plan was established for achieving the objectives. In 2000 operators reported the results of a survey of existing installations and suggested further measures designed to achieve the goal. By 2003 all companies operating in this branch must have at least provisionally achieved the objective with regard to all their discharge activities and definitive measures must be implemented by 2005. The Government is anxious to ensure that the goal of zero discharges of environmentally hazardous substances into the sea is achieved. The goal applies to oil and chemicals in produced water, both those added and those occurring naturally. The objective requires the development of new technology and initiatives to make this possible. The Government presumes that companies with operations in the Norwegian sector of the continental shelf will give priority to the development of technology capable of avoiding or reducing discharges. Further efforts will be made on the part of the Government in the field of environmental research; for instance, improving capacity to deal with the challenges that exist at the interface between petroleum exploitation activities, fisheries and the environment will also be an important contribution towards achieving the goal of zero discharges.

The OSPAR Commission has adopted a recommendation (which is not legally binding) in respect of produced water. This recommendation states that the oil content in this water must not exceed 40 mg/l and that it may not exceed 30 mg/l as of

2006. The average content of dispersed oil in produced water discharged in the Norwegian sector is today less than 25 mg/l. The recommendation also suggests that the goal regarding the total amounts of oil discharged via produced water should be reduced by 15 % for the countries concerned by 2006 (the year 2000 being the reference year). Given the technology currently available it will be a major challenge for Norway to achieve this objective. New technologies that can help further reduce the potential loads on the environment generated by discharges from petroleum exploitation operations are being developed; both new technologies to enable better treatment of produced water and new technologies which reduce water production or remove the need to discharge produced water. The technologies used in the different oilfields will depend on a number of parameters specific to the individual fields. As a rule, there is greater scope for choice of new technologies in the case of new installations than in existing fields.

Reinjection of produced water may prove to be a cost-effective measure in fields where the water can be used as a water drive, but at the moment only about 9 % (figure for 2000) of the produced water is reinjected. According to forecasts this percentage will increase, but hardly enough to put a stop to the increases in discharges, which amount to around 20 % per year. Separation of oil and produced water on the seabed is a new technique now being successfully tested in the Troll field. This may prove to be an important new means of reducing discharges of produced water. Separation inside the borehole is also being tested and may possibly prove to be the most effective means of dealing with the problem, if a reliable technique can be found to do this. A pilot project, which will be needed for further developing and using the technology, will probably be launched in the Norwegian sector in 2002/2003. This will involve separating the oil from the water and only extracting the oil, while the water is returned to below the seabed whence it came. But even with such technologies on hand there will still be water needing to be treated and then discharged because the technologies selected seldom are 100 % effective. Work on better treatment techniques will therefore need to continue in parallel with the development of other approaches.

Long-term effects of discharges into the sea from the petroleum industry

There is broad agreement as to the fact that there are gaps in what is known about the long-term effects of discharges into the sea and that work in this area should be organised in a more suitable way. Parliamentary Report No. 39 (1999–2000) on the oil and gas industry announced a bigger and more co-ordinated effort to improve fundamental knowledge of the long-term effects of discharges into the sea. A working party comprising representatives of the research community, the authorities concerned and industry has been looking at where there is the most acute need to find out more and at how co-operation can be organised in a more rational way than was previously the case.

This broad-based working party identified research subjects associated with the problem of the long-term effects of discharges into the sea from the offshore sector and came to the conclusion that the need for research is particularly acute in this area. The following areas were listed in a note to the Research Council of Norway in order of priority:

- Effects in the water column (water masses)
- Relationship between research and monitoring
- Special research projects in the Arctic
- Ongoing discharges of drill cuttings
- Long-term effects of acute discharges

A number of particularly important research areas were listed under each focal point. The Government feels that it is particularly important to learn more about the consequences of discharges into the sea from petroleum exploitation activities in the longer term and now wants on the basis of recommendations made by the working party to launch a research programme on the long-term effects of petroleum exploitation activities in collaboration with the industry under the auspices of the Research Council of Norway. This will help improve the basis for decisions on the part of the authorities.

Acute discharges

In recent years we have recorded a decline in the number of acute oil spills both from shipping and petroleum exploitation activities. 203 acute oil spills from the petroleum industry were recorded in 2000, corresponding to 35 m³ of oil. The figures for shipping were 65 oil spills corresponding to 272 m³ of

oil. Acute discharges of chemicals from petroleum exploitation activities have shown a slight increase over the last few years and number just over 100. However, the quantities involved rose from 403 m³ in 1997 to 956 m³ in 2000, but most of the spills involved compounds which represent a relatively minor hazard to the environment.

Most of the serious oil spills in Norway have occurred in conjunction with shipping accidents near to the coast. No major, acute discharges from petroleum exploitation activities have occurred since the Bravo accident in 1977. This is attributed among other things to the strict safety requirements and better monitoring both by the authorities and the operators. New regulations on health, environment and safety aspects of petroleum exploitation activities came into force in January 2002. These provide the supervisory authorities with a better basis for total control and regulation, for instance when it comes to assessing the different interests linked to the external environment and to the lives and health of workers.

As was noted earlier in this Parliamentary Report, petroleum exploitation activities are on the move and are to be found closer to the coast and further to the north. In the Barents Sea a combination of a long season in darkness, low temperatures and at times bad weather could make it difficult to take effective action in the case of oil spills even though weather conditions seen in isolation are not much different from those prevailing in the Norwegian Sea. Natural breakdown of oil and chemicals will also be slower than further south. The Government considers it essential to maintain a high level of safety and preparedness in the petroleum exploitation industry in order to avoid acute spills and to be prepared to deal with any acute spills from that source.

Impact assessment of year-round petroleum exploitation activities in the maritime areas stretching north from Lofoten

Investigations of consequences are carried out to ensure that the authorities and concessionaires have the best possible basis for decisions when assessing whether petroleum exploitation should be attempted and, if so, how best to go about it, while also consulting the different stakeholders and circles involved before a decision is made. In investi-

gating consequences an assessment is made of the effect the initiative envisaged will have on society, the natural surroundings, the environment both out to sea and on land and on relations with other branches of trade and industry. The authorities concerned, professional and industrial bodies and the general public are also involved in the exercise.

The Government takes the view that it is vital to conduct an assessment and to weigh up the interests of different stakeholders in the areas where petroleum exploitation may collide with important environmental interests. This applies, *inter alia*, to the Barents Sea.

Before opening up an area for petroleum exploitation activities the authorities investigate what the consequences of prospecting activities will be. First, they draw up a survey programme which any other authorities concerned are given the opportunity of commenting on along with professional and industrial bodies.

Once this has been done, the Ministry of Petroleum and Energy adopts the survey programme and as soon as an investigation has been conducted into the consequences the results are sent to a broad circle of interested parties for comment. This is a central component in the basis for deciding whether to open up an area or not.

Once the survey of the consequences is complete a further decision is made specifying special measures or limitations on prospecting activities to apply in given areas, e.g. limitations on drilling, limitations on discharges, requirements to use a special technology etc.

Parts of the Norwegian sector of the continental shelf were opened up for petroleum exploitation activities at an early stage without any assessment having made of the potential effects of such activities and of discharges on the environment. The Petroleum Act of 1985 contains rules stating that the consequences of prospecting activities must first be investigated before any new areas may be opened up. Further, the consequences of installations and their operation must be studied in connection with any plans for expansion or operation of individual fields. Later, it has become possible for operators to carry out regional studies

of possible consequences of existing and planned operations.

The first survey of consequences of opening up new areas following the passing of the Petroleum Act of 1985 was carried out on prospecting activities in the southern part of the Barents Sea and the results of this were presented in 1989. However, parts of the area had already been opened up back in 1980 including the segments where the Snow White field was discovered in 1984. Now, in addition to the surveys of specific oilfields which concessionaires must carry out prior to development, the Government now wants to conduct an impact assessment of year-round petroleum exploitation activities in the maritime areas from Lofoten and northwards with a view to establishing a better and more comprehensive basis for decisions. This should be seen in the overall context of other activities in the area and of the work being done on producing an integrated management plan for the Barents Sea.

Up to the present day a total of 25 extraction permits have been issued in the Barents Sea including seven permits for the area covered by the Snow White field. Most of the test wells have been sunk in or very close to the Hammerfest Basin. Prospecting in the Barents Sea has cost a total of NOK 28 billion and has led to important finds; the Snow White field in 1984 (gas, condensate and oil) and the Goliath field in 2000 (oil).

It is only natural that the impact assessment for the northern maritime areas should be based on extensive mapping and on available information. At the same time it is important for the process to be transparent and for all interested parties to have an opportunity to express their views. This needs to be done to ensure, *inter alia*, that all subjects of importance are included in the impact assessment. The purpose of this assessment is to look at the consequences of existing petroleum exploitation activities and of any expected operations in the future in the northern maritime areas in the overall context. This review will lay the foundations for assessing the framework conditions for further petroleum exploitation activities in the area.

No new permits for petroleum exploitation in the northern maritime areas will be granted until the impact assessment has been completed. As far as

areas where permits have already been awarded are concerned, the Government is assuming that the work on investigating the consequences of oil exploration and on the integrated management plan will not affect the legal rights of concessionaires who have already been awarded permits.

Petroleum-free fisheries zones

As far as possible the authorities are anxious to base future petroleum exploitation activities in the maritime areas from Lofoten and northwards on the co-existence model which has been the point of departure up to now for the joint use made of the maritime areas by different branches. The Government's aim is for petroleum and fishing resources in these areas to contribute to the long-term prosperity of Norwegian society. A further objective is to ensure that consideration is shown towards vulnerable resources to ensure that all industrial activity takes place within a sustainable framework.

We have long experience of a smooth co-existence between the petroleum exploitation industry and the fishing industry, and the authorities assume that this will continue to be the case when new areas are opened up for petroleum exploration. Insofar as situations should arise whereby it appears impossible for the two branches to co-exist peacefully, the Government will consider establishing petroleum-free fishing zones. This will be one of the central components of the integrated management plan for the Barents Sea. The impact assessment of year-round petroleum exploitation activities planned for the areas from Lofoten and northwards will provide important background material for the integrated management plan in this regard, along with the impact assessment conducted in the other sectors.

3.3 SHIPPING/SAFETY AND EMERGENCY SERVICES ALONG THE COAST

3.3.1 Threats and trends

Transport by ship is generally a safe and environment-friendly form of transport. The use of the sea and the coast as a transport artery is of great importance to trade and industry and communities the length of the coast. Shipping is, however, a potential source of major oil spills. This is why

it is important to ensure that the environment is safe when planning to use shipping as a means of transport.

Spills, which are a result of shipping accidents, often occur close to the shore. Up to now Norway has been spared major pollution disasters, but in other parts of the world there have been accidents, which have had major consequences for the environment. The last major accident occurred when the tanker the «Erika» sank off Brittany in France in December 1999. This accident led to 20 000 tons of oil leaking into the sea. Clean-up costs amounted to the equivalent of almost 2 billion kroner.

The wrecks of the vessels the «Green Ålesund» off Haugesund and the «John R» to the north of Tromsø last winter showed that there is a major risk of shipping accidents even along the Norwegian coast, and it is a fact that if shipping increases so will the risk of shipping accidents. As to the transport of oil, we may expect more of this category of traffic in the northern areas as a result of plans to increase petroleum exploitation activities in the Barents Sea and in Northwest Russia. A report by the Norwegian Pollution Control Authority (SFT) and a Russian research institute relates that there are plans for weekly transports of crude oil as of 2005. The activity is expected to increase gradually over the next few years and it is forecast that by 2010 there will be 2–3 large tankers steaming along our coast every day.

It is reasonable to assume that the increase in petroleum activity will also lead to a considerable increase in the transport by sea of prospecting and production equipment to the northern region. Norwegian supply bases and ports along our coast may be given a role to play in connection with this shipping activity. Initiatives have also been started to develop sea transport as an attractive form of transport to and from Northwest Russia on a more general basis via what is known as the «Northern Maritime Corridor» (NMC). Altogether this may lead to more shipping traffic – and not just coastal, but also to and from the ports in Northern Norway.

There is also a possibility of imports of spent nuclear fuel from countries in western Europe

to reprocessing plants in Russia and in this case transport by sea along the coast of Norway would be one alternative.

The increased risk must be countered by introducing preventive measures and by being prepared for emergencies so that damage to the environment can be limited if an accident does occur.

3.3.2 Measures to improve safety and preparedness for emergencies along the coast

The Government intends:

- to investigate the consequences of increasing the territorial waters from 4 to 12 nautical miles with a view to putting a Parliamentary Proposition before the Storting as soon as possible;
- to establish mandatory lanes for shipping representing a risk to the environment;
- to press for international rules involving an obligation to give prior warning of cargoes representing a risk. Pending agreement on international rules the Government intends to raise the issue of prior warning agreements for such cargoes with Russia;
- to step up maritime traffic control and monitoring;
- to assess how tugboat capacity in northern Norway can be increased;
- to enhance preparedness for dealing with oil spills along the coast by ensuring better use and co-ordination of private and state emergency resources in the event of major cases of acute pollution; and
- to arrange for transfer of the Norwegian Pollution Control Authority's responsibility for the state-run emergency systems for handling acute pollution to the National Coastal Administration.

The Government takes the view that it is important to give priority to implementation of preventive measures so as to be able to avoid accidents with serious consequences for the environment.

Extending territorial waters and establishing obligatory shipping lanes

International law now contains provisions enabling coastal states to rule that their maritime territory

shall extend to 12 nautical miles from the coast and the great majority of coastal states now have territorial waters extending 12 nautical miles or more from the coast. In Europe it is only Greece in addition to Norway whose territorial waters only extend to the 4 nautical mile limit.

Coastal states have greater scope for introducing provisions designed to avoid accidents inside their territorial waters than outside them. Extending Norway's territorial waters from 4 to 12 nautical miles would, *inter alia*, provide greater scope for checking on foreign vessels. Extending the limit of territorial waters also offers opportunities for establishing obligatory shipping lanes further out from the coast than is possible today.

An assessment is under way under the auspices of the Ministry of Foreign Affairs of what the consequences of extending the territorial waters to 12 nautical miles would be. The survey covers the legal and economic implications plus a number of technical issues. If this survey does not reveal circumstances which call for more detailed consideration, the Government will place a Parliamentary Proposition before the Storting as soon as the work has been completed.

Pursuant to legislation on ports and navigable waters the Government wants to establish obligatory shipping lanes for traffic representing a risk to the environment. The Ministry of Fisheries is to conduct a more detailed assessment of the level of risk along the coast and establish shipping lanes, initially for the areas where it is judged they will have the greatest impact in reducing risk. Shipping lanes for traffic off the coast of northern Norway should be viewed in the context of monitoring traffic in the area (cf. below).

Concluding early warning agreements for cargoes representing risks to the environment

The possibility of the transport by sea of nuclear waste along the coast of Norway on route to Russia is worthy of special attention. If we are to have a better level of preparedness on the Norwegian side of the border with regard to such cargoes, we need to have early warning of individual shipments. A good coast-guard system alone will not be sufficient to deal with this type of scenario. The same applies, *inter alia*, for towing of vessels from Russia for scrapping.

The Government intends to press for international rules involving an obligation to give early warning of cargoes representing a risk to the environment. Pending the advent of international rules and regulations the Government intends to raise the issue of an early warning agreement on such shipments with Russia possibly by extending existing early warning agreements.

Stricter control of maritime traffic

The National Coastal Administration is responsible for control of civilian maritime traffic. These duties along with its other duties make the National Coastal Administration the national contact point for information to and from shipping and it has a large pool of information on shipping to and from Norway and along the coast.

The National Coastal Administration is, *inter alia*, the co-ordination authority as far as the EU Directive 93/75 on the registration, storing and dissemination of all notifications of hazardous or polluting cargoes in Norwegian waters on vessels are concerned. The National Coastal Administration is also the national co-ordinator for navigation alerts (NAVCO) and thus a part of an international notification and communications system for warning of obstacles in navigable waters that can be a danger to shipping. Through its own notification and information system for shipping, ShipRep, the National Coastal Administration has access to a number of databases such as ships registers comprising more than 100 000 vessels, registers of dangerous or polluting types and classes of cargoes, Norwegian ports, boarding points for pilots, pilots etc. The National Coastal Administration has also concluded an agreement with the Ministry of Defence on cross-service co-ordination of the notification and information system on pilot requirements and arrival regulations.

Control of maritime traffic via the National Coastal Administration traffic control centres has up to now been concentrated on waters close to shore where the risk has proven to be higher. The traffic control centres control shipping traffic, enforce the shipping regulations and provide necessary information and guidance for vessels using the waters covered by the centres. As of 2003 Rogaland, the last of the four areas along the coast most exposed to risk and with the heaviest traffic, will fall

within the National Coastal Administration's maritime monitoring and traffic control area. The Oslo Fjord, the Grenland area and North Hordaland are already covered by traffic control centres.

The National Coastal Administration is also considering extending the area of responsibility of the Fedje traffic control centre in North Hordaland so that it would also cover the Port of Bergen area and the southern approaches via the Kors Fjord. The National Coastal Administration has been given responsibility for developing and starting up a network in 2002 along the entire coastline for receiving AIS (Automatic Identification System for ships). This will also strengthen controls and monitoring of maritime traffic in territorial waters. The AIS will offer better monitoring of shipping in the areas now monitored by the traffic control centres and will enable monitoring of vessels sailing along the coast with hazardous or polluting cargoes on board. With AIS the National Coastal Administration will be able to monitor shipping which may be required to use the obligatory shipping lanes along the coast.

The Government will be giving high priority to the establishment of the National Coastal Administration network for receiving AIS signals. Once the National Coastal Administration has set up this AIS the Norwegian Defence and other parts of the Civil Service will have access where necessary to information from the network.

Monitoring of the coastal and maritime areas touches on the areas of responsibility of many parts of the Civil Service. The Norwegian Defence also play a significant role in maritime monitoring. A working party under the auspices of the Ministry of Defence is at present investigating how better coordination can be achieved and how it might be possible to develop the country's total monitoring resources with a view to meeting the needs of different parts of the Administration along with those of the Norwegian Defence more efficiently. In addition to monitoring it is essential for the authorities to have the means to intervene and to take the appropriate steps for instance in connection with shipping accidents involving hazardous cargo.

Given the way in which the Norwegian Defence are organised and present along the coast they can

provide valuable assistance to the civilian community in terms of emergency services in the coastal zone. The Government will be assessing monitoring needs on the basis of the report from the working party.

About traffic control in northern Norway

The Barents Sea and the Norwegian Sea are among the world's most productive maritime areas. At the same time the climatic conditions and the season of Polar night in these areas are extra elements of risk to shipping during a large part of the year. It has already been pointed out that there are particular challenges linked to future transports by sea off the coast of northern Norway. Being prepared for this development is important. Control and monitoring of traffic are important tools in the context of accident prevention.

At the moment the National Coastal Administration is studying the possibilities for establishing a traffic control centre for northern Norway. Possible use of the existing monitoring infrastructure established as part of the Norwegian Defence's chain of coastal radar stations in northern Norway will be one of a number of elements covered by the study. It still remains to be seen how the chain of radar stations could be used for control of civilian traffic. This is a significant point in respect of whether a decision is made to establish a traffic control centre and if so, where. The Government takes the view that a control centre for maritime traffic for northern Norway should be established in a way which ensures a good basis for co-operation with the Russian authorities on safety issues and caring for the environment in northern waters. The traffic centres set up by the National Coastal Administration will be obvious, operational units and contact points for co-operation in the area of traffic control. The Government will therefore continue the assessment on whether to set up a traffic centre for northern Norway.

About tugboat capacity in northern Norway

It has been pointed out in many different quarters that tugboat capacity is a weak link in chain of contingency arrangements in place for fighting acute cases of pollution in northern Norway. The best solution may be to link a certain tugboat capacity to the National Coastal Administration's traffic control system.

As of the summer of 2002 the coastguard vessel the *KV Svalbard* will be in regular service. This ship will operate in northern waters in particular and is capable of towing large vessels. Developments in petroleum exploitation in the Barents Sea may be expected to lead to supply ships with towing capacity also being stationed in that part of the country. This will help improve preparedness for emergencies.

The Government is to commission a more detailed assessment of how tugboat capacity in northern Norway can be improved.

Safety in the waters around Svalbard

In addition to the challenges associated with safe shipping traffic off the coast of northern Norway, safety at sea around Svalbard has been the subject of much attention. As this group of islands has its own legislation and infrastructure, initiatives in Svalbard require a separate assessment. The interministerial Polar Commission has therefore appointed a working party, which will report back to the Ministry of Justice on a future co-ordinated plan relating to maritime safety in the waters around Svalbard. The terms of reference for the working party are to assess all aspects of safety at sea, including possible initiatives in waters used by shipping. The group has been asked to produce an overview of the status of work already done or in progress in different parts of the area, to assess the need for further steps and to possibly make suggestions as to what they should be.

State contingency plans for combating serious pollution

Better organisation and co-ordination of work relating to safety and preparedness is important. As a first step the Ministry of the Environment has enshrined powers and state responsibility for contingency measures in the Pollution Act. Previously these powers and responsibility were shared between the Norwegian Maritime Directorate and the Norwegian Pollution Control Authority (SFT). Now all these powers have been transferred to SFT with the Norwegian Maritime Directorate being part of SFT's action force as a maritime adviser.

The Government believes that there should be better co-ordination of contingency arrangements for fighting pollution disasters and of the

preventive work being done by the National Coastal Administration, which has significant operational resources in this area.

An agreement on co-operation already exists between the National Coastal Administration and SFT. SFT's anti-oil pollution vessels are operated by the National Coastal Administration and are used on an everyday basis by the National Coastal Administration's lighthouse and beacons units. In the event of state action to fight serious pollution SFT takes over operational responsibility for the vessels. Nevertheless, the National Coastal Administration is responsible for a number of preventive functions in addition to the traffic centres referred to earlier. This is why the Government feels that it is only natural to view the SFT Department of Control and Emergency Response's operative responsibility in an organisational context together with the National Coastal Administration (cf. the description above of the role played by the National Coastal Administration in the field of traffic control and information).

The Government therefore takes the view that it is right to transfer SFT's responsibility for state contingency plans for fighting pollution accidents to the National Coastal Administration. SFT's Department of Control and Emergency Response is today based with the National Coastal Administration's District 1 Maritime Traffic Division for the Oslo Fjord in Horten. The reorganisation proposed will therefore not involve relocating SFT's Department of Control and Emergency Response and can take place without injection of fresh resources. SFT will continue to have the power to order local authorities and private enterprises to draw up contingency plans and will remain responsible for supervising that this is done.

The Government wants to strengthen state contingency plans for fighting oil pollution and to make them more efficient in the years to come. SFT is looking into how better use can be made of private and public emergency resources in major instances of acute pollution and how they can be co-ordinated better. SFT is also in the process of analysing the need for contingency plans in the northern part of the country in the light of the changes in the risk scenario.

3.4 RADIOACTIVE POLLUTION

3.4.1 The threats

The levels of radioactive pollution in Norwegian waters are influenced both by present-day activities and by earlier discharges. Most of the input stems from nuclear testing in the nineteen fifties and sixties, the Chernobyl accident in 1986 and discharges from reprocessing plants for spent nuclear fuel. In addition, various naturally occurring radioactive substances have found their way into Norwegian waters as a result of petroleum exploitation activities and mining.

Just as important as the actual level of pollution is the risk of accidents, which could lead to extensive discharges and pollution of Norwegian areas. The most serious risk of discharges is associated with nuclear installations and stockpiles of waste in areas on Norway's doorstep, although nuclear-powered vessels and transport by sea of radioactive materials also represent a risk of radioactive pollution in Norwegian waters. The nuclear reprocessing plant in Sellafield is the most important source of discharges affecting Norwegian waters today. The large quantities of liquid, radioactive waste stored at the facility, also represent huge potential for leaks.

Of the different radioactive substances being discharged from Sellafield it is the discharges of technetium-99, which affect Norwegian interests most. These discharges rose sharply in the midnineties; they follow the marine currents in the North Sea and are swept up along the Norwegian coast. The discharges are measured along the West Coast of Svalbard and in the Barents Sea. The levels of technetium in seawater along the Norwegian coast and in marine organisms such as shellfish and sea weed have increased sharply since 1996. The British authorities plan to continue the discharges at the present level up until 2006 and the possibility of further rises in technetium levels along the coast of Norway cannot be excluded.

Even if technetium levels in Norwegian waters have increased many-fold since the mid-nineties, they are still very low and do not represent an immediate danger for the environment or health. However, no one is certain what the trends in these levels in marine organisms are likely to be over time.

The danger of major discharges as a result of accidents or terrorist acts directed towards nuclear installations is thought to represent a more serious threat to health and the environment than regular discharges. The main focus in recent years has been on the risk associated with nuclear power plants, stockpiles of waste and decommissioned, nuclear-powered vessels in the former Soviet Union and in the Kola Peninsula in particular. Following the events of 11 September last year it has become clear that the stockpiles of liquid, highly radioactive waste from the reprocessing plant at Sellafield probably represent a greater threat.

Like the discharges from Sellafield possible shipments of nuclear waste through waters off the Norwegian coast is also a major source of concern. Such shipments may occur in connection with the import of spent nuclear fuel to Russia and as a result of plans to ship nuclear fuel from Japan to reprocessing plants in Western Europe via the Northeast Passage. These shipments between Europe and Japan today follow the southerly routes and have given rise to vehement protests from coastal states along the way. This is probably the main reason why those involved are now considering an alternative shipping route. With regard to import of spent fuel into Russia, it is for the moment unclear whether this will be transported by sea from the west via Norwegian waters. Russian imports of spent nuclear fuel from western European countries will generate huge political controversy and there is therefore little probability of it happening. Overland transport from former Soviet republics and Asian countries is thought to be more likely.

Shipments of nuclear fuel and highly radioactive waste by sea contain large amounts of radioactivity. There are nevertheless strict safety requirements for such transports and the danger of major discharges in the event of an accident is probably small. This is linked to the fact that the radioactive material is present in solid form and packed in special safety containers capable of standing up to extreme stresses. Over the 20 years during which this type of freight has been transported by sea no accidents have occurred. Nevertheless, the risk of shipwrecks and accidents is still present. But, regardless of the actual risk of pollution, transport of nuclear materials along the Norwegian coast will still be capable of generating fear of marine pollution and uncer-

tainty in coastal communities and consumers of seafood.

Even if the levels of radioactive pollution in the Norwegian maritime areas are low and do not represent any danger to the environment or health, it is still very important to achieve reductions soon. Little is known about the long-term effects and the discharges constitute a potential problem for the marketing of Norwegian seafood. The world market for fish and other products of the sea is extremely sensitive to real radioactive pollution and rumours of the same. Consumers are also increasingly focusing on «clean» food. Radioactive pollution of the sea is therefore highly undesirable and in conflict with vital Norwegian interests.

The main concern relating to possible major discharges resulting from an accident or terrorist attack on nuclear installations in areas adjacent to Norway is atmospheric fallout and the consequences for public health and the environment on land, although this could also cause serious pollution of the marine environment.

In the international context Norway is pressing for reductions in discharges of radioactive materials into the marine environment and for measures to limit the danger of nuclear accidents, which could pollute Norwegian areas.

3.4.2 Measures

The Government intends:

- to maintain the pressure on the British authorities until the discharges of technetium-99 are finally stopped;
- to continue efforts in relation to the plan of action on nuclear issues;
- to press for better international agreements and legislation on the transport of radioactive materials;
- to step up monitoring of radioactive pollution in Norwegian waters; and
- to prevent radioactive pollution from national sources.

Pressure on the British authorities regarding the Sellafield case

The Government has put considerable pressure on the British Government in an attempt to persuade it to revise the Department of the Environment's decision to continue discharges of technetium-99 up until 2006. This pressure will continue until the discharges are stopped. The Government is also making an assessment of the scope Norway has for instituting proceedings against the British under the terms of international conventions. The Government has been in touch with Ireland in this regard. Ireland has sued the United Kingdom over the Sellafield case both under the terms of the Convention on the Law of the Sea and the OSPAR Convention. The Government also intends to continue to use the co-operation between the Nordic Environment Ministers to co-ordinate Nordic pressure on the British over the Sellafield case. In addition, the Government will be making use of the North Sea co-operation and co-operation within the framework of the OSPAR Convention and other relevant fora to put political pressure on the British authorities and to strengthen the arsenal of international agreements on radioactive pollution.

Plan of action for safety at nuclear installations in Northwest Russia

Norway contributes to the work on improving nuclear safety and reducing the danger of radioactive pollution from Russia and the countries of Central Europe via the plan of action on nuclear issues. Projects linked to the plan of action concern subjects such as management of radioactive waste originating from the scrapping of decommissioned nuclear submarines and improvement of safety at nuclear power plants in the Kola Peninsula, St Petersburg and Lithuania. A project entailing the modernisation and extension of a treatment plant for liquid radioactive waste in Murmansk was completed in June 2001. This project will make it possible for Russia to adhere to the London Convention ban on dumping of all types of radioactive waste at sea. The plan of action also involves projects designed to help the Russian environment protection and radiation protection authorities. The Government intends to continue the work in the context of the plan of action on nuclear issues with particular emphasis on safety at nuclear installations and management of radioactive waste and spent nuclear fuel.

Preventing discharges from sea transports of nuclear waste

The *United Nations Convention on the Law of the Sea* puts obstacles in the way of national legislation designed to stop shipping in its economic area, even if this involves the transport of substances hazardous to the environment. In addition to political and diplomatic efforts to avoid such transports being routed through Norwegian waters, the Government therefore aims to strengthen international agreements and legislation of relevance to the safety of such shipments, while also improving safety in shipping channels and national contingency plans. Norway has raised the question introducing international requirements on early warning and liability to pay compensation in connection with the transport of nuclear materials with the UN Commission for Sustainable Development and the general conference of the International Atomic Energy Agency (IAEA). The Government is also planning to raise the issue at the North Sea Conference in March 2002. It further intends to raise the matter of extending early warning agreements to cover the transport of crude oil and nuclear waste with Russia.

As to measures designed to improve safety at sea and contingency arrangements along the coast readers are referred to Chapter 3.3. A series of measures in this areas will help improve safety, if the transport of nuclear waste through Norwegian waters becomes a reality.

Monitoring and documentation of pollution

An extensive monitoring programme has been established under the auspices of the Norwegian Radiation Protection Authority to document trends in radioactive pollution in Norwegian waters. The maritime component of the programme is being implemented in close collaboration between the Norwegian Radiation Protection Authority and the Institute of Marine Research. This monitoring is important for the purpose of being able to document trends in levels of pollution and identify sources of radioactive pollution of Norwegian areas. The monitoring also provides basic data for assessment of the possible significance of the pollutants for health and the environment. Having constantly updated and credible documentation on pollution levels is essential when it comes to preventing the circulation of unfounded rumours

and speculation which leads to reactions on the markets for fish and other seafood. The monitoring programme is under constant review and is due for further improvements.

The Directorate of Fisheries' Food Institute conducts constant analyses of the presence of alien substances in seafood, including radioactive substances. The results of these analyses are entered in the institute's environment database. The number of species of fish and other seafood and the parameters covered by the analyses is being constantly increased. Documentation on the presence of xenobiotic substances in seafood is an important area for the fisheries sector and a priority issue for the fisheries administration. Seafood must be safe food. Over the past few years the institute has therefore injected substantial funds into increasing analytical capacity and improve competence in this field.

National sources

The programme for monitoring radioactive pollution is also designed to identify national sources; e.g. discharges from research reactors, isotope production and hospitals. As already explained in Chapter 3.2 produced water discharged from petroleum exploitation activities also contains some radioactive substances (radium) which occur naturally. These discharges have not been charted sufficiently well on the Norwegian continental shelf. The Norwegian Radiation Protection Authority has said that there is no reason to believe that naturally occurring radioactivity in produced water represents any significant danger for health and the environment. Even so, this remains a problem and serves to confirm the need to develop new technology to reduce total discharges of produced water from the Norwegian sector of the continental shelf. Oil production also generates deposits in pipes and other equipment, which can contain naturally occurring radionuclides in concentrations, which cause the deposits to be classified as low-radioactive scale. Until a permanent disposal solution is found between 200 and 300 tons of such waste is safely but provisionally stored in oil terminals along the coast of Norway. The Government is, however, anxious to find a viable means of permanent storage for this waste on land.

Priority given to work on developing criteria for the protection of the environment from radioactive pollution

Up to now, criteria for what are acceptable levels of radioactive pollution have been unilaterally focused on preventing damage to public health. It has been assumed that this indirectly would provide sufficient protection for other parts of the ecosystems. However, in recent years there has been a growing international awareness of the fact that it is wrong to make this assumption. A number of international bodies have therefore taken the initiative in drawing up criteria for the protection of the environment from radioactive pollution. These criteria will form an important basis for an ecosystem-based approach to radioactive pollution of the marine environment. The Norwegian authorities are a driving force in this work.

3.5 CONTAMINATED SEDIMENTS IN COASTAL AREAS AND FJORDS

Substances toxic to the environment have been discharged along the coast over a very long period of time and sediments (loose material on the seabed) are therefore heavily contaminated in a number of areas. This type of pollution is a source of health-related, environmental and social problems. High concentrations of hazardous substances put significant pressure on individual organisms and ecosystems and may thus have harmful effects on biological diversity. People who consume fish and shellfish from polluted areas are exposed to a risk of health damage in the form of cancer, weakening of the immune system, reproductive problems and damage to the nervous system. In addition, contaminated sediments are a potential source of pollution in that environmentally hazardous substances can migrate and pollute new areas.

Pollution of the seabed limits the scope for using areas for fishing and fish farming activities. Hazardous substances are today blamed for the fact that dietary advice is being given to an area covering over 800 km² of the Norwegian coast. Pollution also lowers the value of areas as destinations for leisure activities and tourism and may place limitations on the development of port facilities or make this more expensive.

3.5.1 How did this problem arise?

Substances hazardous to the environment have been discharged over a long period of time, although most of the discharges have taken place in the past 50 years. In recent times discharges of the substances most toxic to the environment have been reduced considerably, but discharges of other chemicals harmful to health and the environment are still extensive.

Industry has been by far the biggest source of discharges and large quantities of hazardous substances are discharged into Norway's fjords from smelting plants, the chemicals industry, mines and the mechanical engineering branch, to mention just a few. These discharges have been reduced in recent years, but industry is nevertheless still a significant source of chemicals dangerous to health and to the environment. Products, sewage, landfill sites and public transport have all helped contaminate sediments and these diffuse sources of discharge constitute an ever-increasing proportion of total discharges. Norway also receives large inputs of environmental pollutants from other countries carried on the wind or by ocean currents.

Companies, both private and state-owned, local authorities, shipping and other public transport, plus private households are thus responsible for the high concentrations of substances toxic to the environment found in sediments today.

3.5.2 Which areas are polluted? Classification of different types of areas

A number of surveys of the levels of pollution in sediments have been carried out in Norway (cf. Report 98:11 from the Norwegian Pollution Control Authority). These surveys have revealed high concentrations of environmental pollutants in sediments more or less everywhere in the vicinity of industrial sites and densely populated areas. Altogether, the Norwegian Pollution Control Authority's surveys have revealed high concentrations of hazardous substances in more than 100 areas.

Different types of areas require different remedies and initiatives depending upon the size of the polluted area, the damage being done by the hazardous substances in the area, the degree to which the pollutants are migrating to other areas, the techni-

cal solutions most suitable for the area and whether the liability picture is clear. This report therefore attempts a breakdown into four categories. The purpose of the subdivision is to simplify assessment of the different measures and means described in this report, but the categories are not sufficiently precise to constitute a new tool for use in further work on contaminated sediments.

A characteristic of *high-risk areas* is very high concentrations of environmental pollutants within a fairly small, restricted area. Often just one or a small number of activities are responsible for the pollution and therefore the sources of the problems are more often known in such areas than in larger problem areas. The high concentrations of environmental pollutants mean that there is a considerable danger of them spreading to new areas, even though the risk of migration varies from one area to another depending on natural conditions and the degree of human influence. Surveys conducted have revealed about 35 high-risk areas, 15–20 of which are believed to entail a danger of migration, although it is emphasised that the figures are not certain. The large number of point sources which can be assumed to have possibly caused this type of pollution indicates that the number of high-risk areas may be significantly higher than the surveys conducted to date have been able to uncover.

Port areas often suffer from extremely high concentrations of environmental pollutants, but are often larger than the areas classified as “high risk”. Further, pollution problems are often more complex. In addition to actual port activities and shipping, industrial discharges and more diffuse discharges from towns or other densely populated areas certainly add to the high pollution levels. Ports constitute a special problem because port traffic leads to the spread of environmental pollutants as a result of eddies in sediments caused by propellers. Streams and rivers often carry sediments to the port area. Quite apart from the need for clean up operations because of pollution, many ports need continuous dredging (removal of masses of loose material from the seabed) in order to keep the shipping lanes open. Up to now, heavily contaminated sediments have been recorded in approximately 36 port areas in Norway, 15–20 of which are judged to entail a risk of migration. Dietary advice has been given in 14 of these areas.

A number of *fjords and coastal areas* have high levels of environmental pollutants in sediments across their entire area. These areas feature a complex pollution picture involving many types of pollution and sources. Concentrations of environmental pollutants vary both between and within areas. A fjord can contain both what are classified as high-risk areas, ports and areas with lower levels of environmental pollutants. The inner fjords close to towns and other densely populated areas typically show a more complex pattern of pollution from a wider range of sources than the outer fjord areas where pollution problems are more often associated with a single source. Surveys already conducted have revealed heavily contaminated sediments in approximately 20 coastal and fjord areas in addition to the port areas and high-risk areas referred to above.

Features of the *fjords described as “industrial”* are that they have one or more industries as the main source of pollution problems throughout the fjord and that the pollution picture is relatively uniform. In these areas the activity responsible for the pollution is often known. Today there are 14 industrial fjords, which are seriously affected by environmental pollutants.

3.5.3 Special challenges associated with cleanup operations

Surveys carried out to date have revealed a real need for initiatives in polluted fjords and coastal areas. Steps have already been taken in a number of places, while in others cleanup operations are about to start. As a rule the cleanup operations face a number of challenges; for instance, gaps in knowledge, technological challenges, elevated costs and lack of clarity as to who is liable for conducting and financing the operations. In addition a particular challenge is making sure that the cleanup operations will have a lasting effect by preventing fresh discharges of environmental pollutants.

Gaps in knowledge associated with different technical solutions, the effects of such solutions and the effects of hazardous substances on the environment represent a big challenge in the context of cleanup efforts. Future work will need to focus on gaining further practical experience from dif-

ferent types of projects and on learning more about the biological effects of pollution. The reason is that few major cleanup operations have been carried out in Norway and experience from other countries cannot always be successfully transposed and used in the very specific conditions prevailing in Norway. At the same time we know too little about the effects a given reduction in the quantities of environmental pollutants in water and sediments will have on the contents of hazardous substances in fish and shellfish. In the Frier Fjord, for example, discharges of dioxins from the largest source in the area have been cut by over 99 %, while the content of dioxins in the upper strata of bottom sediments has been reduced by around 50 % since 1989. Nevertheless, the contents of hazardous substances in fish and shellfish in the area are still too high to permit removal of the sales restrictions.

Extensive surveys have been carried out in recent years and these have revealed serious pollution in a number of areas. However, there is still a considerable need for further charting of the amounts of environmental pollutants in sediments, fish and shellfish along the Norwegian coast. No comprehensive surveys have for instance been conducted to find out how much need there is for dietary advice in areas stretching from Hordaland to Nordland. More detailed investigations are also needed in most places before cleanup measures can be started. Further, studies already carried out have covered a limited number of environmental pollutants. We have recently become aware that the numbers of hazardous substances, which can have serious consequences for health and the environment, are constantly increasing.

Carrying out cleanup operations in large areas with contaminated sediments is *very expensive*, something which is a challenge in itself. It has been calculated that it will cost a few billion to over ten billion kroner to clean up the entire coastal area of Norway, the precise cost depending on how clean sediments are required to become. Estimates are also very uncertain not least because we do not yet know enough to be able to say what steps need to be taken in the different areas.

Apart from the high cost, *the situation in terms of liability is often far from clear*, which means that dividing costs between those responsible also

represents a challenge. In addition to that, there are many instances where the sources originally responsible for the pollution no longer exist.

One of the biggest challenges when conducting cleanup projects involves dealing with *the large amounts of polluted material* on the seabed. A limited cleanup operation in the Port of Oslo will involve removing 780 000 m³ of material. If this were to be dumped on a football pitch the resulting «landfill» would be some 110 metres high. When carrying out such projects it has often proved difficult to find suitable areas for disposal of these materials and treating the material is also very demanding in technical terms.

Hazardous substances and other chemicals harmful to health and the environment are *still being discharged* by Norwegian industry, from products, landfills, waste incineration plants and a series of other sources. This means both that sediments in new areas can become polluted and that the benefits of any cleanup operations may be limited in some areas. Parallel to cleanup projects it is therefore important to cut down fresh discharges with the help of both national initiatives and international efforts.

3.5.4 Objectives: How clean, how quickly?

Work on contaminated sediments is part of the overall effort being made by the authorities responsible for environmental protection to prevent hazardous substances and other harmful chemicals from damaging health and the environment. A long-term strategic objective aimed at «bringing the concentrations of the most dangerous chemicals in the environment down to the background level for naturally occurring substances and close to zero for man-made compounds» has been adopted for this work and also for work on contaminated sediments (cf. Parliamentary Report No. 24 (2000–2001)). A series of targets relating to new discharges of chemicals harmful to health and the environment have also been adopted aimed at ensuring progress towards achieving this longterm objective. In addition, a separate target has been fixed for work on pollution stemming from *previous eras* which is that “pollution of the seabed, water and sediments caused by past activities, wrongful disposal of waste etc. shall not involve a risk of serious pollution problems”. This tar-

get refers to polluted areas on land, freshwater areas and the seabed. In the case of contaminated sediments, the Government's aim with this target is to bring concentrations of environmentally hazardous substances from discharges in bygone times down to a level which will not have serious biological effects or serious effects on the ecosystem.

The view of the Government is that it is neither right nor possible to establish a more precise environmental quality objective for all sediments along the Norwegian coast. In the *long term* concentrations of hazardous substances in all areas must be brought down to zero (cf. the strategic objective). But how much the concentrations of environmentally hazardous substances need to be reduced in the *short term* will have to vary from area to area. Everything will depend on how polluted the area is today, how complex the pollution situation is, whether the hazardous substances are accessible to the organisms in the area, whether the hazardous substances can migrate to new areas, what demands the ecosystems in the area make on the environment and how much it will cost to introduce measures in the area. Further, the need for clean areas for fishing and other commercial activity varies from area to area.

The EU Water Framework Directive (cf. Chapter 2.3.2) will also involve requirements relating to cleanup of contaminated sediments, even though the directive does not for the moment specify which measures are to be applied to individual areas.

The Government intends to draw up a strategy to ensure sufficient progress with cleanup operations in relation to the strategic objective and the national result objective already adopted and to the requirements set out in the water framework directive. In this strategy the Government will specify the reasons and the principles to form the basis for assessments of the need for initiatives in individual areas.

3.5.5 Strategy for work on cleanup of contaminated sediments

The Government intends:

- to prevent the spread of environmentally hazardous substances by commissioning cleanup operations in sediments wherever possible with today's technologies in:

- restricted areas which distinguish themselves by exhibiting high levels of concentrations of environmentally hazardous substances (referred to as "high-risk areas"); and
- ports where there is a danger of migration of environmentally hazardous substances;
- to ensure a comprehensive regional approach to large fjord and coastal areas by developing county action plans; and
- to increase what is known via:
 - pilot projects;
 - research and monitoring; and
 - setting up a national council.

Extensive surveys of environmentally hazardous substances in sediments have been carried out on long stretches of the Norwegian coast. The surveys have revealed a marked need for cleanup operations in a number of places. Individual cleanup projects have already been implemented and have given us valuable experience, even though there is still much uncertainty regarding technical solutions, costs and the effects of measures. The Government has adopted the precautionary principle as a basis for work on further cleanup of contaminated sediments. This means that initiatives cannot be postponed simply because we do not have complete scientific certainty regarding the effects of the current level of pollution or regarding steps that can be taken. What we already know should thus be put to use. At the same time further work must also ensure that we learn more. A strategy is needed both for the implementation of steps that can be taken on the basis of existing knowledge and for acquiring the know-how necessary for the long-term cleanup work.

Migration of environmentally hazardous substances from contaminated sediments to new areas is an unacceptable form of pollution and the Government's basic view is that steps must be taken relatively quickly to prevent this from happening. The Government therefore attaches particular importance to finding the ways of taking the necessary steps in the short term to prevent spread from areas where we already have sufficient knowhow to be able to do something. This requires taking initiatives in restricted areas with high concentrations of environmentally hazardous substances where we already have sufficient control over existing inputs of hazardous substances.

The Government is also anxious to ensure that sufficient progress is also made with cleanup operations in areas presenting no risk of migration of contaminants and in discovering polluted areas hitherto unknown to us. The need for cleanup operations in such areas will vary and will depend primarily on local considerations such as outdoor activities, fishing, fish farming and other uses of the area in addition to the need to ensure that the environment is in an acceptable state. Local knowledge is necessary in order to find hitherto unknown areas of contamination and the Government sets great store by getting a total grip on the problem, which ensures that new areas of pollution can be revealed via work at local and regional level. The basis of the Government's approach is that there should be scope for assessments conducted locally and regionally when giving priority to various measures in these areas. However, at local level priorities must be fixed within the framework set out and according to the principles described in this paper.

While existing knowledge is being put to good use, the Government attaches great importance to finding out more via research, surveys and monitoring and also via the use of approaches which ensure that new technologies are developed and tested.

In the light of this the Government is basing itself on a strategy designed to ensure that the cleanup work is actually started using what we already know and that hitherto unknown areas of pollution are identified. It is also anxious for us to learn more about the effects of pollution and to develop methods for implementing measures and new technological solutions further. What is basically being proposed is a combination of classic state control and initiatives from local and regional bodies. On the basis of the above principles the Government will use the strategy for three parallel lines of action:

1. Preventing the migration of environmentally hazardous substances from contaminated sediments by ordering initiatives where such are possible with the technologies available today in areas where there is a danger of hazardous substances migrating; these include the so-called high-risk areas and ports where current operations cause the spread of hazardous substances.
2. Ensuring a total regional approach to large fjords

and coastal areas by drawing up county action plans.

3. Learning more through pilot projects, research, monitoring and the setting up of a national council to deal with sediment issues. The general means for implementing this strategy are described in Chapter 3.5.6, while those for implementation of the three-part strategy (see above) are described in Chapters 3.5.7, 3.5.8 and 3.5.9.

3.5.6 General approaches

The Government intends:

- to, where possible, impose an obligation on polluters to conduct the necessary cleanup operations;
- to make public funds available for cleanup operations in areas where it is impossible to identify those responsible for pollution or where it is not reasonable to demand that those responsible foot the entire bill; and
- to assess the possibilities for introducing different payment schemes, including funds, which collect financial contributions from different polluters, and any state grants made available.

Attributing responsibility and use of injunctions pursuant to the Pollution Act

The "polluter pays" principle is the basis for dealing with pollution in general and will also be the basis for work on cleanup of contaminated sediments. Responsibility for preventing, identifying and repairing damage caused by pollution is a direct consequence of the Pollution Act. Anyone owning, doing or using something which causes pollution, or which is in any way associated with pollution, is to be regarded as responsible. This also applies for contaminated sediments. As far as possible injunctions pursuant to the Pollution Act are to be used to ensure cleanup of areas containing contaminated sediments.

Those behind the original input of pollutants to an area, those who own or in some other way possess something which can cause pollution and those causing the pollution today may be required to conduct cleanup operations. In places where the sources of contamination of sediments can be identified and where the activities causing that contamination still exist, the main rule will be that the perpetrator of the pollution will be required to

deal with it. This is the main rule even though the discharges may have been known in the past and were legal.

The use of injunctions pursuant to the Pollution Act on cleanup operations for contaminated sediments does, however, give rise to a few specific problems. This is attributed to the fact that inputs of contaminants into sediments have taken place over a long period of time and have originated from many different sources; often, too, there will be many different polluters, some of whom no longer exist or whom it is difficult to identify and hold liable for other reasons. The huge costs associated with cleanup operations for contaminated sediments also represent a particular challenge when resorting to injunctions under the Pollution Act.

When issuing injunctions ordering cleanup operations the pollution authorities make sure that the measures called for are in reasonable proportion to the damage and inconvenience caused by the pollution. When considering whom an injunction may be issued against, account will be taken of the financial viability of those held liable and of the degree of blame the different operators bear for pollution in a given area.

Funding arrangements

Private, municipal, state-run operations and the civil service can be ordered to carry out and/or fund all or parts of the cleanup because they are responsible for the pollution under the terms of the Pollution Act. In cases where it is not possible to identify anyone who can be held responsible and who could reasonably be required to conduct a cleanup, the State will have to carry out and finance the necessary cleanup operations.

In some areas it is possible to locate one polluter responsible under the terms of the Pollution Act. The general rule will then be that that this polluter will either voluntarily or pursuant to an injunction conduct and finance the necessary cleanup operations in the area. A public injunction will not prevent the polluter or polluters against whom the injunction has been issued from demanding at a later stage that parts of the costs incurred be covered by others who it was subsequently possible to identify as responsible for the pollution. For example,

the City of Oslo has in collaboration with the Norwegian Society for the Preservation of the Nature been considering bringing a case for compensation against the producers of the substances polluting the Port of Oslo. In a few exceptional cases it may be unreasonable to order those responsible to foot the entire bill for measures. In such cases state grants will be necessary to carry out the cleanup.

In large polluted areas there will be more than one polluter in a majority of cases. In such instances all the polluters should make a financial contribution to the cost of the work necessary in the area. This can be achieved either by the different polluters voluntarily co-operating and dividing the costs among themselves or by the pollution control authority ordering the different polluters to contribute financially. When polluters co-operate it may also be appropriate for the State to contribute to the funding. The Government therefore takes it for granted that state grants will be necessary in cases where it is not reasonable to order the polluter or polluters to foot the entire bill for the necessary cleanup operations, in cases where it is not possible to identify a polluter and in cases where it is reasonable to expect the state to contribute in order to conduct comprehensive cleanup operations covering a large area. The Government will be returning with specific proposals on the granting of subsidies via the national budgets for the years to come.

Organising payment schemes – funds

In Recommendation to the Storting No. 295 (2000–2001) containing recommendations from the standing Committee on Energy and the Environment on the Government's environmental policy and the state of the environment a majority of the Committee's members say they believe that "the ways in which trade and industry can contribute either directly or indirectly to establishing a cleanup fund to deal with past environmental sins should be investigated. A fund of this type should be established as a joint project involving the authorities and trade and industry with the objective of removing environmentally hazardous substances from the natural surroundings or of limiting harmful effects". In the light of this the Government has asked for "studies of various models and proposals for the establishment of a cleanup fund by the authorities in collaboration with trade and industry. The fund would be used for tackling sins commit-

ted against the environment in the past and for removing environmentally hazardous substances from our natural surroundings”.

The Government assumes that polluters will cover most of the costs involved in cleanup operations, although there will be cases where it may be necessary to make state grants available (cf. above). In cases where a single company has to foot the entire bill for cleanup operations the Government feels that the best solution is for that company to finance the cleanup directly. Usually, however, there will be more than one polluter expected to contribute to major cleanup operations and some form of payment system will have to be established for such cases. The Government therefore intends to give further thought to the possibilities of establishing different payment schemes, including a fund, which would collect financial contributions from different polluters and possibly state grants in the most appropriate way.

A number of payment schemes are to be considered. One possibility is to set up a fund. One might for instance create a national fund into which all polluters following an injunction from the pollution control authority and possibly others would pay financial contributions. The fund would then be used to finance all types of cleanup operations in connection with contaminated sediments. Another possibility would be to set up a separate fund for each area and then those responsible for pollution in that area would pay into the fund, which would then be used for cleanup in the area. If such a fund were to be set up it should be linked to the county action plans (cf. Chapter 3.5.8).

The Government also wants to look into alternative systems for financing cleanup in cases where it is either impossible to identify those responsible for pollution or where those identified are unable to pay. In the USA for instance a «Superfund» has been set up and is used to finance cases where it is either impossible to identify the polluter responsible or where the polluter is insolvent. The fund's revenue comes from a levy on petroleum and individual chemicals and from an environmental levy on corporate profits. The Government is basically sceptical about the idea of earmarking revenue from various taxes and levies for specific purposes.

State grants for cleanup operations can either be made as a once-for-all grant via the national budget whereby the dividends are used to finance measures or in the form of annual grants. A one-off grant where the dividends are used to finance cleanup operations would reduce the scope for annual decisions on priorities and for using the national budget as part of overall economic policy. The setting up of this type of fund could also come into conflict with the basic principles on which the national budget rests.

Consequently, further study is needed of a number of issues bound up with the setting up of payment schemes. The Government will be looking into these issues in greater detail and will return to the Storting with an assessment and possible proposals.

3.5.7 How to prevent migration

Preventing the spread of environmentally hazardous substances in high-risk areas

Anxious to make progress in this area the Government takes the view that given what we already know it should fairly soon be possible to undertake measures in «high-risk» areas where a risk of migration is present. The prerequisite throughout is to have existing discharges of environmentally hazardous substances under sufficient control so that any cleanup attempted will not be a waste of money within a short time. For the moment only three areas have been found where there is a risk of migration and where new inputs are judged to be under sufficient control. Extensive surveys are also planned in connection with the drawing up of county action plans (cf. Chapter 3.5.8) and these will probably reveal further such areas. The Government wants to start cleanup operations in high-risk areas where there is a risk of migration as soon as possible and preferably within five years of the areas being discovered. Precise deadlines for cleanup in these areas are to be fixed on the basis of the extensive surveys to be carried out, e.g. in connection with drawing up the county action plans (cf. Chapter 3.5.8).

Injunctions pursuant to the Pollution Act will be the main means of ensuring sufficient progress with the work on stopping the spread of pollutants from high-risk areas. Sources in high-risk areas are often

fewer and easier to locate than sources of pollution in larger areas. But, there will be cases where the activities responsible for pollution no longer exist. In such cases the Government takes the view that the environment protection authorities shall ensure that the necessary cleanup is carried out.

The State is also a polluter or an owner of polluted areas and therefore responsible for cleanup in the areas concerned. The Government takes it for granted that the State will proceed with cleanup operations to put its own environmental sins to rights. The Government further takes it for granted that the State will take the necessary steps to prevent the spread of pollutants in high-risk areas owned by the State as soon as possible and preferably within a five-year period of their being discovered. An important prerequisite is also that inputs to the area be under sufficient control and that the cleanup fits into the overall context of other measures planned via the county plans.

Shipyards and large pleasure boat marinas are areas where problems associated with pollution of the seabed may be expected. The Government therefore considers it important to chart the extent of the problem of contaminated sediments linked to these activities and to undertake cleanup operations as quickly as possible. The Government is therefore planning a special drive in this type of area the aim being that surveys of pollution and studies of the need for measures linked to shipyards and large pleasure boat marinas will have been undertaken by the end of 2005. In the areas where the polluters are known cleanup injunctions pursuant to the Pollution Act will be the main instrument.

Preventing the spread of environmentally hazardous substances from port areas

Contaminated sediments in ports are mainly a problem in that environmentally hazardous substances spread when shipping churns up the sediments. Since port areas are often very busy and are therefore exposed to certain inputs of environmentally hazardous substances for some time to come it will not always be practical to remove all pollutants in the short term. It is, however, important to prevent port activities and shipping from helping environmentally hazardous substances spread to other areas. The Government will therefore be pressing in the relatively short term for measures to pre-

vent contaminated sediments in the most polluted ports from being churned up and preferably within a period of ten years. It is planned that the need for measures in all ports will have been dealt with by 2010 and that the necessary measures to prevent migration will be implemented within relatively short time, preferably within a period of five years. This will, for example, involve dredging to ensure sufficient draught for shipping and to prevent sediments being churned up by ships propellers. It will also require regulation of port traffic and possible other restrictions on activities in ports. Many of the ports would have needed dredging anyway during this period to ensure sufficient draught for shipping in the port area.

As in the high-risk areas, the spread of environmentally hazardous substances from ports is regarded as active and acute pollution. The Government therefore intends to make the Pollution Act applicable to this type of pollution so that injunctions can be issued against port operators. As outlined in Chapter 3.5.6, when issuing injunctions the pollution control authority will base itself on assessment of the viability of the measures required and the financial ability of the polluters to pay. If it is not reasonable to order ports to pay the full cost of cleanup operations because of their financial situation, the possibility of state grants for the necessary measures will be considered.

3.5.8 A total approach to ensuring local involvement: County action plans

Need to draw up county action plans

While it is necessary to make a concerted effort in limited, high-risk areas and ports to prevent the spread of environmentally hazardous substances, large fjord areas with less concentrated pollution need a different approach.

Achieving good results though measures taken regarding sediments in part of an area will often depend on land-based sources or work on sediments in adjacent areas. It will not prove very cost-effective to carry out cleanup operations in one part of a large fjord if environmentally hazardous substances are still being discharged into another part of the same area. Similarly, it would not be appropriate to conduct a cleanup operation in any part of a fjord until all areas of the same fjord presenting a

risk of migration have been secured against further spread. The Government therefore sees a need for a tool which ensures a total approach whereby the whole of the fjord is regarded as a single entity.

The need to clean up contaminated sediments should be assessed locally or regionally. In some places the most important thing will be to reduce the load on the environment, while in others it will be the significant economic interests associated with fishing and fish farming that have the decisive influence. Which issues are most important at local level will be significant when deciding on the measures to be introduced and in what order. It will therefore be a good idea to have the work tied to local level, as this can encourage active participation by local stakeholders with an interest in the cleanup. We also need detailed knowledge of the level of pollution, ongoing discharges and historical information about past discharges in the individual areas when undertaking this work. Central authorities do not have this information nor is it considered appropriate that such information should be compiled by the central authorities in the future. We therefore very much need to get the local level involved in this work.

In the light of this, the Government feels that the best way to organise the work is via county action plans.

Drawing up county action plans

To ensure a total approach and local involvement the Government intends to have county action plans drawn up which will provide a total approach to cleanup operations in individual fjords and coastal areas and lay the necessary foundations for decisions on what is to be done. The idea is that county action plans will in time become part of the programmes of action referred to in the EU water framework directive (cf. Chapter 2.3.2). The plan is for counties with several polluted fjord areas to have an overall programme of action for the county made up of a number of subsidiary plans for the different fjord areas and any polluted coastal areas.

The Government intends county action plans to be drawn up for the most polluted areas in the course of 2005 and by 2009 for the remaining coastal and fjord areas. The Norwegian Pollution Control Authority is to draw up an overview of fjord areas due for county action plans in order of priority during 2002. Work on

charting the extent of pollution and its significance for organisms and ecosystems is to be largely completed by the end of 2004.

The county action plans are to contain proposals as to what environmental quality level should be achieved for the fjord area as whole, possibly distinguishing between different parts of the fjords on the basis of an assessment of the scope for and cost of cleanup. Plans must contain an overview of the degree and extent of pollution in the fjord and of the problems it creates for the environment and for consumer interests such as fish farming, fishing and catches. Plans must also provide an overview of sources of discharge in the catchment area and their significance in the overall pollution context. The significance of the sediments as a source of pollution must also be described. In addition the plans must describe the effects and costs of different measures to deal with the sources of pollution, along with current solutions to dealing with contaminated sediments, if these have to be removed. The plans must establish a correlation between cleanup of sediments and measures on land, stipulate who is responsible for ensuring that the measures are implemented and contain a schedule for financing of the measures.

The Norwegian Pollution Control Authority will draw up guidance for use in the work on the county action plans on the basis, *inter alia*, of experience gained from implementation of comprehensive cleanup operations during pilot projects.

Organisation of environment protection management at regional level is under consideration. This clarification is essential when deciding who is to be responsible for developing the county action plans. The Government will therefore be returning to the subject of the detailed organisation of this work. However, it is important to have a transparent process in which as many players as possible can participate.

We still do not know enough at local and regional levels about which areas are polluted, which the significant sources are or were and who is responsible for the pollution. The Government will therefore be assessing the need for state subsidies for the work on charting, investigating and studying which forms the basis for the county action plans.

The county action plans will constitute a tool for the concrete cleanup work in the individual fjord and coastal areas. The plans will form the basis for industries, local authorities and other bodies responsible for cleanup measures and for the assessing when to use public funds and injunctions. The Norwegian Pollution Control Authority will remain responsible for issuing injunctions for cleanup operations under the terms of the Pollution Act.

3.5.9 How to gain experience and learn more

Pilot projects

There are few examples of cleanup operations in polluted fjords or large fjord areas and this means that there is little empirical material and knowledge of the implementation of comprehensive cleanup projects. We need to learn more, increase our experience and produce guidance on how to manage the whole process from the planning stage to implementation.

We need to define methods and develop tools when working on identification of sources, assessment of risks, fixing of criteria and deciding on the most cost-effective cleanup measures. This also means that we need to develop methods and tools for assessing the consequences. We need to develop criteria for establishing when to implement cleanup operations and gain experience from using different technical solutions. We also need to gain experience with putting the environmental problems in a fjord area in an overall context to enable us to address them systematically – for instance, by looking at the correlations between land-based sources and contaminated sediments.

The Government proposes therefore that pilot projects being carried out with the aim of increasing knowledge and experience concerning planning, organisation and implementation of measures in the fjord areas containing contaminated sediments.

Pilot projects will consist of several phases; first the necessary studies and decision-making processes leading to action must be started, then the cleanup operations must be carried out and finally an assessment must be made as to whether the measures have had the desired effect. In the light of experi-

ence gained and results achieved from the pilot projects in terms of methods, criteria for measures and organisation of the work, reports will then be worked out and guidance produced for the authorities and others with pollution problems in different areas. This should enable them to address the environmental problems in a rational manner, both in technical and economic terms. The pilot projects will also provide experience and know-how, which can be used as a basis for implementing the county action plans. A pilot project is expected to cover a period of five years.

The Government plans to contribute public funds to finance parts of the pilot projects because these projects are designed to provide fresh knowledge and promote technological development with a high transfer value for other projects. In accordance with the «polluter pays principle» it is a condition that those responsible for the pollution in the pilot areas also contribute to the cost of the cleanup.

The Government is proposing the implementation of pilot projects linked to fjord areas where work on the fundamental problems has already made considerable headway, where the time is ripe for an early and focused effort to reduce the inputs from contaminated sediments and remaining landbased sources, and where measures will have a high transfer value for other areas.

State subsidies have already been granted for a cleanup project in the Sandefjord Fjord. The justification of the use of public funds in this area is that the project is to contribute to gaining new knowledge and gathering new experience of planning and implementing cleanup operations and that this will be very valuable when applied to other areas. The purpose of this project is to gain experience of planning and implementation of cleanup operations, including being able to assess the impact of the treatment method applied to the contaminated sediments.

Research, surveys and monitoring. Establishing a national council for sediment issues

We have already highlighted the need for more basic information on, for instance, migration, absorption and the effects of environmentally hazardous substances on ecosystems and organisms in order to

ensure cost-effective implementation of cleanup operations on contaminated sediments. The Government will therefore be giving priority to funding research, surveys and monitoring in this field and will be returning with specific proposals in the budget for 2003.

Knowledge of and the competence to deal with the effects of contaminated sediments and possible cleanup are today scattered across different parts of the administration, research institutes, universities, environment protection organisations, consultant firms and industry. It is essential to bring all these skills together and to make full use of them. The Government is therefore proposing to establish a special council to compile data on this area and provide advice on conducting investigations and implementing measures.

It will be the job of this council to keep up with developments and new findings on the incidence and effects of environmentally hazardous substances in sediments and to monitor possible technical solutions for reducing the problems that this pollution causes to health and the environment. The council will make recommendations to the pollution authorities on issues covered by its remit or which it raises itself. The council will not, however, be given the power to order cleanup operations. Nor is it felt appropriate that a council of this type should administer funds for grants or major surveys.

This council should comprise representatives of research institutes, universities, environment protection organisations, firms of consultants and industry. It should also co-operate closely with those responsible for drawing up the county action plans.

The Government intends to return to the question of the composition, terms of reference and budget of such a council.

3.6 SPREAD OF NON-INDIGENOUS ORGANISMS AND GENETICALLY MODIFIED ORGANISMS (GMOS)

3.6.1 The threats

The spread of species to areas where they do not occur naturally has increased markedly over the last decade. At the same time we have been seeing more and more examples of how this can have significant effects on ecosystems and on species occurring naturally. We have also seen reports of serious consequences for branches, which use the living resources. Examples from Norwegian waters are the spread of the harmful plankton algae, *Chaetoceros spp.*, which was probably introduced with ballast water from ships from the Far East and American lobster which was implanted illegally and which is now threatening to supplant our own Norwegian lobster stocks. The spread of the king crab following implantation on the Russian side of the border has caused problems for net fishing in the areas affected and may also have serious consequences for the ecosystems.

The introduction of non-indigenous species into the marine environment is a very serious threat to species and habitats. Knowledge of communities of marine organisms and habitats is, however, limited and marine ecosystems are often very cohesive with few natural barriers against invasion. This means that if a species is introduced in one site it is easy for it spread to others and have harmful effects. Non-indigenous species and stocks are either spread deliberately by implantation or as stowaways in consignments of commercial goods, species implanted or means of transport, e.g. through fouling of ships' hulls or through changing of their ballast water. Once non-indigenous species have been introduced into the marine environment it is more or less impossible to get rid of them.

Even though we have been spared the most dramatic consequences of non-indigenous species in Norwegian waters, it is becoming increasingly clear that these species represent a serious threat to us, too. This is why it is essential to develop means of preventing further implantations quickly and get to grips with the harmful effects in both the short and the long term.

The introduction and the spread of non-indigenous species is now considered to be one of the most serious threats to biological diversity. The Convention on Biological Diversity has led to the drafting of guidelines on how to avoid the harmful effects of the introduction of non-indigenous species, while other international fora have produced protocols and agreements etc. Parliamentary Report No. 42 (2000–2001) on biological diversity contains a description of general policy in this area.

In addition to non-indigenous species, genetically modified organisms may also become a significant threat to the marine ecosystems. Genetically modified organisms are microorganisms, plants, animals and fungi which have had their genetic codes changed using genetic engineering or cell techniques. By making such changes it is possible to give the organism new characteristics; for example, better tolerance to cold, faster growth or production of useful substances. The technology therefore has the potential to generate useful products in the fields of medicine, food production, industry and the like. At the same time the use of genetic engineering and cell techniques can cause serious damage to species in the wild and to natural ecosystems, if the genetically modified organisms spread to the natural surroundings. For example, fish with better tolerance to cold can migrate to new areas and disrupt the species mix and the structure of the ecosystems concerned, while faster growth can cause wild stocks to be supplanted. The risks bound up with genetic modification can be difficult to evaluate, particularly in the long term. Further, it is important to emphasise that there is a big potential for migration in marine ecosystems and that the scope for getting rid of non-indigenous species is small.

Norway has strict rules regarding the testing and use of genetically modified organisms and attaches great importance to ensuring that the use of such organisms will not have harmful effects on the environment. Legislation in place requires, for instance, step-by-step testing and investigation of the environmental consequences of genetically modified organisms before they may be transplanted or used, for example in the pens of fish farms. Up to now market-related considerations have prevented any interest being generated in this country in using genetically modified marine organisms for fish farming purposes. But, in recent years Norwegian

researchers have been involved in the development of genetically modified farmed fish abroad.

DNA vaccines represent an area where genetic engineering is expected to spread quickly. DNA vaccination and other means of injecting genetic make-up (gene therapy) can be regulated under the terms of the Genetic Engineering Act. The Ministry of the Environment has asked the Biotechnology Council for a more in-depth assessment of how DNA vaccines and gene therapy should be regulated and what status DNA-injected organisms should have in the eyes of the law.

3.6.2 Measures

The Government intends:

- to limit the use of genetically modified marine organisms to migration-proof, closed facilities on land;
- to continue to give the very highest priority to international work on developing rules and regulations governing the use of genetically modified organisms which focus ethical values, health and the environment;
- to work on completing binding international legislation on the treatment of ballast water under the auspices of the UN's maritime organisation, the IMO, in 2003;
- to take steps at national level in line with the voluntary IMO guidelines as soon as possible and, insofar as the contents are known, with the future IMO regulations on ballast water, while at the same time preparing for implementation of the future IMO rules;
- to press for co-ordinated joint measures to deal with ballast water in all of the North Sea countries pending the advent of the new IMO legislation;
- to establish a programme for the monitoring of non-indigenous species on the priority list with a view to keeping tabs on migration and proliferation;
- to draw up an overview of non-indigenous species in the neighbouring countries which may be expected to survive in Norwegian maritime and coastal areas as a basis for future measures;
- to develop a risk analysis system for different sections of the community and branches of commercial activity; and

- to attach particular importance to avoiding harmful effects from the spread of king crab in ecosystems along the coast.

Intake and discharge of ballast water are today the operations, which involve the greatest risk of unsupervised introduction and spread of non-indigenous species of marine organisms. The organisms, once introduced, spread easily in the water and when they have established themselves it is virtually impossible to eradicate them. The Government therefore wants to give priority to measures to address the introduction and spread of non-indigenous species via ballast water.

International shipping is mainly to blame for the introduction and spread of non-indigenous species via ballast water and the risk level will vary depending on the area. The problem must therefore be solved by agreeing on a set of internationally binding regulations. Such regulations on intake, discharge and treatment of ballast water are at present being drafted, the aim being to have a dedicated convention on this issue under the auspices of the UN maritime organisation, the IMO, by 2003. Completion of the work may, however, be delayed and we know from experience that it will be some years before the convention comes into force and is implemented by the contracting parties. The Government will be pressing for the convention to come into force as soon as possible.

The Government also intends to launch national measures in line with IMO regulations currently in force. Plans are afoot to introduce requirements for ships which discharge their ballast water into Norwegian waters to report this to the authorities; the aim here is to be able to issue injunctions against them, thus forcing them to deal with their ballast water and sediments in the safest possible way. The Government is also going to consider introducing requirements regarding changing of ballast water and establishing reception facilities on land. There is also a need to monitor non-indigenous species and harmful organisms and to exchange information with other countries in the region.

In the light of the natural spread of species via ocean currents and of the competition situation between ports, regional measures in the North Sea region will have a much greater impact than unilat-

eral initiatives on the part of Norway. On the occasion of the Fifth North Sea Conference in March 2002 Norway will therefore be proposing that the North Sea countries take immediate steps to tackle the problem of introduction of species via ballast water. The idea is that the North Sea countries shall adopt national and regional measures in the course of 2004. Norway will also suggest that the North Sea countries should consider introducing particularly strict rules for the North Sea when the convention comes into force.

Appropriate measures are also to be studied and implemented to stop the spread of non-indigenous marine organisms via other routes; directly or indirectly via the hulls of ships, trade in imported live species, illegal transplanting, sea ranching or aquaculture.

The migration of the king crab westwards along the coast of Finnmark has accelerated in recent years, something which has laid the foundations for a certain degree of commercial exploitation. A working party has put forward proposals with a view to improving what is known about the ecological effects of this species. Pending the availability of this information the Government assumes continued commercial exploitation in the areas where the stocks are most abundant, while attaching particular importance to avoiding harmful effects along the coast. The Committee which is to table proposals for new basic legislation on management of biological diversity (Committee on Biological Diversity) has been asked to examine the general rules and regulations on non-indigenous species in existence.

The Committee is to submit its opinion in the autumn of 2003 and on the basis of its advice the Government will assess how to strengthen the rules and regulations.

The Government will stress that developments in the field of genetic engineering should take account of environmental, safety and ethical issues and stay in line with signals from the international markets. The development of marine genetic engineering must comply with the provisions of the Law on Genetic Engineering whereby specific environmental assessments must be undertaken of individual projects and of the application of the precautionary principle in relation to the environment and health.

If used within these limits, genetic engineering will offer new solutions and new commercial opportunities, for example in the field of production of vaccines. Up to now it has been unclear whether «DNA-vaccinated» animals should be regarded as genetically modified organisms. This issue will now be studied by the Biotechnology Committee, which will also be examining the need for regulations in this field. In respect of genetically modified organisms the Government stresses that implantation in the sea or in fish farm pens will not be authorised because of the potential for migration and because it is impossible to predict the consequences. In the future, therefore, it will only be possible to use them in migration-proof, closed facilities on land.

Norway has participated actively in international work on drafting rules to govern the use of and trade in live, genetically modified organisms (the Cartagena Protocol). In addition, the Norwegian authorities have been active in regional fora for the protection of marine ecosystems from the possible harmful effects of genetically modified organisms. The Norwegian authorities have therefore turned to the USA among others to express their concern over the possible approval of what has been dubbed the «supersalmon» because of what this could mean for our marine environment and our wild salmon stocks.

3.6.3 Protection, use and distribution of marine, genetic resources

The Government intends:

- to investigate the general principles and conditions applying for use of marine genetic resources as part of the work of the Committee on Biological Diversity on a new legal basis for coordinated management of biological diversity; and
- to develop and implement legislation to regulate use of marine genetic resources, which takes account of Norwegian interests and international agreements in this field.

The gene pool constitutes the biological basis for variation involving different species and for variation of the characteristics of individual species. It is genes that are the basis for how species adapt to different habitats and for developing different

varieties or stocks. They offer scope for breeding tame species and stocks. Genes are also codes for the production of different proteins with specific and potentially commercially interesting properties. Both species living in the wild and farmed varieties therefore represent valuable resources for further breeding, manipulation and biotechnological production. At the same time, genetic variety provides a basis for mastering changes in the vital necessities for life and is thus an assurance of future survival.

The growth of the fish farming industry in Norway is a striking illustration of the economic value of genetic resources. By farming some 20 of the most attractive wild stocks of Norwegian salmon it has laid the foundations for exports which generate revenue to the tune of billions of Norwegian kroner. In addition, there is keen interest in the marine sector in further charting and utilisation of genetic resources. This has also attracted attention at international level to the potential for development in this field and over the past few years there has been growing interest in the survey work along the Norwegian coast where the main focus is on the coral reefs. It is believed that the coral reefs with their abundance of species may contain genetic resources with significant commercial potential. If active biological substances can be isolated or another biotechnological use found this could provide a basis for industrial use in the pharmaceuticals, cosmetics and food industries to a degree that far exceeds the value added of marine biotechnology in Norway today. However, legislation is urgently needed to regulate prospecting for marine biological resources and the Committee on Biological Diversity will therefore be looking at the principles and conditions applying for the extraction of genetic resources, including the marine variety, in close contact with the committee preparing a proposal for a new law on marine resources (cf. Chapter 3.9).

In addition to being used in connection with crops and traditional areas of biotechnology, genetic resources offer scope for changing the hereditary characteristics of plants and animals by modifying their genes. Genetic modification of marine organisms in the wild has so far not attracted much commercial interest from Norwegian firms both because of the possible harmful effects on the environment and because of considerations connected with acceptance and

also their reputation among the consumers (cf. description in Chapter 3.6.1).

Management of marine genetic resources has not been the focus of much development work and is primarily based on the Continental Shelf Act, which reflects the provisions set out in the Treaty on the Law of the Sea. Other pieces of our legislation, however, contain provisions, which may be relevant to the extraction and utilisation of these resources. The Committee on Biological Diversity (cf. Chapter 3.6.2) is to study the general principles and conditions applying for the extraction of genetic resources, including marine genetic resources. The terms of reference of this committee also stress that current legislation covering individual sectors, such as a new law on marine resources, will facilitate implementation of the main principles.

3.7 PROTECTING MARINE AREAS AND SUSTAINABLE SPATIAL MANAGEMENT OF THE MARITIME AND COASTAL AREAS

3.7.1 The threats

Thanks to our long coastline and in some places low population density Norway still has areas of natural beauty left which have been little affected by human activities. Nevertheless, pressure on areas in the coastal region is increasing. Examples of operations which can often cause damage are landfills, building of ports and roads, dredging and dumping, earthworks, smothering and laying of pipes.

Humans have also left clear traces of their passage on the seabed off the coast. It is estimated, for example, that 33–50% of the deep-water coral reefs, which are found along the Norwegian coast, have been wholly or partially destroyed, largely as a result of bottom trawling. Petroleum exploitation activities are also in part responsible for major physical encroachment on the seabed and in the future the extraction of minerals and gas from the seabed may prove to be real threats.

There are gaps in our knowledge of the marine ecosystems and of how vulnerable they are to various stresses. A good example is sea urchins who graze on and destroy the underwater forests of sea weed

along large stretches of the coast from Trøndelag and northwards as far as West Finnmark. The situation has remained relatively stable since the end of the nineteen seventies and results of research indicate that it may remain this way for a long time. We do not know, however, whether the situation is due to natural fluctuations or to human activity, in the form of overload on species which live on sea urchins.

3.7.2 Enhanced spatial management of the marine environment

The Government intends:

- to establish a network of marine protected areas to conserve representative, singular, vulnerable and threatened types of marine environments and natural assets along the Norwegian coastal and maritime areas;
- to protect remaining coral reefs in Norwegian waters; and
- to establish a comprehensive, long-term plan for sustainable management of reserves of sea weed and initiate the necessary research and measures to restore the sea weed forest.

Some marine areas are particularly important because they play a vital role as, for instance, spawning grounds. Some areas also may represent huge biological diversity or be important habitats; these include coral reefs, forests of sea weed and colonies of eelgrass. Other areas may be regarded as valuable because they have representative or singular natural qualities, which we wish to conserve for the future. Still others may be habitats of rare or threatened species.

But, all human activity affects the environment to differing degrees and the question really is which of the negative consequences are we able or willing to accept in the light of what these activities offer society in return. Sustainable management must be based on the principle that the total volume of operations within a given area may not exceed what the ecosystems can stand.

Establishing environmental quality objectives will prove important in this context (cf. Chapter 2.4.3). Such objectives will set a standard as to what degree of pressure on the environment can be accepted in the different areas.

The expected increase in the exploitation of coastal and maritime areas not least by fisheries and aquaculture will mean that striking the right balances between different user interests and environmental considerations will be very important.

Spatial planning out to sea will be an important tool in this context. If we want to ensure sustainable use and strike the right balance between the different areas of interests we must have the requisite knowledge of the ecosystem and of the effects different uses have on it. The Government therefore intends to increase charting of maritime areas and to put more effort into compiling and processing data to lay the foundations for a knowledge-based, differentiated management system (cf. Parliamentary Report No. 42 (2000–2001) on biological diversity and Chapter 2.3.3).

Differentiated, sustainable spatial management must be based on knowledge of the ecosystem and of the consequences of different types of use. We have different means for protecting nature from negative effects. These are reflected in environmental legislation and in legislation on individual sectors. Examples of protected marine areas are trawl-free zones in respect of fishing and trawling for sea weed, areas closed to drilling for oil for parts of the year and areas protected under the terms of the Nature Conservation Act.

The Planning and Building Act will also be a pivotal tool for the purposes of spatial planning in sea areas within the Norwegian baseline. A committee is at present working on a revision of the law. A first interim report has already been submitted and a second one will be forthcoming in the New Year. This will be followed by proposals for amendments to legislation.

3.7.3 Marine protected areas

Today approximately 1% of the sea area within the confines of our territorial waters is protected pursuant to the Nature Conservation Act. This zone by and large covers areas where the wish to protect them is associated with natural assets on land – e.g. scenery, sea birds or wetlands.

Two marine protected areas have been established; these comprise the Sularevet and Iverryggen coral reefs off the coast of Trøndelag which are protected

under the terms of the regulation on coral reefs founded on the law on saltwater fisheries and the law governing Norway's economic zone. A marine conservation area has also been established pursuant to the Nature Conservation Act covering the Selligrunnen coral reef in the Trondheim Fjord. Establishing specific conservation areas under the terms of the Nature Conservation Act will continue to play an important role in work on assuring biological diversity in Norway.

Work has now been started on a national marine conservation plan (cf. Parliamentary Report No. 43 (1998–99) on conservation and use of the coastal zone and Recommendation to the Storting No. 168 (1999–2000)). The purpose of the plan is to ensure that a range of representative, singular, vulnerable or threatened underwater types of marine environments and natural assets are preserved for the future to provide, *inter alia*, reference areas for research and monitoring. The areas are to include a representative selection of types of marine environments in each of the three biogeographical regions along the Norwegian coast.

The intention is that the plan, which will comprise areas conserved under the terms of the Nature Conservation Act and areas protected pursuant to other legislation, should be completed some time during 2004. This first phase will be followed by a second phase of marine conservation work covering the period 2004–2010. During this second phase the existing network of protected areas will be updated on the basis of new findings, national objectives and relevant international processes and agreements. Both the waters close to the coast, territorial waters and the economic zone will be assessed. Where appropriate, management plans will be drawn up to ensure that the areas are managed in a way commensurate with the conservation objective.

According to the UN Convention on the Law of the Sea the International Maritime Organization (the IMO) may establish its own clearly defined areas known as PSSAs where special measures can be taken vis-à-vis shipping with a view to preventing pollution. It is up to individual countries to apply for such status for relevant coastal areas on the basis of those areas' vulnerability and the risk of damage caused by shipping.

Long stretches of the Norwegian coast are extremely vulnerable in the face of shipping accidents and the environmental consequences of such accidents can be very grave. The Government therefore wants to assess the possible use of PSSAs as a tool. At present there are only two areas which have been given the status of PSSAs by the IMO, one of them being the Great Barrier Reef in Australia, but a number of applications are pending, one of which comprises the Wadden Sea in the North Sea.

3.7.4 Better protection for particularly precious or threatened types of natural environment

In addition to general approaches to protection used in spatial and industrial management the Government intends to intensify efforts to protect the coral reefs and to promote more work on conservation and sustainable use of the forests of sea weed.

Coral reefs

Coral reefs are probably the most vulnerable type of marine environment that we have. It has been estimated that between 30 and 50% of all coral reefs in Norwegian waters have been damaged or crushed and as far as we can judge it is bottom-trawling activities that are to blame. The Institute of Marine Research is still receiving reports from fishermen about continued devastation. This is serious because the coral reefs are precious ecosystems with a particularly rich biological diversity.

The coral reefs are of major importance for fisheries, research and also as a source of marine genetic resources. It is uncertain whether destroyed reefs will regenerate and, even if they do, this will take a very long time; the oldest parts of the reefs are between hundreds and thousands of years old.

It is only in recent years that Norwegian authorities have taken steps to protect the coral reefs and they have done this via a provision for the protection of coral reefs in the law on saltwater fisheries and in the law governing Norway's economic zone. This provision prohibits conscious destruction of coral reefs and requires care when fishing in the vicinity of known coral reefs. The use of bottom trawls on two specified and particularly precious coral reefs has also been banned. In addition, a coral reef in a

shallow area of the Trondheim Fjord has become the subject of a temporary conservation order pursuant to the Nature Conservation Act.

To ensure that the regulation regarding coral reefs is respected a survey of all known coral reefs in Norwegian waters is planned in the course of 2002. The needs for further conservation of coral reefs will be assessed in connection with the marine conservation plan. More research is to be carried out on the incidence of coral reefs in Norwegian waters, their condition and the way in which their ecosystem functions.

Terms of reference are to be established for a task force comprising representatives of the authorities responsible for management. This task force is to identify what needs to be done and to suggest measures, which may offer better protection of remaining coral reefs.

Forests of sea weed

The forests of sea weed along significant stretches of the coast from Trøndelag to West Finnmark have been heavily grazed by sea urchins. This situation has been relatively stable since the end of the nineteen seventies and the scope for fishing in the local areas has been markedly reduced. The cause of this situation is not known. Over the past 10–15 years the authorities have contributed in various contexts to studies of the spread of sea urchins and to research into the relationship between sea weed and sea urchins; one example is through the MARE NOR research programme.

The problem of the depletion of forests of sea weed through heavy grazing has been raised in a number of contexts and a working party has now been appointed to review the whole complex of problems. Assessments and advice submitted by the working party will then be scrutinised with a view to rapid follow-up.

The forests of sea weed from Rogaland to Southern Trøndelag are being used today by the alginate industry. Up to now harvesting has been regulated at county level by opening up areas at 5- year intervals. To ensure that the forests of sea weed are conserved and used sustainably the Government intends to establish a comprehensive, long-term management plan for sea weed resources in

the course of 2003 (cf. Parliamentary Report No. 43 (1998–99)). The goal is that this plan should be coordinated with the conservation plans at county level. Particularly valuable and representative areas of sea weed forest will also probably become the objects of protection under the terms of the marine conservation plan.

3.8 ADAPTING AQUACULTURE TO THE NEEDS OF THE ENVIRONMENT

Norway's fish farming industry has developed astronomically since its modest beginnings with salmon farms in the nineteen seventies. Today, fish farming is one of our most important sources of exports and also vital to district revenue. In the space of 30 years salmon and trout farming has grown into an export industry worth over 13 billion Norwegian kroner. 460 000 tons of salmon and trout were produced in 2000. Salmon and trout farming constitute the very foundations of the Norwegian fish farming industry and represent the lion's share of the production potential for many years to come. Work is also ongoing on developing other forms of aquaculture. In 2000, for instance, 400 tons of halibut were produced, 100 tons of cod and 1000 tons of shellfish of various types. Obviously, a prerequisite for producing safe seafood is to have a clean and abundant sea.

Pursuant to the law on fish farming, the Ministry of Fisheries has the overall responsibility for management of the fish farming industry and also for co-ordination in this area. A number of other authorities and pieces of legislation are also implicated in the management effort; the law on fish diseases, the Pollution Control Act, the law on Ports and Shipping routes and the Planning and Building Act are of central importance in this regard.

The Ministry of Fisheries has established environmental policy objectives for the fish farming industry in its environmental plan of action for 2000–2004. The aim is through the development of rules and regulations and basic research to contribute to:

- operating methods which place the emphasis on disease prevention;
- effective, environment-friendly methods of combating of salmon lice; and

- techniques and methods which minimise discharges and escapes of farmed fish and which do not involve negative effects for the marine biological diversity and the marine environment.

Conditions of importance to the development of fish farming in Norway have been – in addition to our stocks of wild salmon – the natural advantages offered by the country through its long coastline and clean seas with good scope for production. This branch has therefore been developed using a technique involving open pens, something which ensures that the fish are produced in direct contact with the marine ecosystem. In addition to expecting further growth in the salmon farming industry other types of aquaculture such as farming of saltwater fish, shellfish and sea ranching are also being developed. There are high hopes that different branches of aquaculture along with fisheries may become cornerstones of the Norwegian economy in the future. However, a condition for further growth is that these branches of activity must adapt much more to the needs of the environment. The biggest challenge today is to find solutions to the problems of salmon lice and escaped farmed salmon.

The industry itself has made a commitment to contribute to the effort to reduce the environmental effects of fish farming. An important step in this regard was an initiative taken by the Association of Norwegian Fish Farmers in collaboration with the relevant authorities to draw up a national action plan to prevent escapes. The plan was submitted in the spring of 2000 and contains a number of proposals, which require follow-up via changes to legislation, other administrative measures and initiatives that would have to be taken by the industry itself. The fish farming industry has taken an active part in the development and implementation of the national anti-salmon lice action plan drawn up in 1999 under the auspices of the Norwegian Animal Health Authority. This plan has already been the subject of several revisions.

3.8.1 Challenges

At the end of the nineteen eighties as the fish farming industry continued to grow it became clear that fish farming was associated with consequences for the environment in form of spread of diseases, anti-

biotics and use of other pharmaceuticals, discharge of substances hazardous to the environment and escapes of farmed fish. Several of the earlier environmental problems are now well on the way to being solved or at least significantly reduced. Not least, the use of antibacterial agents has been massively reduced and today the fish farming business in Norway is responsible for less than 2% of the total volume of antibiotics used, while around 18% were used on farm animals and pets.

It is true that this branch has come a long way in a number of areas in terms of measures to protect the environment and fish health. Nevertheless, important environmental challenges still remain. The major challenges today are connected with the consequences on wild salmon stocks of escaped farmed fish and the spread of salmon lice. Farmed salmon which escape represent a real risk factor for wild salmon in terms of genetic interference, competition and other effects. Salmon lice are a particular threat to the migrating smolt, which will not survive if the level of infestation with the lice is too high. A survey carried out in the Sogne Fjord in the summer of 2001 showed that around 90% of the smolt from all the watercourses in the fjord catchment area died as a result of this one factor. Furthermore, escaped farmed salmon represent an increase in the number of potential hosts for salmon lice. A report on the state of the stocks in Western Norway clearly indicates that the influence of fish farming in these fish farming intensive areas has had a negative effect on the stocks of wild salmon.

Environmental challenges still exist also in other areas. These are connected in particular with discharges of chemicals used to treat seines and with the anti-parasitic agents used to combat salmon lice. There is still room for improvement in respect of discharges of chemicals, pharmaceuticals and organic materials. Discharges of nutrients and organic materials can cause regional eutrophication as fish farming activities continue to expand. Access to primary marine raw materials for fodder and competition for space are other major challenges facing the aquaculture branch.

Further growth and development of aquaculture are expected to generate fresh environmental challenges; e.g. in the form of new diseases. A par-

ticular headache has to do with the fact that many of the problems are increasing in order of magnitude as the industry expands. Many areas therefore need ever better and more effective measures to reduce the overall load generated by fish farming activities. Farming of new species creates new challenges and is an area where we need to learn more about the possible consequences for marine species living in the wild and for the marine ecosystem. In the case of marine species, for instance, we do not want to see an environmental separation between the growth phase and the reproduction phase.

The public infrastructure and support apparatus associated with the industry must be adapted to its needs and must be strengthened to face up to the new challenges represented by food safety, the environment and fish health. The growth of aquaculture during the nineteen nineties was not accompanied by a corresponding focus on the management apparatus. In 2002, the first step in the necessary upgrading of aquaculture management and the concerted effort to ensure safe seafood is taken, both at central and regional levels.

3.8.2 Measures

The Government intends:

- to ensure that consideration for the environment is established as a prerequisite for the further development and growth of aquaculture;
- to increase efforts to reduce problems connected with the escape of farmed fish and salmon lice; and
- to draw up guidelines for environmental testing of pharmaceuticals designed for use in fish farming.

Concern for the environment – a fundamental prerequisite for further development of this branch of activity.

The Government wants to emphasise the enormous potential offered by further development of aquaculture and the importance this branch will have for the Norwegian economy and for regional policy in the future. One of the most important aims of this Parliamentary Report is to help secure the advantages Norway has for this type of growth by establishing a comprehensive, integrated, longterm policy to maintain and

ensure a clean marine environment. At the same time, we must also make sure that the branch develops along sustainable lines.

It is important that the industry adjust better to the needs of the environment both for the sake of the environment as such and for the sake of the branch itself. Increasing attention is being directed towards the environmental consequences of fish farming both nationally and on the markets where the products of Norwegian fish farms are sold. If we wish to secure market shares in the longer term we will have to ensure that environmental considerations become an integral part of a long-term development strategy for the industry. The Government therefore intends to target better environmental adaptation of this branch of activity and to make priorities. This will be part of work in progress in the Government's Aquaculture Committee, whose job it is to establish the long-term strategies for the development of aquaculture.

Special emphasis is also to be placed on giving priority to environment aspects in management, when drawing up rules and regulations, establishing basic conditions and in aquaculture research. Co-operation with the industry is essential if we want to achieve real environmental improvements.

Management. The Government is investing in further enhancement and upgrading of aquaculture management. This will also be an important step if we want to be able to introduce vital initiatives on the environmental side. In addition to increased resources it will also be important to examine possibilities of rendering the present management systems more effective.

Working out legislation and establishing basic conditions. The Government will be giving priority to making sure that the basic conditions applying for the branch stimulate a greater degree of sustainable development. New environment clauses are in the offing and the environmental consequences of the regulations and initiatives to develop the industry will be investigated more thoroughly and attributed greater importance. The Ministry of Fisheries is also preparing to carry out a thorough review of the law on fish farming with a view to presenting proposals for a new law on aquaculture. A new law on aquaculture would provide a basis for active

management designed to promote the type of development in the aquaculture sector which also takes account of the environment, biological diversity, sustainable spatial use in the coastal zone and food safety.

In 2002 a new regulation will be drawn for the attribution of marine species which will provide for the need to make facilities and localities infectionproof, to separate generations etc. Research will also be started into developing location criteria to guarantee optimum use of the coast, while at the same time preventing the spread of infection and genetic interaction between the farmed organisms and the wild stocks.

Research. Learning more is an absolute prerequisite for sustainable development of existing and new areas of aquaculture. Research on environmental effects is therefore important and must be included in all aquaculture research. Thanks to the industry's own R&D resources financial support is now being provided for the necessary research into interactions between wild fish and farmed fish.

Special measures to reduce escapes and combat salmon lice

The Government intends to launch a 3-year drive to implement effective measures to combat salmon lice and fish escapes. A mandatory implementation plan setting out measures to be taken over the next three years will be finalized by the autumn of 2002. This plan will be based on the existing action plans addressing the problems of escapes and salmon lice. The first thing which needs to be done is to implement measures already identified in the current action plans, but new measures in the light of fresh findings in recent years must also be considered. This is a field where the effect of the measures introduced will depend on the growth of this branch. This is something which requires a constant focus on research and on development of new approaches and new technologies. This work must be a collaborative effort on the part of the competent authorities and the industry.

In the case of salmon lice, co-operation has been established between the operators and the veterinary and fisheries authorities in the Trøndelag region and jointly conducted delousing of farmed salmon has considerably reduced the salmon lice

problem. A similar concerted offensive is now planned for the other regions as part of more intensive implementation of the anti-salmon lice action plan. More emphasis is to be placed on information on the legislation in place and compliance with it. Stricter penalties are to be introduced for violations of the regulations including withdrawal of concessions in the case of serious or repeated infringements.

The action plan drawn up to counter escapes of farmed fish contains a number of measures. Important measures which it has already been decided to implement involve the introduction of a system of technical, type approval for fish farming facilities (TYGUT) and internal checks pursuant to the law on fish farming and fish diseases. New regulations are being drafted with a view to entry into force some time in 2003. Further, the rules on operation of fish farms and on diseases are to be amended and the following additional measures will then apply: Better routines during risk-operations on the pens, propeller protection requirements, better monitoring of the enclosures, better routines for towing the pens and better regulations in respect of holding pens and handling of fish in association with slaughterhouses. These measures will help us achieve the political objective already adopted whereby escaped farmed fish shall no longer represent a threat to wild salmon by 2005.

Part of adapting the aquaculture industry to the needs of the environment will involve giving consideration to the possibility of marking farmed salmon. The Government wishes to follow up this idea and to learn more about marking of farmed salmon, while also investigating the economic and other consequences of such a system. This inquiry will be carried out as a collaborative effort by the fish farming and environment protection authorities in consultation with the branches concerned. Important elements of this work will involve looking at the possibilities of marking in the light of a number of objectives, such as being able to identify farmed fish which has escaped, commercial traceability etc. Another important aspect involves producing a social cost-benefit assessment. The aim is for the work to be completed in good time so that a basis for decisions is available in the course of 2003.

Adapting medicines to the needs of the environment

If we want to protect the marine biological diversity, the use of pharmaceuticals in this industry must be adapted as far as possible to the needs of the environment. Pharmaceuticals used in fish farming are discharged into the marine environment and may affect wild organisms living there. The Government therefore aims to draw up guidelines for environmental testing of pharmaceutical products used in fish farming. This will help ensure that the pharmaceuticals of the future are adapted to the needs of the marine environment and also that effects of different pharmaceutical preparation are comparable. In addition, importance is attached to developing alternative methods, which are more environmentally friendly, e.g. use of wrasses for delousing where possible.

Other measures

Substances hazardous to the environment. Discharges of copper used in the treating of seines represent a pollution problem and this area of use is one of the two main sources of copper discharges into water in Norway. Norway has not yet achieved the objective regarding reduction of copper discharges into water set out in the previous North Sea Declaration and, given current fishing methods and the expected growth of fish farming, this problem may be expected to increase in the future. In 2002, the pollution control authorities will be introducing a ban on discharge of copper and other hazardous substances from plants which treat and wash seines used by fish farms. This will help encourage the development and use of more environmentally friendly alternatives. Mechanical methods involving rinsing and drying of seines are an alternative to proofing of seines. A few fish farms have started experimenting with using what is termed an «environment drum» on a voluntary basis. This can be used in rectangular pens in steel facilities and experience so far has been positive. The drum also offers better scope for checking on holes in the seines. The policy of substitution whereby a more environmentally friendly product shall be used where possible is also to be used in connection with other chemicals used in fish farming.

Discharges of organic substances from fish farms. The Government is anxious that the basic conditions applying for the fish farming industry

should stimulate better adaptation to the needs of the environment. In a possible new system for regulation of production, operators may be required to take responsibility for environmental monitoring of their own plants using approved methods. Information generated by this type of monitoring will provide a basis for forecasting and assessing the capacity of the different sites and will be useful in preparing for further growth in this industry, coastal zone planning and so on. For example, priority may be given to the farming of shellfish in areas with high concentrations of nutrients.

Spatial use. More growth in aquaculture will mean more demand for suitable space. Good crosssector processes are to be established to avoid disputes over environmental considerations and other areas of industrial and consumer interests such as transport and open air activities. If we want to achieve the most efficient and sustainable use of space available, we must assess the possibilities of combining the farming of a number of species on the same site. This is the reason why a project has now been started in the Trøndelag region involving trial farming of salmon and shellfish and of salmon and cod on the same site to find out what effects this may have. The project will therefore be followed up with a monitoring programme to establish the possible operational and contagion-related consequences. If this is shown to be a viable approach it will also increase the basis for value-added in that optimisation of operations can save on costs.

3.9 SUSTAINABLE FISHERIES MANAGEMENT

3.9.1 Fishing resources and fisheries

Fishing and landings of fish along with fish farming are of vital importance to the scope of communities along the Norwegian coast to make a living. The total turnover of the fisheries sector in 2001 was 11.4 billion Norwegian kroner (primary value), while the export value amounted to around 20 billion Norwegian kroner.

The fisheries sector depends on renewable, although not unlimited resources. This is why it is important to develop management strategies which take account of the ecosystem as a whole and of how the fish stocks are affected by a variety

of environmental factors and fishing activity. A clean sea and a sustainable load on fishing resources are absolute musts if the value-added in the fisheries sector is to be maintained and further developed. They are thus of vital importance to the very basis for existence of the coastal population. Fishing is also part of the material prosperity of Lapp culture in the coastal region and fjord areas.

Every year Norway records landings from around 80 different stocks of fish species. Of these 28 species are of economic significance. The average catch for Norwegian fisheries from around 1960 and up until the present day is around 2.5 million tons per annum. The actual catches have always varied from year to year and also show periodical variations which reflect fluctuations in the size of the fish stocks and their accessibility. The Norwegian fisheries are mainly in the North Sea, the Norwegian Sea, the Barents Sea and along the entire coastline. Fishing activities in the North Sea are dominated by herring and sprat, plus mackerel, cod, haddock, whiting, Norway pout and sandeel.

In the Norwegian Sea the most important species are Norwegian spring spawning herring, blue whiting, mackerel, saithe, ling, blue ling and tusk. In addition to fishing for shrimp and capelin, fishing in the Barents Sea is dominated by demersal species such as cod, saithe and haddock.

Scientific advice is provided on management of catches based on the size of the individual stocks for all the most important fish stocks. This advice comes from the International Council for the Exploration of the Sea (ICES). Both advice and management must be based on the precautionary principle in order to ensure balanced and sustainable commercial operation, which also protects the basic resources and the biological diversity. Such management must also be based on an ecosystem approach.

Learning more about the diversity of marine organisms and about how the individual species and stocks at different levels in the food chain interact can lay the foundations for increased value-added and strengthened management of all marine resources in a way which, *inter alia*, takes account of the biological diversity. Today we are reaping just a few species in this diversity. Future value-added

based on marine resources may take many forms and will very probably also include species which are not being used today. Work on assessing how the stocks interact with each other at different levels in the food chain and how this affects potential for harvesting of individual stocks will provide a basis for optimum harvesting strategies for different fish stocks, marine mammals and so on. Increased interest in using all parts of the raw materials, off-cuts etc. as fodder on fish farms and other animal production units, and increased use of biotechnology to derive advantage from the singular properties of marine raw materials has yielded results and it will be possible in the near future to make use of the raw materials harvested to a level of 100%. Increased pressure from a growing market for food, fodder and specialist products makes greater demands on management of resources, and outtake must be based on the principle of sustainable, ecology-based management. The Government will use this as a basis for further development of harvesting of all types of live marine resources.

3.9.2 Measures

The central environmental challenges in terms of fisheries management are associated with improving the knowledge base for management, implementation of new principles in resources management (ecosystem-based management and implementation of the precautionary principle), regulation of fisheries, reductions of by-catches and more effective enforcement of the regulatory provisions. It is also important to reduce catch capacity in order to bring it more in line with the resources available and what can be expected to be available in the years to come. During the spring of 2002 the Government will be presenting to the Storting specific proposals regarding the setting up of a structural fund. This, coupled with establishing means of adapting fleet sizes to resources available across the fisheries sector, will improve the balance between resources and the outtake of them.

In the light of this the Government intends:

- to improve on what we know about sustainable fisheries management by:
 - stimulating the development of new, more effective monitoring methods using modern technologies to accommodate the increasing

demands for monitoring of resources and ecosystems; and

- conducting estimation of the specific relations between consumption and population size at different trophic levels of the marine food webs so as to learn more about these interactions in the marine ecosystem;
- to strengthen fisheries regulations by:
 - establishing management objectives (target reference points) for the different stocks;
 - developing a precautionary approach to regulation further;
 - continuing the implementation of ecosystem-based management; and
 - implementing technological and catch-strategy approaches to further reduce unwanted by-catches;
- to improve supervision of catches by:
 - intensifying the work done by the coastguard and field controls;
- stepping up dissemination of information on the importance of adhering to regulatory provisions;
- working harder on establishing reliable measurements for total outtake from stocks being harvested (including discards and bycatches); and
- considering the introduction of a general ban on discards; and
- to introduce institutional measures by:
 - starting work on a new law on marine resources;
 - doing more in the context of ICES on developing a precautionary approach to management of resources; and
 - clarifying areas of responsibility in terms of providing expert advice on the status of the maritime and coastal environment and appropriate measures.

3.9.3 The influence of fishing activities on resources and on the biological diversity

In the global context overload on fisheries resources represents a problem. The UN Food and Agriculture Organisation, the FAO, has estimated that between 15 and 18% of the world's fisheries resources are being overfished and that if no steps are taken to reduce overfishing, yield from these stocks will be drastically reduced. Between 47 and 50% are already fully utilised, i.e. it is not possible to extract more fish without this having negative effects. Approxi-

mately 25–27% of the fisheries resources are either under-utilised or under moderate pressure and it is here that there is potential for increasing the fishing effort in the years to come.

In global terms a major problem for fisheries management is that catch capacity far exceeds the resources available. This overcapacity is perhaps the main force driving overfishing of the stocks. This is a problem in Norway, too. The fishing fleet is generally too big if compared to the fish stocks available.

Outtake of stocks and ecosystems leads to changes in their dynamics. Most of the species of importance to our economy are quite good at adapting to different types of influence. Under moderate pressure productivity will actually increase through the fish growing faster and reproducing at a younger age. But, when the fishing outtake exceeds a certain level the stocks lose their ability to adjust and become subject to overload.

Most fish stocks exhibit marked natural fluctuations associated with natural phenomena such as temperature, currents, climatic factors, interactions between species etc. Outtake causes stocks to shrink and leads to the age composition and growth of the species changing. Relations between the species in the ecosystems are also affected. It is difficult to distinguish between the effects of human activities and the effects of natural phenomena when fish stocks increase or decrease. We need to know more about such factors if we want to achieve sustainable resources management. Good, sustainable management depends on being able to adjust outtake of the stocks to natural fluctuations in phenomena affecting them.

Many of the most important stocks in our waters are vulnerable for a variety of reasons; some species are long lived and mature late, others renew themselves at varying speeds and are affected by fluctuations in the maritime climate.

Excessive pressure on a fish stock can cause it to shrink so drastically that it cannot be fished at all for a long time. New generations of fish produced each year are very small in number and the spawning stocks remain stable at a low level over a very long period. In our waters we have experi-

enced the collapse of Norwegian spring spawning herring, North Sea herring and North Sea mackerel. Collapses such as these occur quickly in stocks under heavy pressure and can have long-term consequences for the stocks. The collapse of the Norwegian spring spawning herring stock at the end of the nineteen sixties led to a change in migratory patterns and this stock was not available in quantities permitting catches for 20 years. In addition, supplies of nutrition for other species in the ecosystems (e.g. cod, saithe, minke whale and sea birds) have undergone radical change. A concerted effort to build up the stock again produced good results and today the stocks of Norwegian spring spawning herring are in a healthy state and provide for good fishing. At the same time, the pressure on North Sea cod, blue whiting and Greenland halibut are now giving cause for concern.

Many fisheries exhibit pockets of other species or unwanted size categories of the target species, i.e. by-catches. Some of these have an economic value, while others simply constitute a nuisance to commercial fishing. The problem of by-catches is multifaceted; it comprises catches of fry and small fish, threatened species or heavily overfished species, plus birds and marine mammals.

Catches of fry and fish below the minimum size are a problem for many fisheries. Area closures, grading techniques and mesh size regulations have been introduced to lessen the harmful effects of the by-catch problem. Fishing for shrimp in the Barents Sea and in the Norwegian fjords has been regulated for a long time with the aim of avoiding large by-catches of cod, haddock and redfish. These problems have been central to reductions of demersal fish stocks in the North Sea. Work is now in progress on establishing solutions to finding the right gear so as to reduce by-catches of fry; this is, for example, the case in the industrial fisheries in the North Sea, which concentrate on tusk and Norway pout and where catches at certain times contain large numbers of recruits from species such as haddock, whiting and blue whiting. Dynamic, knowledge-based regulation of seasons and areas based on the results of monitoring is important. Despite clear and effective measures introduced by Norway there are still unknown numbers of mortalities in many of the stocks as a result of fishing gear, slip of

live fish in seine fisheries etc. Discarding by-catches of economically important species is prohibited in Norway. Now the Government intends to study whether this ban should be extended to cover all species in order to tighten controls and monitoring of the by-catch problem. In that case all catches must be landed and reported.

By-catches of marine mammals and sea birds are a considerable problem in some fisheries. In net fisheries on the coast seals and porpoises become tangled up in the fishing gear. Sea birds such as auks, puffins, great cormorants, shag and common guillemots are also at risk. This causes suffering for the animals and losses for the fishermen. By-catches of sea birds are also a problem for line fishing, but here some progress has been made in developing techniques which reduce the problem. An effective and cheap remedy is to use a «scarecrow». This is a product developed jointly by research circles and the industry. It is, however, taking time to persuade all the operators to tow this device behind them.

In recent years a lot of research has been done to try to find out how different types of fishing gear and fishing methods affect species and the habitats of species. In areas with a high frequency of trawling habitats risk permanent change. Trawling in areas with coral reefs has been seen to cause considerable damage to the reefs. Coral reefs evolve over hundreds of years and are an important habitat for many species of fish and other organisms. Norway has taken steps to protect these habitats. The most important thing is to protect areas along the coast where such reefs have been detected. The reefs are probably of major ecological significance and it is important to continue to chart them and to be constantly considering measures to protect them.

Lost fishing nets have both practical and economic consequences for fishermen, are a hidden danger to fisheries resources and constitute litter. For some years now we have undertaken clean-up operations to remove lost nets and a working party comprising representatives of the fisheries authorities and the industry is to make proposals as to how to reduce the problem. High priority will be given to following up its proposals.

3.9.4 The international framework for management of resource

As much as 90% of all fishing in Norway involves stocks which are shared with other countries. The Norwegian authorities cannot therefore decide on how these stocks are to be managed in isolation. They have to co-operate with the other countries.

The overall, global framework for the management of marine resources and the environment is laid down in the UN Convention on the Law of the Sea from 1982. This convention gives the coastal states the right to establish economic zones extending to a maximum of 200 nautical miles (370 kilometres) from the coast and invests them with sovereign rights over the natural resources in those zones. The Convention on the Law of the Sea sets out principles as to how regional and national regimes are to be organised and what they are to take into account. A distinction is made between management inside and outside these economic zones. Inside its economic zone the coastal state has an obligation to manage and conserve fishing resources based on the best available scientific data and to ensure that the stocks do not risk being overfished. This requires a considerable effort in terms of learning more about the marine environment and in terms of managing and using it.

The UN conference on the environment and development held in Rio in 1992 put maritime issues on the agenda and led to the introduction of a system for better management of stocks located both within national zones and in international waters. This was achieved via the UN agreement on fishing on the high seas (1995). The agreement adds more detail to the contents of the Convention on the Law of the Sea on a number of important points. The agreement gives the precautionary principle a firm foundation in international law in respect of fisheries management and rules regarding compliance. The agreement also establishes an obligation for countries to engage in regional cooperation in the field of fisheries management and on the terms for enforcement of fisheries regulations. The agreement came into force in December 2001 and has proved important to the establishment of more modern principles for the management of marine resources and to the implementation of these principles in practical policy. The agreement has also been important to the development of regional co-operation on fisheries.

The FAO's fisheries committee (COFI) plays an important global role in the development of standards for good fisheries management. Parallel to developing international agreements in the area the FAO has also been instrumental in developing an International Code of Conduct for Responsible Fisheries, which was adopted in 1995. This establishes a number of principles for modern fisheries management, including consideration for the ecosystems where fisheries operate.

Various action plans have been drawn up to launch the code. An international action plan to combat illegal, unregulated and unrecorded fishing (known as IUU fisheries) was adopted in March 2001. Following pressure from Norway the action plan included a mechanism for blacklisting vessels which have engaged in IUU fishing and a ban on selling catches obtained by illegal means. International action plans were earlier adopted on by-catches of sea birds through line fishing, protection and management of shark stocks and on reducing overcapacity in the fishing fleet.

Commercial and environment issues are becoming more and more closely connected and this in itself is not without problems in respect of the WTO rules or international agreements on the environment. A number of cases concerning use of trade measures to protect environmental assets have been heard by the WTO panels for the settlement of disputes. In this area Norway will be focusing on obtaining further clarification of the positive and negative effects of increased liberalisation of trade on the environment and on examining subsidies which may be harmful to the environment more closely.

It is important that the trade rules promote production and use of environmentally friendly goods and services. The use of environmental labelling can influence patterns of production and consumption in a sustainable direction. Transparency is important if we want to avoid environmental labelling being used for protectionist purposes. Environmental labelling of products and the need for global guidelines for this were discussed at the global summit on the environment and development in Rio in 1992. The use of environmental labelling can also be justified from the point of view of the consumer's right to environmental information (cf. the Århus Con-

vention). The UN Environment Programme (UNEP) is in the process of developing technical guidelines for environmental labelling and Norway supports this effort.

Assessments of the life span of products are a useful tool for documenting the environment-friendly properties of a product and can also help identify good environmental labelling criteria. The UN's Environment Programme is trying to reach agreement on the methods to be used in life-cycle assessments. Norway will be giving its support to this work and will also promote the development of criteria for life-span assessments of seafood products at the FAO. National authorities responsible for the different sectors along with trade and industry have an important responsibility here.

Co-operation under the terms of the Convention on International Trade in Threatened Plants and Animal Species (CITES) is of central importance in respect of dealing in threatened species of animals. Animals and plants can be placed on three lists (appendices) depending on the degree to which they are under threat and the degree to which they are traded. CITES has placed a number of species of whale on these lists. The minke whale, for instance, is listed in Appendix 1. Norway has entered a reservation in this regard since there is scientific evidence to show that this listing is not justified. Work is now in progress in the context of CITES on establishing a basis for listing commercial fish stocks believed to be under threat. Norway has adopted a sceptical stance on this, one of the reasons being that the dynamics of the marine ecosystems imply large, frequent fluctuations in the stocks which are different to those observed among animals living on land. There are therefore serious doubts as to whether the criteria and processes used by CITES are suitable for such stocks. In addition management schemes already exist for live marine resources which take account of the conservation aspect. CITES is now reviewing existing criteria and Norway is taking an active part in this work both via the FAO and via CITES to ensure that the criteria selected are appropriate.

3.9.5 The management regime for stocks in Norwegian maritime areas

Fisheries management in Norway is based on the main principle of sustainable harvesting using the

best possible scientific advice. Our objective is to manage the marine ecosystems in a manner that ensures a balanced and sustainable growth in the sector and takes account of need for protection.

A number of bilateral agreements have been concluded on co-operation in respect of management of resources. Here the agreement with Russia on management of the resources in the Barents Sea and the agreement with the EU on management of the resources in the North Sea are the most important. Annual reports are presented to the Storting on activities under the terms of these bilateral co-operation arrangements.

Annual negotiations take place on the fixing of quotas on the basis of advice from ICES. ICES contributed to the work on developing a precautionary approach into operational advice in connection with the UN agreement of 1995, and since 1998 it has been providing advice on management on that basis. Limit values have been fixed regarding the size of spawning stocks and fish mortality. These are designed to ensure that the stocks are kept within safe biological limits. These reference limit values are based on statistical calculations using historical observations. Account is taken of the elements of uncertainty in these calculations by applying the so-called "precautionary reference limits". A system for reducing outtake from stocks when the spawning stocks approach the critical limit has been developed on the basis of these values.

ICES is working on drafting "target reference values" for the respective fish stocks. Target reference values will help establish good economic strategies regarding pressure on stocks and avoid situations where the size of stocks approaches the limit values.

A number of fish stocks cover an area involving the jurisdiction of several countries. The mandate of the Northeast Atlantic Fisheries Commission (NEAFC) covers the ocean maritime areas in the Northeast Atlantic. A regional arrangement has been negotiated by the coastal states concerned for Norwegian spring spawning herring, blue whiting and mackerel, while the international component of the stocks is managed by NEAFC. With the advent of the UN agreement on ocean fishing in 1995 regional agreements have become more important not least in connection with enforcement of the regulations.

NEAFC has launched system of satellite monitoring of the fisheries in the Northeast Atlantic. The north Atlantic area is the responsibility of a similar organisation (NAFO). Norway also takes part in work under the terms of the Convention for the Conservation of Live Marine Resources in Antarctica (CCAMLR). It is also active in the International Whaling Commission (IWC), the North Atlantic Marine Mammals Commission (NAMMCO), the South Atlantic Fisheries Organisation (SEAFO) and the International Convention for the Conservation of Atlantic Tuna (ICCAT).

Negotiations with other countries on management of common stocks are often very difficult because it is a question of dividing up scanty and valuable resources. In the case of specific stocks – for example, blue whiting – the parties have not managed to agree on the distribution of the recommended fishing effort. The lack of agreement has led to the total amount of fish caught being greater than recommended. This has led to greater pressure than is desirable on a number of stocks. This also means that the economic yield from fisheries is lower than it might have been.

Once the level of fishing effort has been fixed via international negotiations, it is the job of the national authorities to distribute the amounts available to Norwegian fisheries.

Overcapacity in the fishing fleet is a multidimensional challenge. Unit quota arrangements¹ have been introduced for a number of fisheries important to the ocean-going fishing fleet to help reduce the haul capacity of the fishing fleet. On 3 May 2001 the Storting gave the Ministry of Fisheries the authority to introduce «special quota arrangements», i.e. voluntary operational and structural arrangements for the coastal fleet as well. The Ministry of Fisheries is now busy drawing up provisions for the implementation of these arrangements which could provide a basis for reduction of overcapacity and better economic conditions for all parts of the Norwegian fishing fleet.

1. A system financed with own funds and designed to reduce the number of vessels in an access-regulated part of the fleet where the fishing capacity will exceed the available quotas for the foreseeable future. By withdrawing a vessel from fishing operations the quotas attributed to that vessel can be transferred to another vessel for a limited period of time. The second vessel will thus enjoy an increase in its quota without this affecting the total catch.

The Ministry of Fisheries intends to develop new legislation to replace the law on saltwater fisheries currently in force. This new legislation will focus more specifically than in the past on the ministry's sectoral responsibility for marine environmental issues. A committee is to be appointed for this purpose and that committee will be asked to consider the possibility of broadening the focus of the legislation to cover not just fishing operations, but also other live marine resources, including kelp and sea tangle, plus organisms which are today not commercially exploited such as plankton, demersal organisms etc. The idea here is to have legislation in the future which is better equipped than that of today for preserving the marine biological diversity. The committee will also be asked to consider the inclusion of the commitments made by Norway via environmental legislation. The *UN Convention on the Law of the Sea* of 1982 will be of central importance. The committee will review the application regulations and other instruments which are today covered by the law on saltwater fisheries. The work of this committee will be conducted in close co-operation with the Committee on Biological Diversity.

3.9.6 Control of fishing effort

Responsible fisheries management requires effective control of resources. Extensive fishing activity and the fact that Norway's fisheries jurisdiction covers huge maritime areas leave us facing an enormous workload in terms of control. The main aim of controls on resources is to provide information on actual total amounts of fish caught and on catches within the areas covered by Norwegian fisheries jurisdiction using registration systems and checks, and to make sure that fishing regulations in force are respected. The environmental significance of resources control is thus mainly associated with providing reliable information on annual catches which, together with the research community's analyses of stocks, helps provide a basis for estimating the sizes of fish stocks and fixing the total annual quotas for the stocks.

Satellite tracking of fishing vessels began as far as Norwegian fishing vessels are concerned in July 2000. This is part of the resources control system and gives the fisheries authorities information on the position of the fishing vessels, their speed and their course. Agreements have been concluded on satellite tracking with all the countries with access to fishing in Norwegian waters.

Checks on catches from common stocks require close collaboration among the countries concerned. Agreements have been concluded on co-operation in control areas with Russia, the EU, individual member states of the EU and a number of other countries. Foreign vessels wanting to fish in areas under Norway's fisheries jurisdiction must first apply for permits and have an obligation to report their catches to the Norwegian authorities. Norway is active in the international organisations and bilaterally in trying to get to grips with the problem of unregulated fishing on the high seas.

The main challenge is establishing a system of resources control which is effective enough to prevent illegal practices in the form of circumvention of quotas, fishing in closed areas and illegal discards. Another challenge is obtaining reliable information with the help of marine research bodies on the volume of catches dumped at sea or sold outside the legal channels and thus not covered by statistics on fishing and catches.

On 3 May 2001 a report was submitted to the Storting on irregularities, controls and measures introduced in the fisheries sector. A description was given of the resources control apparatus, the extent of irregularities and the steps taken to strengthen controls. Resources controls have been strengthened through a concerted effort to increase manning of the system, better access to controls and more stringent penalties for violations of fisheries legislation. Much emphasis is put on the need to address conduct and ethics in the sector. It was noted that more work is still needed on these aspects of fisheries management.

4. INTERNATIONAL CROSS-SECTOR CO-OPERATION ON THE MARINE ENVIRONMENT

Norway has a vested interest in how maritime areas and ocean resources are managed. Norway has jurisdiction over and responsibility for a maritime area, which is six times larger than its land area. Norway is also a net recipient of pollution from other countries, which is carried to its shores by ocean currents and on the wind. Our long and exposed coastline causes concern in the light of a possible increase in the transport of environmentally harmful substances by sea off the Norwegian coast; e.g. oil and nuclear waste. Norway must therefore make a strong commitment to establishing framework conditions governing the management of maritime areas and natural resources at international level.

International work on the marine environment is of great importance to Norway. International agreements entail a number of obligations. The Government believes it is extremely important for Norway to live up to its obligations pursuant to the international agreements to which it is a party; this is important both out of consideration for the environment and because of the need to maintain Norway's credibility. The Government also wants to strengthen the compliance mechanisms set out in international conventions on the environment, including mechanisms providing for sanctions and liability/compensation.

Issues relating to marine environment issues are discussed in a number of international fora both at the global and regional level. Norway's positions in various fora in connection with all the ongoing processes of significance to the marine environment need to be co-ordinated and based on a thoroughly thought out and comprehensive and integrated national policy on the marine environment. This chapter gives an overview of the most important (general) international agreements and processes

of significance to the marine environment and Norway's priorities in respect of this work.

4.1 GLOBAL CO-OPERATION

The Government intends:

- to continue to use the UN Convention on the Law of the Sea as the overall legal framework for all measures in the marine sector;
- to submit proposals to step up debate on maritime issues and questions relating to maritime law in United Nations;
- to pass on information on experience and objectives relating to co-operation between the North Sea states as input for global co-operation in connection with the World Summit in Johannesburg;
- to help improve implementation of UNEP's global plan of action (GPA) for the protection of the marine environment from land-based activities; and
- to continue to be active in the IMO in pressing for better environmental legislation in relation to shipping.

The *UN Convention on the Law of the Sea* of 1982 provides the overall legal framework for all national, regional and international measures in the marine sector. Part XII of the convention deals with protection and conservation of the marine environment in the presence of pollution, while Parts V-VII address conservation and management of natural resources, including biological diversity. The *Convention on the Law of the Sea* contains a number of provisions designed to combat pollution of the seas and oceans by different sources and to promote international co-operation in this area. It contains

obligations to adopt national legislation to counter marine pollution and to participate in the drawing up of regional and global rules to this end. Contracting states must also fulfil their obligations under the terms of other environmental agreements in a way which is compatible with the principles and objectives set out in the Convention.

Norway attaches great importance to strengthening and developing the system provided for under the Convention in future work relating to international maritime law.

The Convention on the Law of the Sea came into force in 1994 and since then discussions have taken place every year in the UN General Assembly to assess the degree of implementation of the convention along with new trends in the area of maritime law. The debate takes place on the basis of an annual report by the Secretary-General. The United Nations General Assembly is the most important forum for the development of global policy in the field of the law of the sea and is for the moment the only forum with such broad terms of reference. It has been suggested that more co-ordination is needed between various international bodies and negotiators responsible for maritime issues and questions relating to the law of the sea. In 1999 the General Assembly adopted a resolution on the creation of an informal consultation procedure for a trial period of three years. This consultation procedure would lay the foundations for debate in the General Assembly and would in particular aim at identifying areas in which co-operation and co-ordination could be improved. The final meeting under this consultation procedure will take place in April 2002 and the 57th session of the General Assembly in the autumn of 2002 will then assess the outcome of the procedure along with its future. Norway is at present considering different alternatives for addressing maritime issues in the best possible way within the UN system; these include the possibility of referring these issues to one of the principal committees reporting to the General Assembly or of setting up a select committee for maritime issues and issues relating to the law of the sea.

The UN conference on the environment and development held in Rio in 1992 placed maritime issues on the agenda via, for instance, the adoption of Chapter 17 in Agenda 21, which deals with the man-

agement of maritime and coastal areas. In August/September 2002 the World Summit on Sustainable Development will be held in Johannesburg, South Africa on the occasion of the tenth anniversary of the «Earth Summit» in Rio. In the run-up to the summit a review will be conducted of developments since 1992 and results achieved, including those relating to Chapter 17 in Agenda 21, and new challenges will be identified. Norway takes the view that much has been achieved since 1992, pointing out at the same time that much better implementation of the agreements and programmes adopted is still needed, along with better co-ordination of different international processes. The Government is anxious to ensure that the outcome of the North Sea Conference is taken into account in preparations for the summit in Johannesburg. This applies in particular to rendering the ecosystem approach operational (this approach is described earlier on in this Parliamentary Report, cf. Chapter 2.2.3), to addressing the problem of ballast water and to bans on transplanting GMOs in the marine environment and radioactive discharges. Norway will, furthermore, be stressing the need to ensure the application of the Convention on the Law of the Sea and of generating more debate on maritime law in the UN as part of the preparations for the summit in Johannesburg.

One of the most important outcomes of Agenda 21 on the marine environment front was the adoption of a global programme of action on the protection of the marine environment from the effects of land-based activities (GPA) which are responsible for around 80% of pollution in the marine environment. This plan, which was drafted under the auspices of UNEP, is not legally binding. What it does is specify objectives and measures at global, regional and national level. The first conference to discuss implementation of the plan was held in Montreal, Canada in November 2001. At this conference a ministerial declaration was adopted whereby countries commit themselves to stepping up implementation of the plan of action. The conference also endorsed the idea of drawing up a separate Strategic Action Plan on Municipal Wastewater as an area where there are major health and environmental problems in a number of developing countries.

The Government regards the GPA as a balanced and practical programme for the implementation of measures to address land-based activities and

does not therefore see any need for a global convention in this area. Norway will continue to play an active part in the implementation of the GPA, will try to channel aid towards projects which help fulfil the aims of the plan and will also contribute to strengthening scope for funding at international level. Norway has already spoken out in favour of general enhancement of the role played by UNEP, its powers and its funding. Giving UNEP more muscle in this way will prove valuable when implementing the GPA and the UNEP Regional Seas Programme

The UN's maritime organisation, the IMO, has adopted a number of global conventions, which help protect the marine environment. Much of the work in this area is done in the IMO's environment committee (the MEPC) in connection with followup to the MARPOL Convention on pollution from shipping. In October 2001 the IMO adopted a new convention on control of harmful anti-fouling agents used on the hulls of ships. The convention entails a ban on the use of the ecotoxin tributyl tin (TBT) on ships as of 1 January 2003 and a total ban on the presence of TBT on ships' hulls as of 1 January 2008. It is vital that the convention come into force quickly and the Government intends to ratify it as soon as possible. Work taking place in the IMO on a new convention on ballast water is referred to in Chapter 3.6.2.

4.2 PRIORITY ISSUES FOR REGIONAL CO-OPERATION AND BILATERAL CO-OPERATION WITH RUSSIA

The Government intends:

- to continue to be a driving force in regional work on the marine environment;
- to focus on ecosystem-based management of the marine environment, discharges of ballast water and radioactive discharges in its capacity as host of the North Sea Conference in March 2002;
- to encourage Russia to become a party to the OSPAR Convention and to accede to the global ban on dumping of all types of radioactive waste pursuant to the London Convention;
- to demand that the British Government take immediate steps to significantly reduce discharges of technetium-99 into the sea; and

- to work towards strengthening international legislation on the transport of radioactive waste, while trying to get bilateral agreements on notification of countries concerned about these cargoes.

The most important regional fora for this area of work is the OSPAR Convention (the Convention on the Protection of the Marine Environment in the Northeast Atlantic), the North Sea Conferences, co-operation within the context of the Arctic Council and bilateral co-operation with Russia. The Nordic Council of Ministers (the group responsible for maritime and atmospheric issues) also has maritime issues on its agenda and in addition these problems are addressed in the context of co-operation regarding the Barents Sea. In 2002 Norway has the Presidency of the Nordic Council of Ministers and Norway's programme for the presidency highlights the need to protect our seas, coastline and sources of freshwater. Norway will be focusing on how joint Nordic action and initiatives can back up work in the field of the marine environment.

In the context of regional co-operation the Government will be giving priority to measures to combat discharges of pollutants, pollution from shipping and other activities which affect Norwegian maritime areas. Agreements on hazardous substances and radioactive substances will be given special attention.

Work within the framework of the OSPAR Convention is of major importance to Norwegian maritime areas since co-operation in this context covers land-based sources, dumping of waste at sea, discharges from offshore installations and protection and conservation of ecosystems and biological diversity. The OSPAR Commission has adopted ambitious strategies on environmental pollutants, radioactive substances, combating eutrophication, conservation of the ecosystems, biological diversity and environmental objectives for offshore activities. As the country hosting the Fifth North Sea Conference in Bergen in March 2002 Norway has a particular responsibility for the agenda of this conference. One of the main challenges will be making the principle of ecosystem-based management of the North Sea operational and concrete, which would be in line with the approach at national level. The fixing of environmental quality objectives in a number of areas (e.g. for sea birds and threatened species and habitats) and good manage-

ment principles will be important. The conference will also provide an opportunity of focusing on topical issues such as the transport of environmentally harmful substances in the North Sea area, discharges from Sellafield and regulation of discharges of ballast water. At the same time, the conference can be used as a round of regional preparations for the summit in Johannesburg.

Norway has repeatedly raised the issue of discharges from Sellafield with the British authorities. The Government will be demanding through OSPAR and the North Sea Conferences that the British Government take immediate steps to significantly reduce the discharges of technetium-99 into the sea. As mentioned in Chapter 3.4.2 the Government is also undertaking an assessment of the grounds Norway may have under the terms of international conventions for instituting legal proceedings against the British.

Another important issue for the northerly maritime areas will be future developments in the utilisation of natural resources in Russian territorial waters and on the Russian continental shelf. Extraction of marine resources and increased petroleum exploitation activities, along with their accompanying requirements in terms of transport, will have an effect on the marine environment. The joint Norwegian-Russian Environment Protection Commission, which has been operational since 1988 therefore attributes high priority to marine environment issues in general and contingency plans to combat oil pollution in particular. The commission's Marine Environment Group has conducted projects involving assessments of consequences, assistance to the Russians in the context of implementation of the OSPAR rules and regulations and co-operation on criteria for the monitoring of the northern maritime areas. Norway has had an agreement with Russia on contingency plans to combat oil pollution since 1994. This agreement provides a framework for co-operation on conducting joint exercises on combating oil pollution, and for assessing the risks associated with increased petroleum exploitation activities and their effects on the environment in the North. Norwegian support for measures to improve the Russian oil pollution contingency plans will be assessed on an ongoing basis. Work on an integrated management plan for the Barents Sea will be an important part of co-operation with Russia.

Marine environment issues have been a focus of interest in the Arctic Council, too. It was Norway who took the initiative in setting up the working group for the protection of the Arctic marine environment (PAME). This working group has drawn up guidelines for offshore oil and gas extraction in the Arctic and a regional plan of action for the protection of the marine environment based on the global plan (GPA). Norway is the lead country for work on shipping issues in PAME and in 2000 worked out a report on the environmental consequences of shipping in the Arctic. AMAP, the environment monitoring programme, has been of importance in fixing priorities in respect of measures to fight pollution in the northern areas. The Government will continue to give priority to research on the Arctic and monitoring of the region and will encourage Russia to become a signatory to international environmental agreements, in particular the protocol of 1998 on persistent organic compounds (e.g. PCBs) established under the auspices of the UN-ECE.

Co-operation on environmental issues in the Euro-Arctic Barents region (the Barents co-operation) has up to now only addressed the marine environment to a modest degree. The Barents cooperation does, however, present an opportunity for compiling more material than would be possible through bilateral co-operation alone. The Government will be pressing for a survey of plans and measures in place to combat pollution in the Barents Sea in order to find out how much co-operation is needed.

Norway will encourage Russia to become a contracting party to the OSPAR Convention since its geographical coverage includes maritime area off Northwest Russia. This could be useful in connection with land-based sources on the Russian side of the border and with offshore activities in the Barents Sea. Russia has drawn up a national plan of action to protect the maritime areas in the north from pollution from land-based sources based on recommendations in the global plan (GPA). Measures provided for under the plan should help Russia participate in the work of OSPAR.

Russia has not associated itself with the global ban on dumping of all types of radioactive waste under the terms of the London Convention (on dumping of waste at sea); this convention dates back to 1972, a protocol having been added in 1996. Norway

together with the United States has been helping Russia build a reprocessing plant for liquid radioactive waste in Murmansk to put the country in a position to sign up to the ban on ocean dumping. Japan has provided financial assistance for the construction of a similar plant in the Vladivostok area. The technical conditions for Russia's accession to the ban on dumping should now have been met and the Government wants to use the bilateral co-operation with Russia to try to make progress in this direction. The Russians said that they would be willing to do this in conjunction with the inauguration of the plant in Murmansk in June 2001.

Plans to transport nuclear waste by sea off the Norwegian coast are a source of major concern in the coastal regions of Norway, particularly up north. These shipments may be on the agenda in two connections. Firstly, opening the way for imports of spent nuclear fuel to Russia could lead to shipments of such fuel from Europe to Northwest Russia for transshipment and reprocessing in, for instance, Mayak. Secondly, shipments of highly active waste (HLW) and MOX fuel by sea have already been taking place between Japan and the reprocessing plants in Sellafield and La Hague for many years. These shipments could be re-routed to follow the northern passage and would thus pass close to the Norwegian coast. The Government in collaboration with other countries concerned therefore intends to make it clear to the countries involved in these shipments that the transport of radioactive waste and nuclear fuel close to the

Norwegian coast is something we do not want to see. Norway will also be pressing for stricter international regulations, including an effective system of compensation and a requirement for advance warning of shipments of radioactive materials by sea. Pending the adoption of international regulations the Government will try to conclude bilateral agreements on notification of such shipments.

Establishing marine protected areas is an increasingly topical issue in international and regional fora. Many of the threats to natural marine resources represent common international challenges, while the natural assets in the marine environment constitute a large cross-border complex. The Government therefore feels it is important to increase international co-operation in the relevant international fora in this area, too. The OSPAR Convention is of particular importance since the contracting parties adopted a dedicated work programme for the development of a series of marine protected areas in 2000. Norway is anxious to make an active contribution to work in this regard. In the areas in the far north co-operation with the Arctic Council on setting up a network of protected areas (CPAN) is particularly relevant. It has been decided that this work will focus on protection of the marine environment. Norway has been a main contributor to this work, which is followed up at national level via protective measures on Bjørnøya and in adjacent territorial waters and there are also plans for new protected areas on Svalbard.

5. ECONOMIC, ADMINISTRATIVE AND DISTRICT-RELATED CONSEQUENCES

5.1 ECONOMIC CONSEQUENCES

General

The basis for the Government's proposals for a comprehensive policy on the marine environment is that the social and economic benefits of measures to ensure a clean sea with abundant resources exceed the cost. In the short term it plans to institute measures which will involve direct, additional expenditure for the State, local authorities and trade and industry. However, in the longer term this expenditure will help secure the environmental qualities of our maritime and coastal areas. A good marine environment is a condition for commercial activities and settlements based on the utilisation of live marine resources in the future.

Learning more

Learning more is an important component in the Government's plan for ecosystem-based management of maritime and coastal areas, as are better monitoring, charting and research. Work in this area is to be intensified and will become more focused and steps will be taken to improve co-ordination of existing efforts. The Government will revisit this subject in connection with the annual budget proposals.

A research programme is to be launched in collaboration with the oil industry with a view to clarifying the long-term effects of discharges from oil exploitation operations into the sea. The programme will have a budget of between 90–120 million Norwegian kroner over a period of six years and industry is expected to contribute two thirds. The remaining costs will be shared between the Ministry of Petroleum and Energy, the Ministry of Fisheries and the Ministry of the Environment.

EU Water Framework Directive

For the moment, it is difficult to judge how much additional expenditure will be necessary to implement the measures required under the terms of the directive. Extensive work has been started at national level on assessing the social consequences of the directive and Norway is participating actively in working groups set up by the EU Commission in connection with implementation of the directive by individual countries. The Government will be returning to this in connection with the Ministry of the Environment's budgets in the years to come.

Contaminated sediments in coastal areas and fjords

The basic principle is that cleanup operations are to be financed by the polluters themselves. This strategy will therefore primarily entail financial consequences for state agencies, municipal departments, companies and private enterprise, which have helped pollute coastal areas and fjords. State grants will be needed in instances where no polluter can be identified and also to make sure that comprehensive cleanup operations do take place in large fjords.

Very tentative estimates indicate that it will cost between a few billion and a few tens of billions of kroner to carry out a total cleanup along the entire coastline. But, the costs will depend on how large the areas requiring cleanup operations are. An estimate of the social and economic benefits should be included in assessments of the need for cleanup operations in each individual area. No estimates have been made of the total benefits of cleanup operations along the whole of the Norwegian coast. However, cleanup operations are expected to offer major benefits in the form of fewer environmental problems and less pressure on public health thanks to lower exposure to environmental pollut-

ants via fish and crustaceans. In the long term, it will be possible to use areas where cleanup operations are conducted for fishing and fish farming activities. Clean fjords will help secure Norwegian export interests on this field.

Assessments of the social and economic benefits will be crucial in connection with ordering cleanup operations and launching state-financed cleanup measures to ensure that the social and economic benefits of the measures exceed the cost of the cleanup.

All in all it is expected that measures triggered by the strategy will be socially and economically beneficial.

5.2 ADMINISTRATIVE RESOURCES/ CONSEQUENCES

The State

Work on developing a long-term policy to promote ecosystem-based management of coastal and maritime areas will involve a number of ministries and parts of the civil service. In the shorter term, resources will be required in particular for the development of an integrated management plan for the Barents Sea and for management plans covering areas close to the coast pursuant to the EU water framework directive.

The proposal to transfer responsibility for state contingency plans to combat acute pollution from the Norwegian Pollution Control Authority to the National Coastal Administration means that responsibility for cleanup operations in the case of severe pollution would be in the hands of the agency with the principle responsibility for preventing shipping accidents. It is thought that this will prove to be administratively more efficient and that it will encourage more joint assessment of the needs for preventive measures and repairs.

Regional level

The drawing up of county plans of action for cleanup of contaminated sediments will require some administrative resources at regional level. The same applies for the drafting of action plans for the individual catchment areas under the terms of the water framework directive. The goal is to achieve the greatest possible degree of co-ordination when drawing up these plans so as to ensure that the action plans for cleanup of sediments can be integrated into the plans established to meet the requirements of the framework directive.

Local authorities

Local authorities in coastal communities may gradually be given responsibilities in connection with implementation of management plans insofar as management concerns resources and activities, which are largely of local significance.

5.3 DISTRICT-RELATED CONSEQUENCES

A clean marine environment with abundant resources is one of the most important prerequisites for the fisheries and aquaculture industries and thus also for settlements and jobs in Norway's coastal regions. The district-related consequences of more demanding environmental policy for the coastal and maritime regions will therefore be positive.

The Ministry of the Environment hereby recommends:

the Recommendation from the Ministry of the Environment concerning Protecting the Riches of the Seas dated 15 March 2002 be submitted to the Storting.

ANNEX 1

I. THE STATE OF THE ENVIRONMENT (SOURCE: OSPAR QSR 2000 REGIONS I AND II, ICES 2001)

The North Sea: The state of the environment in the North Sea has improved as far as inputs of heavy metals from land-based activities, oil pollution from refineries and oil from drilling activities on the continental shelf are concerned. In addition, inputs of phosphorus have declined notably. However, the entire North Sea is still polluted with organic hazardous substances, mostly in the southern part, and no clear reduction has been noted in the amounts of polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCB). More synthetic compounds are constantly being discovered in the environment and the ecological effects of these are largely unknown. Eutrophication is primarily a problem in the southern part of the North Sea, but signs of eutrophication have also been found in fjords from the Swedish border and as far as Lindesnes. As to fish stocks in the North Sea, a number of benthic fish stocks are now outside safe biological limits. The cod stocks are in danger of collapse from the fisheries point of view due to historically low spawning stocks and poor renewal.

The Norwegian Sea and the Barents Sea: The pressure on the Norwegian Sea and the Barents Sea is less than it is further south. However, organic substances toxic to the environment have been found in fish and sea mammals as a result of long-range transport of pollutants. High levels of organic toxins have been measured in the Barents Sea in particular in animals at the top of the food chains. In the Barents Sea the capelin stocks are in good shape at the moment, although these stocks are subject to marked fluctuations. The stocks of Norwegian Arctic cod and blue whiting are outside biologically safe limits, while the stocks of Norwegian spring-spawning herring are good and continue to grow.

II. VALUES LINKED TO BIOLOGICAL DIVERSITY

- *Direct utility value:* Value realised through the use of biological resources for the purposes of nutrition, medicines, stimulants, art, clothing, building and fuel, plus the use of the natural environment for play, recreation, open air activities, tourism, education and research.
- *Indirect utility value:* Value in the form of life-supporting processes and ecological services such as biological production, soil improvement, purification of water and air, water management, local and global climate, the circulation of carbon, nitrogen and other substances, ecological stability and the capacity of nature to attenuate the effects of overload from pollutants, floods and drought. These values are an absolute prerequisite for human existence and economic activity.
- *Potential value:* Value which has not been exploited or which is not known. Such values comprise both direct and indirect values listed above and are, *inter alia*, associated with the use of unexploited genetic resources both for the purpose of traditional types of processing and for genetic engineering to produce new products with a direct utility value.
- *Intellectual value:* A value which has an ethical or moral origin, e.g. linked to the desire to know that a species actually exists, to the opportunities and quality of life of future generations and to the desire to conserve the landscape and natural surroundings as part of our cultural heritage and memories.

III. ECOSYSTEM APPROACH

The ecosystem approach to management of the seas involves integrated management of human activities based on the dynamics of the ecosys-

tems. The goal is to achieve sustainable use of resources and goods derived from the ecosystems and to preserve their structure, modus operandi and productivity.

IV. ENVIRONMENTAL QUALITY AND ENVIRONMENTAL QUALITY OBJECTIVES

The quality of the environment in an ecosystem is an expression of the state of the system. It comprises the biological, physical and chemical circumstances, including the results of human influence. Environmental quality objectives for an ecosystem indicate the condition we would like the system to be in as compared to the reference level. The reference level indicates the quality of the environment in a corresponding ecosystem, which has been affected to the least possible extent by outside factors.

V. ALKYLATED PHENOLS IN PRODUCED WATER

Alkylated phenols are aromatic components found in oil, which partly dissolve in produced water. Laboratory experiments at the Institute of Marine Research in 2000/20001 showed that a range of alkylated phenols present in produced water can have serious endocrine disrupting effects on cod even in low concentrations. Their presence led to a change in the hormonal balance of the fish and a reduction in the amounts of milt and spawn. If we extrapolate these results to apply to natural conditions and other fish species, we can see that such discharges can have long-term effects on ecosystems and fisheries in the maritime areas where they occur.

VI. DIETARY ADVICE AND RESTRICTIONS ON SALES

In areas where fish and shellfish contain high concentrations of hazardous substances the Norwegian Food Control Authority has provided advice on limiting intake of fish and shellfish (dietary advice) and has introduced restrictions on the sale of fish from the area. Dietary advice is today being provided in 26 ports and fjord areas in Norway.

The extent of the advice varies from area to area. In most of the areas it simply amounts to advising against the consumption of fish liver and/or mussels, but in a few areas the advice is to avoid eating fish at all. People in a number of these areas are further advised to avoid eating shellfish. In one of the areas people are advised not to eat it more than once a week, while in the other areas they are advised not to eat it at all. Sales restrictions have also been introduced in five of the areas. The total area for which dietary advice is provided was reduced from 1 008 km² in 1991 to around 840 km² in 2001 mainly as a consequence of reduced discharges from industry. Nevertheless, dietary advice was introduced in three new areas in 2001 on the basis of results from surveys carried out in areas, which had not previously been the subject of study. It is expected that the number of areas for which dietary advice is given will increase since more areas are now under investigation.

VII. CATEGORIES OF PROBLEM AREAS

- High-risk areas: Smaller areas, high concentrations of environmental pollutants, often with a risk of migration and a small number of bodies responsible.
- Ports: Medium-sized areas, relatively high concentrations, risk of migration, large number of polluters, but a single body responsible for the area (the port authority).
- Entire areas of coast or fjords: Large areas, varying concentrations (including areas with high-risk zones and ports), minor risk of migration out of the area, large number of polluters.
- Industrial fjords: Special cases in fjords. Large areas, high concentrations, small number of polluters.

VIII. CURRENT CLEANUP MEASURES

When all discharges have been stopped *natural sedimentation* will cause pollutants to be covered with clean material. However, under Norwegian conditions it will take 50–100 years to establish sufficient new cover and eddies or biological activity can also disrupt the process.

This is therefore not considered sufficient in most areas. *Covering up* creates a physical barrier, which prevents environmentally hazardous substances from leaking out and organisms from coming into contact with the contaminants. This is an approach, which has been pursued in Eitremsvågen and may be used in other places.

However, this procedure is not suitable for shallow areas where the seabed is affected by shipping or physical intervention. Covering over is a fairly acceptable solution, but requires supervision during and after the work.

Contaminated sediments can be treated in situ whereby the hazardous substances are converted into less harmful substances and the toxic materials rendered less accessible. Experience of this treatment is meagre and the methods available are considered to have major limitations given the technologies on offer today. Removal of the contaminated material on the seabed may solve the problem in the area concerned, but in this case the large quantities of material must either be treated or disposed of in an acceptable manner.

Untreated, contaminated material requires *special disposal measures*. Up to now dumping of such sediments has been rare, mainly because it is difficult to find suitable landfill areas for it. Dumping of large amounts of material in landfills is also costly.

Disposal in shoreline landfills involves dumping the contaminated material in a closed area of sea close to land. A number of such dumps have been established in Norway, one of them being in Haakonsværn. These dumps have to be monitored and restrictions have to be introduced with regard to use of the area. The scope for creating such dumps depends on local conditions. Costs also vary depending on the barriers that need to be used and on the quality we want to achieve in the area being used.

In Norway we have many fjords which contain relatively *deep basins* often with oxygen-free water at the bottom and absence of life on the bed and in the masses of water closest to it. These basins may be suitable for dumping of contaminated materials. The disadvantage is that they may be difficult

to check on and will need to be monitored for a long time to come.

Further, renewal of the water and changes in the water quality can mean that the environmentally toxic substances become more accessible to marine organisms.

Treating contaminated sediments is a laborious and costly process. Such material requires special measures because the contaminants contain many different particle sizes and therefore need several stages of treatment.

IX. EFFECTS OF THE INTRODUCTION OF NON-INDIGENOUS SPECIES INTO MARINE ENVIRONMENTS

Serious effects of the introduction of non-indigenous species have been documented. In the Black Sea, for instance, the stocks of a comb jellies introduced from the USA exhibited astronomical growth and at one point in time represented as much as some 900 million tons! This caused the previously abundant fisheries to almost die out. Now, even though the stocks of this jellyfish have declined somewhat, fisheries in the zone are still affected by the introduction of this species.

In Norwegian waters we have experienced a number of introductions of non-indigenous species.

In 1999, American lobster was found in the Oslo Fjord. It is probable that it had escaped from an import consignment of live lobster. The species has also been observed near Ålesund. The American lobster is capable of reproducing in our waters and can also cross-fertilise with our own European lobster. If such hybrids materialise the males will be sterile in addition to growing faster and becoming larger and stronger than the males of the European species of lobster. In the longer term this could devastate the Norwegian lobster stocks. It has not yet been proven whether any such hybrids have been generated. American lobster can also be the carriers of a disease caused by a parasite, which is 100% fatal in European lobster. So far, though, the specimens of American lobster found have not been infected. Research projects have been started to investigate the spread of this species and its

possible ecological consequences. Another species introduced, which has attracted much attention, is the king crab. This species was implanted at the mouth of the Murmansk Fjord on the Kola Peninsula in the nineteen sixties. Since then the stocks have grown and spread to Norwegian waters. Since it was first seen in the Varanger Fjord in 1976 the stocks have grown on the Norwegian side of the border and spread westwards. Little is known about the effects of the king crab on the ecosystems, but the species seems to feed off queen (*chlamys opercularis*), sea urchins and other benthic species. This can cause significant changes in the ecosystems and competition with benthic fish.

Japanese sea weed was first observed in Norway on the Sørland in 1984. It has now spread northwards as far as Sogn and Fjordane. This sea weed was probably brought to Europe by French oyster farmers who imported and implanted Japanese oysters. It lives in the top few metres of seawater and can grow to several metres in length. It spreads easily in that branches of it break off and drift away. The foothold gained by this sea weed has caused shallow bays to become almost entirely clogged in the summer. This stops the light reaching the bottom and leads to indigenous species of sea weed becoming supplanted. The Japanese sea weed can also be a scourge to fishing gear and outboard engines.

The plankton algae *Chatonella spp.*, whose abundant blooms appeared along the Sørland coast in the spring of 2001, was very probably introduced into Norwegian waters via ballast water from the Far East. Under specific conditions the algae can become toxic, but there is no evidence of this in Norwegian waters. Nevertheless, fish mortality has been recorded in fish farms and wild stocks. Extensive blooms of the algae seem to require a surplus of nitrates, something which is common in the Skagerrak where man-made inputs are considerable. This species is particularly competitive because it can start blooming earlier in the spring than other species.

X. DEFINITION

Marine protected areas are areas where the seabed and/or the whole of the appurtenant water

column or parts thereof are protected under the terms of the Nature Conservation Act or which have been given specific protection pursuant to other laws. A marine protected area may also comprise a land area in the tidal zone. Marine protected areas covered by the Nature Conservation Act are known as «marine conservation areas».

XI. IMPLEMENTATION OF A PRECAUTIONARY APPROACH

In 1998 ICES began using new reference points to accommodate the need for a *precautionary approach* when giving advice on levels for catches. These new reference points are being used to establish whether fish stocks are within or outside safe biological limits. Reference points have also been developed to assess whether the catches can be considered to be in compliance with the precautionary principle or not. The precautionary reference points must take account of the elements of uncertainty in the calculations of stock sizes and of the effect that fishing has on fish stocks. The following reference points are being used.

Spawning stocks: The limit value (Blim) is the size of the spawning stock where renewal is assumed to be weak or where the dynamics of the stock are unknown if the spawning stock is below the limit value. The precautionary reference point (Bpa) represents a level of spawning stock which implies little risk of it falling below the limit value (Blim).

Fishing effort: The "Flim" limit value indicates fish mortality whereby stocks will be reduced in the long/medium term to a level which can be expected to entail renewal problems. Fish mortality under «Fpa» means a low risk of the actual fish mortality being higher than the «Flim» limit value. If according to these guidelines a stock is defined as being outside safe biological limits, the advice given will usually indicate alternative levels of pressure (F) in order to bring the spawning stocks up to above the precautionary level (Bpa) over a shorter or longer period of time. If a stock is outside safe biological limits it means that the size of the spawning stock, and thus growth and harvesting potential, is below

the production potential of the stock. This will, for instance, have economic repercussions for fisheries. ICES is now working on developing target reference points. These will indicate the optimum level of pressure on stocks to stabilise

the long-term yield and help ensure that sizes of stocks do not fall to levels close to the limits. Fixing a target reference point for individual stocks should be regarded in the context of multi-stock management.

National Ocean Policy of **PORTUGAL**

DATED: • Resolution 163/2006 of 12 December of the Council of Ministers
• Resolution 40/2007 of 12 March of the Council of Ministers

PURPOSE

Resolution 163/2006 : to adopt an integrated and comprehensive policy in the governance of all maritime affairs, based on the cross-cutting and multidisciplinary strategy, following the 17th Constitutional Government's program.

Resolution 40/2007 : the establishment of the structure of coordination, and the redefinition of the terms of the mandate and composition structure of the Mission for the Affairs of the Sea (EMAM), adjusting it to the new reality, after full compliance with the objectives previously determined by the Government in the Council Resolution of Ministers 128/2005 of 10 August.

ADDITIONAL INFORMATION

Published by the *Ministério da defesa Nacional, Estrutura de Missao para os Assuntos do Mar (2007)*.

Received from Mario Ruivo, the Chairman of the Portuguese Committee to IOC.

8

NATIONAL OCEAN STRATEGY

RESOLUTION N.º 163/2006 OF THE COUNCIL OF MINISTERS

Resolution n.º 128/2005 of the Council of Ministers, of August 10, established a Task Group for Maritime Affairs (TGMA), expressing the need for Portugal to adopt an integrated and comprehensive policy in the governance of all maritime affairs, based on a cross-cutting and multidisciplinary strategy, following the 17th Constitutional Government's Program.

The TGMA has prepared, in accordance with the goals set by the Government, a draft document, where it identifies the main guidelines for a National Ocean Strategy. The different ministries have examined this draft, in order to make a political analysis and to match it with the Governments' program. The document was then put forward for public discussion.

The TGMA proposal was prepared with the support of a broad survey to around one hundred public and private companies and institutions, economic agents, non-governmental organizations, members of the scientific community and influent individuals in maritime affairs, from Portugal and abroad. The Green Paper on the Future European Maritime Policy was also taken into consideration, as well as the recommendations issued from a number of preparatory meetings in which the TGMA has taken part.

The current situation represents a unique opportunity, which requires that Portugal define a clear and urgent National Ocean Strategy that meets the international challenges and promotes the country's national objectives, enabling Portugal to defend its points of view and take a leading role in the international processes. This strategy should be aimed at improving maritime governance and the development of maritime activities, while promoting economic development, preserving the natural heritage and reinforcing Portugal's position as one of Europe's maritime countries.

The National Ocean Strategy must be framed within the other national strategies, policies and programs, particularly the national strategy for sustainable development, the Lisbon Strategy, the technological plan, the national strategy for nature and biodiversity conservation, the national spatial planning policy, the integrated coastal zone management strategy, the coastal zone management plans, the White Paper on maritime transports and ports policy "towards the 21st century" and the strategic guidelines for the maritime transports and ports sector, the national strategic plan for tourism, the national ecotourism program, the national strategy for energy, the national "sports for all" program and the national strategic plan for fisheries.

In particular, it is necessary to assure the articulation with the plans, strategies and programs for coastal zones and adjacent waters, such as the actions taken within the framework of the Water Law, the coastal zone management plans, the future strategy for integrated coastal zone management and the future national plan for maritime transport and ports, amongst others. This strategy shall be implemented through a dialogue with all the stakeholders and oriented towards action, coordination and articulation, aimed at clarifying, simplifying and speed-up procedures for economic agents, based on solid technical and scientific information.

In defining a National Ocean Strategy for the first time, based upon an integrated approach that takes into consideration the various national policies, the Government aims at creating the essential mechanisms and providing the necessary conditions to all agents, so that the sustainable use of the ocean may become an effective and credible reality, for the benefit of the people.

In order to enable Portugal to take advantage of the existing opportunities and to mitigate the difficulties, the National Ocean Strategy guidelines are based upon three strategic pillars: knowledge, spatial planning and the active promotion of national interests and objectives.

These are the key success factors, that is to say, those that are essential to increase the importance of the ocean as a distinctive element, making it one of the main driving forces of the country's future development. These factors will render the current national policies more effective and will help in the definition and implementation of new integrated policies aimed at a better use of the existing potential and resources.

Three high priority areas, that are to be implemented in the short term, were identified, taking into consideration the present international context and the need for internal coordination in maritime affairs:

a) To create an interministerial coordinating commission to implement the National Ocean Strategy. This will guarantee the intergovernmental articulation on maritime affairs in a

permanent way, maintaining at the same time, each ministry's own competences on areas of vertical and sectoral action;

b) To improve the coordination and articulation of the national positions in the various international fora, regarding maritime affairs. This is central to the affirmation of Portugal as a country that defends its interests and objectives consistently and that assumes the leadership in the international agenda concerning ocean affairs;

c) To assure the technical, diplomatic and political follow-up of the public discussion on the Green Paper of the European Maritime Policy and its further steps, during which it is essential to mobilize the country, in order to guarantee that Portugal remains at the forefront of the new European approach to maritime affairs, through an informed, effective and comprehensive participation.

Bearing in mind the horizontal nature of the National Ocean Strategy, a set of strategic, cross-cutting actions were defined, that will contribute to the creation of conditions assuring an optimal and sustainable use of the ocean. The implementation of those actions, in articulation with the other national strategies, will put into operation the strategic pillars, adding value to actions already taking place and contributing to the central objective of defining the ocean as a "national project".

Eight strategic actions have therefore been selected: mobilising and raising awareness of society to the importance of the ocean; the promotion of education and outreach programs in schools of ocean-related activities; the promotion of Portugal as an European centre of excellence in ocean sciences; the spatial planning of maritime activities; the protection and restoration of marine ecosystems; the development of the maritime economy; support for new forms of technology applied to maritime activities; and national defense, security, surveillance and the protection of maritime zones under national sovereignty or jurisdiction.

These measures, and any others that may be considered relevant in the future, will be the target of specific action plans developed by the different Ministries and coordinated by the interministerial commission for the implementation of the National Ocean Strategy.

The draft National Ocean Strategy, which was approved by the Council of Ministers, in 4 October 2006, was open for public discussion and consultation, from which resulted the final document presented in the following pages.

Thus:

Under the terms of Article 199.º g) of the Portuguese Constitution, the Council of Ministers has decided:

To approve the National Ocean Strategy, set out in the Annex, which forms an integral part of the present resolution.

Presidency of the Council of Ministers, 16 November 2006. — José Sócrates Carvalho Pinto de Sousa, Prime Minister.

ANNEX TO RESOLUTION 163/2007

NATIONAL OCEAN STRATEGY

INTRODUCTION

Portugal needs an ocean strategy. This fact has been acknowledged in numerous initiatives that have laid the foundations for the debate on how the ocean may become one of the main factors of our country's development, if properly used and protected.

One of the guiding lines of the national strategy for sustainable development, recently approved by the Government, is the use of the ocean as a distinguishing and development factor. Furthermore, the national action plan for growth and employment 2005-2008, a plan for the implementation of the guidelines set out in the Lisbon Strategy, acknowledges that the ocean is a distinguishing factor and constitutes an opportunity to place Portugal at the centre of an economic value-creation system of maritime activities. Several constraints and discrepancies have however prevented that potential from being used at the service of economic and social development. It is necessary to define the mechanisms to enable a better use of the available resources, to increase the knowledge on our marine heritage and biodiversity promoting their use and conservation, to restore and to give economic and sustainable viability to the exploitation of impoverished natural resources, to resolve sectoral conflicts over the use of the ocean and to support new activities in which Portugal can be competitive, standing out and taking advantage of existing opportunities.

A strong, modern and sustained maritime economy can only be stimulated through the clarification and transparency of licensing procedures, and through the creation of mechanisms for attracting investment, based on solid and credible information. One

of the greatest challenges to the design of a *National Ocean Strategy* lies in the difficulty to evaluate the current situation and in foreseeing potential progress. Despite the work of the Strategic Commission for the Oceans, the Portuguese contribution to the Green Paper of the European Maritime Policy and the few economic studies about maritime activities, the quantification of the importance of the ocean to the national economy is based on empirical approaches and on data containing significant gaps, that do not provide a clear picture of the real economic situation, or of the potential benefits of investing in those activities.

As an example, although tourism appears as one of the most important sectors in employment studies, it is difficult to estimate its real economic contribution to the cluster of maritime activities, given that its impact is spread over a number of economic sub-sectors such as transport, catering, trade, hotels and cultural and sporting events. One of the main goals of this *National Ocean Strategy* is precisely to create the tools and conditions to provide an up-to-date and permanent response to the absence of reliable information needed for strategic decision-making and to strengthen and attract new investments.

Portugal has one of the largest exclusive economic zones (EEZ's) in Europe, covering more than 1,700,000 km², which represents more than 18 times the country's terrestrial area. Moreover, there is the possibility of extending the zones under Portuguese sovereignty or jurisdiction that will far exceed the present EEZ. The work that is being carried out by the Portuguese Task Group for the Extension of the Continental Shelf will establish the areas to be claimed by Portugal, outside the 200 nautical-mile zone, in a proposal that will be submitted by May 2009 to the Commission on the Limits of the Continental Shelf, created under the United Nations Con-

vention on the Law of the Sea. The Autonomous Regions of the Azores and Madeira have a key role in this issue, given their central and strategic positioning in the maritime zones under national sovereignty or jurisdiction.

This vast area of the ocean contains some of the world's most important marine ecosystems. The biogeographical and geomorphological characteristics of the zones under Portuguese jurisdiction contain a wealth of marine biodiversity. The ocean insular systems, the deep-sea with its abyssal plains, the underwater seamounts and banks, the mid-Atlantic ridge, the fields of hydrothermal vents, the rich estuaries and lagoons, the great underwater canyons, the coastal upwelling zones, the rocky reefs, among others, confer to Portugal a unique natural heritage, which is important to value and preserve. In addition, there are a number of archaeological, cultural, aesthetic and historical treasures, geological and mineral resources, renewable energy sources and biotechnological resources which, all together, represent one of the main national assets that is important to investigate and use in a sustainable way.

The creation of economic wealth and jobs is only possible through the sustainable development of activities such as maritime transport, port activities, the naval industry, fishing, tourism, renewable energy, science, technology and innovation, blue biotechnology and the exploitation of living and non-living resources.

The ties between Portugal and the ocean became highly relevant during the Age of the Discoveries, which marked the beginning of the globalization process. The commercial, cultural, scientific and technological exchanges fostered the country's general development and marked decisively the transmission of knowledge between peoples. Nevertheless, nowadays the ocean is something distant, intangible and invisible to many Portuguese.

It is now generally agreed that the threats and risks currently hanging over the coastal zones, the marine environment and its biodiversity, such as ship accidents, marine pollution, illegal activities, including illegal immigration and terrorism, climate change, rising sea levels, natural disasters and the overexploitation of the ocean's resources, are sig-

nificant and have world-wide repercussions. These threats require new ways of internal articulation, of international cooperation and management principles, given that they influence the sustainable development of societies, and affect public health, economic and social development and the people's quality of life.

The United Nations and other international fora have fully recognized the importance of the ocean and seas to humanity. All over the world, a new awareness has emerged in recent decades, that the management and governance of the ocean and coastal zones, and the human activities associated with them, should be approached from an ecosystem and sustainable development perspective, based on a broad, integrated and non-sectoral vision.

Portugal has an international reputation as a maritime country, with its own ideas and actions, giving an active contribution to the Global Oceans Agenda. The important steps taken in ocean policy in recent years are closely related to that fact. Thus:

- a) In 1998, the Independent World Commission on the Oceans, led by Portugal and chaired by Dr. Mário Soares, the former President of the Portuguese Republic, approved the report "The Ocean: Our Future", within the framework of the UNESCO Intergovernmental Oceanographic Commission;
- b) The International Year of the Ocean, celebrated in 1998 as a result of a proposal made by Portugal to the Assembly of the UNESCO Intergovernmental Oceanographic Commission and adopted by the United Nations General Assembly, was integrated in the Lisbon World Expo 98, under the theme "The ocean, a heritage for the future";
- c) In the same year, the Council of Ministers' resolutions n.ºs 88/98, 89/98 and 90/98, of July 10, respectively created the Intersectoral Oceanographic Commission, with the objective of "strengthening the response capacity of research and development in marine sciences and technologies and in oceanographic services, through a strategy that harmonizes actions, combines strengths and avoids duplications, rationalizing human resources and the available infra-structures", the Marine Science

and Technology Development Program, with the objective of “giving priority to this field of applied research, endowing it with a structural and interdisciplinary nature”, and the Interministerial Commission for the Delimitation of the Continental Shelf, with the mission to study the possibility of extending the external limit of the Continental Shelf beyond the 200 nautical mile zone established by the United Nations Convention on the Law of the Sea;

- d) In 2003, the Strategic Commission for the Oceans was created (Resolution n.º 81/2003 of the Council of Ministers, of June 17) with the objective of defining the guidelines for a national ocean strategy. In 2004, that Commission produced a report with approximately 250 proposals and measures for strategic action;
- e) In 2005 the Task Group for the Extension of the Continental Shelf was created (Resolution n.º 9/2005 of the Council of Ministers, of January 17), with the objective of preparing a proposal for the extension of the Portuguese Continental Shelf beyond the 200 nautical mile zone, to be submitted to the United Nations Commission on the Limits of the Continental Shelf;
- f) A Task Group for Maritime Affairs (Resolution n.º 128/2005 of the Council of Ministers, of August 10), was also created in 2005 with the aim of continuing the work already started and the mission of “preparing a proposal that establishes the measures to be implemented in order to develop an integrated Government policy on maritime affairs and an action articulated with all the competent agencies in maritime areas”;
- g) In 2006 the European Maritime Safety Agency set up its headquarters in Lisbon. This agency will play an essential role regarding the collection, registration and evaluation of technical data in the fields of maritime security, traffic and marine pollution.

This is a time of great activity in the International Oceans Agenda. Several countries throughout the world have become involved in the formulation of integrated strategies or policies for the ocean and coastal zones, although few of them have started to implement those policies in their maritime space.

Within the framework of the United Nations and other relevant international fora, several initiatives and activities are currently under way, including

those associated with the United Nations Convention on the Law of the Sea, marine protected areas, the protection of underwater cultural heritage, the protection of marine resources and biodiversity in areas beyond national jurisdictions, and genetic resources and their applications.

These issues are also part of the European Union agenda. The most recent initiatives include the Green Paper on the Future European Maritime Policy, the marine strategy directive and the thematic strategy for the protection of the marine environment, the extension of the Natura 2000 network to the marine environment, the application of the water framework directive, the third maritime safety package (Erika III) and the common fisheries policy. The Commission’s strategic objectives for 2005-2009 state: “the particular need for an all-embracing maritime policy aimed at developing a thriving maritime economy, in an environmentally sustainable manner. Such a policy should be supported by excellence in marine scientific research, technology and innovation”. The strategic objectives of the European Commission make it more obvious that Europe needs to find its way towards a true policy for the oceans.

Portugal has been at the forefront of that process, having drafted, along with France and Spain, the first contribution to the Green Paper. Its central position and the Atlantic dimension of the maritime zones under its jurisdiction, both reinforce the key role that Portugal must play, as a privileged linking agent between the European Union and the Community of Portuguese-Speaking Countries, the American continent and the rest of the world.

The geostrategic position of the Portuguese maritime space imposes major challenges and responsibilities in the areas of national defense, security and surveillance, illegal immigration, the prevention of pollution, support to navigation, and the safeguard of human life at sea. It also provides a set of opportunities for economic development and for linking the various regions of the national territory.

The present situation offers a unique opportunity, which requires Portugal to define, as a matter of urgency, a clear ocean policy to meet international challenges and promote the national goals in these fields, enabling Portugal to put forward its points of

view and take the lead in international processes to improve ocean governance and the development of maritime activities, while at the same time fostering economic growth, preserving the natural heritage and assuming its role as one of the maritime nations of Europe.

A *National Ocean Strategy* must be framed, articulated and coordinated with other national strategies, policies and programs and with global plans resulting from our international commitments, and transposed to national law, particularly the national strategy for sustainable development, the Lisbon Strategy, the technological plan, the national strategy for nature and biodiversity conservation, the national spatial planning policy, the integrated coastal zone management strategy, the coastal zone management plans, the White Paper on maritime transports and ports policy “towards the 21st century”, the strategic guidelines for the sector of maritime transports and ports, the national strategic plan for tourism, the national ecotourism program, the national strategy for energy, the national “sports for all” program and the national strategic plan for fisheries.

The *National Ocean Strategy* is based on the coordination of the priorities established for each sector, and should bring coherence to the existing maritime affairs policies. Special coordination will be required with the plans, strategies and programs on coastal zones and adjacent waters, particularly those arising from the application of the Water Law, the coastal zone management plans, the future strategy for integrated coastal zone management and the future national plan for maritime transport and ports, among others. In that respect, the *National Ocean Strategy* should add value to the sectoral activities already being undertaken, building on the existing programs.

This strategy shall be implemented through the dialogue with all the stakeholders and aimed at action, coordination and articulation, clarifying, simplifying and accelerating procedures for economic agents, based on solid technical and scientific knowledge and on the strict observance of the principles and agreements accepted by Portugal. Portugal has an internationally recognized responsibility in ocean protection and in the conservation of its ecosystems and biodiversity. This

responsibility must be consolidated, extended and fully respected, in order to provide an example and a model to be followed by our international partners.

The definition of the actions and priority measures included in this strategy follows Portugal’s work at national and international level in recent years. The Strategic Commission for the Oceans has made an exhaustive survey of Portugal’s current situation regarding sea-related activities, examining the state of resources and the various sectors. This survey contains summarized diagnoses with an analysis of strengths and weaknesses, challenges and opportunities, threats, risks and constraints. It further makes a series of recommendations and proposals to take advantage of the opportunities identified, particularly in the areas of aquaculture, fish-processing industry, port development, naval construction, repair and maintenance, tourism qualification and development of nautical recreational activities, technology, renewable energy, culture, diplomacy, national defense, environment, science and ocean governance. In order for the *National Ocean Strategy* to become effective, it is necessary to carry out a global and intersectoral analysis, to promote common objectives and find effective means of coordinating and linking cross-cutting issues, and also to analyze and foster conflict resolution arising from sectoral measures.

Based on these findings, which were confirmed by the survey carried out by the Task Group for Maritime Affairs to around a hundred public and private companies and institutions, economic agents, non-governmental organizations, the scientific community and experts in maritime affairs, there is the need to define priorities. Despite what has already been done or proposed at the sectoral level, namely in the areas of transport, fishing, energy, education, environment, science and technology, national defense and foreign policy, because resources and mechanisms are still scarce, it is necessary to ensure the conditions that guarantee a higher probability of success and effectiveness for future actions.

The *National Ocean Strategy* is determined to guarantee the existence of key success factors, which render the sectoral policies being implemented or planned for the ocean and coastal zones more

efficient and articulated, and to contribute to the definition of national strategic areas, in order to take full advantage from the potential offered by the ocean.

The added-value of this strategy is to turn the ocean into a national project, through an integrated governance approach for maritime affairs combining, for the first time, the efforts of the various government agencies, economic agents, the scientific community, non-governmental organizations and the civil society, for a commitment of all actors on the sustainable use of the ocean, enhancing its role in the economic and social development of the country and preserving this heritage.

However, this strategy will not solve all the problems and its objectives can only be achieved if the ocean is regarded by all as a true national project. The State has a part to play as a facilitator and promoter of economic and social development conditions, but it is up to the companies, corporations, institutions and the civil society to take the leading role in the materialization of this strategy. The achievement of tangible results is only perceptible, in some cases, over the medium to long term, and it requires a rapid and persistent support in the fields of education, training of human resources, creation and optimization of infrastructures and research and development.

By defining, for the first time, a *National Ocean Strategy* based on an integrated and intersectoral policy approach, the Government aims at creating the essential mechanisms and providing agents with the necessary conditions to make sure that the sustainable use of the ocean for the people's benefit, becomes an effective and credible reality.

Bearing in mind the present economic situation, the ongoing public administration reform and the national resources available, but assuming that Portugal needs a new ocean policy and a clear, rapid and effective response to current international challenges, the *National Ocean Strategy* is based on an ambitious but realistic approach. This assumes a practical and feasible character that is adaptable and consolidates the results already achieved. It emphasizes learning, and is inclusive, involving public and private institutions in the field of maritime affairs, and also the civil society, thus strength-

ening responsible participation and cooperation in problem resolution.

Portugal must ensure the coordination and articulation of all maritime sectors, in order to meet this challenge, such as stated in the 17th Constitutional Government Program. This was also one of the main recommendations of the Strategic Commission for the Oceans report, and was reinforced by the broad survey to public and private institutions with interests in maritime affairs.

This need is felt in areas where there is a lack of comprehensiveness and continuity in jurisdiction, or where the jurisdiction and competencies of a number of authorities overlap, the latter being divided furthermore by the different levels of local, regional and central government, a situation that is particularly evident in the areas of sea-land interface.

Thus, it is necessary to define the main paths and to create a coordinating structure for ocean affairs that suits a maritime country such as Portugal, and makes it possible to explore the full potential of the ocean, for the present and future generations.

The *National Ocean Strategy* is divided into five chapters.

Chapter I sets out the general principles and objectives.

Chapter II defines the strategic pillars that constitute key success factors.

Chapter III describes the human and financial resources required.

Chapter IV indicates the monitoring, evaluation and revision mechanisms.

Chapter V formulates the essential actions to be taken, classified as priority and strategic actions, and the corresponding measures, relating them to the strategic pillars.

The Annex contains a summary table of the strategic actions and measures presented in chapter V.

CHAPTER I

PRINCIPLES AND OBJECTIVES

The declaration of the ocean as a factor of distinction and national identity, assuming it as a strategic priority and a national project, requires a vision that must be simultaneously ambitious and realistic, credible and attractive.

This strategy is intended to create the conditions and the mechanisms to enable agents to develop sea-related activities, in a balanced and articulated way, with the objective of improving the quality of the marine environment, fostering economic growth and creating new jobs and opportunities.

These activities must be based on appropriate scientific knowledge, on an efficient spatial planning system and the permanent defense of marine biodiversity, and ocean conservation.

The central objective of the National Ocean Strategy is to make a better use of ocean and coastal resources, promoting sustainable economic and social development, through an efficient, responsible and committed coordination that actively contributes to the International Oceans Agenda.

This strategy promotes actions that combine the enhancement and growth of economic activities, employment and social cohesion, the protection of natural and underwater heritage and the maintenance of adequate environmental conditions for future generations. That is to say, it pursues the objectives laid down at the Lisbon, Gothenburg and The Hague European Councils.

This comprehensive objective must be based on universal values and principles, such as the ones recognized at the United Nations and in other international fora. The report of the Strate-

gic Commission for the Oceans, defines a series of approaches and guiding principles, based on international agreements and conventions that are central to an integrated maritime policy. Among these are:

- a) The *United Nations Convention on the Law of the Sea* (approved by Resolution n.º 60-B/97 of the Portuguese Parliament and ratified by Decree n.º 67-A/97 of the President of the Republic), whose preamble states that “ocean space problems are closely interconnected, and must be considered as a whole”, and calls for the integrated management of ocean affairs;
- b) The principle of sustainable development, founded on a number of international conventions, agreements and protocols, such as the 1972 United Nations Stockholm Conference, the 1992 Rio de Janeiro Conference, which gave birth to Agenda 21, and the 2002 Johannesburg World Summit on Sustainable Development, where this principle was finally assumed and consolidated. Nowadays, this is an indispensable requisite in integrated and responsible management of the planet’s ecosystems;
- c) The precautionary principle, which is a risk management approach, originated by the European policies of the 70s and mentioned in the Union Treaty. It has been subject to several interpretations and was adopted in the World Charter for Nature at the 1982 United Nations General Assembly and in other international conventions. The Common Fisheries Policy also provides for the application of the precautionary approach in resource management and, more recently, the European Commission, through the Communication COM 2000.1, has clearly defined this principle and its application procedures;
- d) The ecosystem approach, as a methodology and framework for the integrated management of

terrestrial and aquatic ecosystems and their resources, aimed at promoting their conservation and sustainable use. This approach was developed and adopted at the Convention on Biological Diversity, during the COP 5 in 2000, and has since been included in international documents, treaties and conventions. It is a determining factor to the adequate implementation of the key provisions of the *United Nations Convention on the Law of the Sea* and Agenda 21, particularly Chapter 17, on the integrated management of the oceans and coastal zones.

The National Ocean Strategy calls for the implementation of action plans aimed at the mobilization, education and habilitation of the Portuguese society and its international partners, for the sustainable and responsible exploitation and use of the ocean and coastal zones and the creation of management tools that renders the processes more transparent, rigorous and credible.

Given this national and international framework, the National Ocean Strategy gives prior-

ity to the development of knowledge, skills and shared management tools that make it possible to deal with the causes of problems and not merely with their symptoms. In order to achieve this, it is necessary to create a coordinating structure for maritime affairs that will promote policy articulation, the definition of strategic directions, the clarification of competences and areas of intervention, adding value to the sectoral objectives, so that the overall result is more than the sum of the sectoral results.

This coordination needs to focus on the capacity to articulate existing skills and to promote the accountability of central, regional and local agents, as well as the public and private corporations and civil society. It calls for increased investments in knowledge, technology and innovation, through technical training, promoting conflict resolution, maximizing the shared use of resources, and promoting the economic development of maritime activities. This will match the need for employment, qualification, social welfare, and the protection and conservation of the marine environment.

CHAPTER II

STRATEGIC PILARS

The implementation and evaluation of the National Ocean Strategy constitutes an enormous challenge, due to several reasons:

- a) In the first place, decision-making is difficult due to the lack of knowledge, understanding and perception of the complexity of the ocean and coastal zones ecosystems and the real impact and consequences of human activities. Further difficulties are related to the accurate assessment of the economic activities' potential;
- b) Secondly, the difficulties experienced in sharing responsibility for the management of the ocean as a common resource and a three-dimensional space, due to the interdependence and to conflicts between several interests, jurisdictions and management processes;
- c) Thirdly, the ocean and coastal zones now represent, throughout the world, a major opportunity for new sea-related economic activities that, as a consequence of the recent technological advances, are creating a need for new forms of management and for an active defense and protection of national interests.

In order for Portugal to take advantage of the existing opportunities and mitigate the difficulties, the guidelines of the National Ocean Strategy are based on three strategic pillars. These pillars are the key success factors indispensable to enhancement the importance of the ocean as a distinguishing factor, essential for the country's future development.

The key success factors will assure that sectoral policies currently being developed are more effective and integrated, and help to define and implement new integrated policies for the better use of existing resources and knowledge.

This challenge requires the existence of institutions with appropriate scientific and technical capacity and effective management tools, as well as additional efforts in cooperation, coordination and horizontal articulation between all government levels. It is also necessary to ensure that accurate information and solid scientific knowledge assist the decision-making processes, with the support of an educated, informed and engaged society. In other words, Portugal has to do the right things correctly. That is the only way to meet the new challenges and present coherent positions on the defense and promotion of its interests and objectives.

The following strategic pillars are essential to support the construction of a prosperous maritime economy, guaranteeing quality of life and social welfare, while respecting the environment:

- a) Knowledge;**
- b) Spatial planning;**
- c) Active promotion and defense of our national interests and objectives.**

Regarding knowledge, only through a consistent and sustained investment in scientific research and the development of new technologies applied to the ocean and coastal zones, will it be possible to create a solid basis for management decisions, in a sustainable development and integrated management perspective. In addition, training, education, awareness-raising, outreach, diffusion and access to information, together with the use of objective indicators to support sectoral and intersectoral policies, constitute the best factors for public and private investment credibility and encouragement, in sea-related activities.

Spatial planning is a governance tool, indispensable to assure an overview founded on the principles of sustainable development, precaution and ecosystem approach, through the identification and planning of all present and future uses of the ocean, backing up an integrated, progressive and adaptable management of the ocean and the coastal zones and the development of sea-related activities, promoting simultaneously:

- a) The knowledge and mapping of all activities in a given area, enabling a rapid and judicious analysis;
- b) The coordination of the management, licensing and supervision processes and monitoring of activities related to marine environment, promoting decision making on the use of the ocean and coastal zones, based on rigor and accuracy criteria;
- c) Responsible participation, debureaucratisation and procedural simplification, guaranteeing the distinguishing factors related to the ocean and coastal zones' specificities;
- d) The protection, conservation and restoration of biodiversity and coastal and marine ecosystems;
- e) The best use of new opportunities for the development of maritime activities, minimizing in advance potential conflicts between the various sea-related activities, such as tourism, recreation and leisure, nautical sports, ocean and river cruises, maritime transport, dredging and coastal

protection, the conservation of nature and biodiversity, underwater archaeology, commercial and recreational fishing, aquaculture, renewable energy, prospecting and extraction of geological resources, the laying of submarine cables, underwater pipelines of oil and wastewater treatment plants, naval, commercial and fishing ports, scientific and technological research, naval engineering and construction, military exercises, the exploitation of genetic resources, *inter alia* through biotechnology.

The active promotion and defense of national interests and objectives is achieved through a committed and competent engagement in bilateral and multilateral relations, by means of proactive participation, cooperation and contribution in the various international fora. Once again, those actions must be supported by a coordinating structure that ensures an articulation, at the national level, of the diplomatic, political, economic, social, environmental, scientific, technological, national defense and security areas, strengthening national image, sovereignty and identity.

Any failure in the measures or actions associated with these three strategic pillars will impede the development of an ocean-related sustainable policy that integrates the economic, social and environmental aspects.

CHAPTER III

HUMAN AND FINANCIAL RESOURCES

Given its horizontal nature, the National Ocean Strategy requires, in addition to the responsibilities of each sectoral agency, the creation of a coordinating structure that ensures consistency of actions, promoting complementarity of sectoral policies and creating mechanisms for the valorization of joint actions.

In the present situation, there is a need for a rationalization and qualification policy of human resources. It is important to regard all agents as valuable human resources to the implementation of the National Ocean Strategy.

European Union funds and sectoral budgets from government authorities will contribute to the financing of the actions and measures proposed in this Strategy, with the purpose of rendering the actions of those authorities more effective and integrated, increasing synergies and optimizing existing resources. The funding to be allocated to this strategy will be determined through the action plans to be implemented under the strategic actions, in articulation with the various stakeholders.

CHAPTER IV

MONITORING, EVALUATION AND REVISION

The implementation of the National Ocean Strategy requires an annual evaluation. The contribution of the various ministries and regional governments to that evaluation will include a reference to the need for the revision of existing planning instruments, and also to the relevance of preparing additional measures. Contributions will also be required from independent consultants within the framework of the consultative bodies that will be created as a result of this strategy. That evaluation must be based on the analysis of objective indicators that provide an assessment of the implementation targets and the effectiveness of the plans and programs. Those must be specific, preferably quantitative indicators, to be defined in advance, in order to make them more easily measurable. They must also take into consideration the resources mobi-

lized, the results to be achieved and the proposed calendar. These indicators will be defined according to the specific action plans, in articulation with the different stakeholders, to assure the implementation of the measures contained in this strategy. At the same time, the evaluation reports must make recommendations aimed at improving the implementation of this strategy, highlighting the measures to be adopted.

The National Ocean Strategy is a dynamic document, open to any adjustments resulting from the evaluation process of the action plans' implementation. It will remain in force from 2006 until 2016, when it will be globally assessed and revised, through an evaluation and public discussion process.

CHAPTER V

ACTIONS AND MEASURES

The creation and application of actions and measures that materialize the three strategic pillars are fundamental to foster both traditional and cutting-edge technological sectors of economic activities, and an essential support for the creation of wealth and improvement of growth, social cohesion and quality of life.

Only with a National Ocean Strategy based on these foundations will it be possible to achieve the objectives proposed in other national policies, particularly in the following areas:

- a) Transport: increasing the competitiveness of national ports and encouraging sea transport as a less pollutant means of transport; promoting the articulation of sea transport with other forms of transport, adding value through logistical chains and the standardization and simplification procedures, such as the “single window” in ports; ensuring an effective performance by the competent authority for transport, ports and the safety at sea, taking into consideration management responsibilities in the implementation of the maritime vessel traffic services (VTS) and the international ship and port facility security code (ISPS);
- b) Energy: investing in renewable energy, contributing to the reduction of the dependence on external energy and the emission of greenhouse gases, using ocean energy resources; speeding up licensing procedures, mobilizing and attracting private investment, and backing technological innovations to respond to the challenges of competitiveness in that sector; developing of an industry of goods, equipment and services that promotes job creation, exportation of equipment, technology and know-how, and industry reconversion, such as the metal-working industry and the naval shipyards; and also providing a better knowledge of the geological characteristics of the deep off-shore;
- c) Aquaculture and fisheries: ensuring the sustainability of resource exploitation; introducing measures for a fairer distribution of wealth and diversifying the economic activities of the fishing communities; creating marine protected areas and restoring damaged ecosystems; reinforcing the system of artificial reefs; and fostering research and development in offshore aquaculture systems, ensuring their economic profitability and environmental sustainability;
- d) National defense and security: clarifying competencies and responsibilities, areas of intervention and coordination for the Maritime Authority System; improving the prevention and the fight against marine pollution, navigation safety and the protection and safeguard of human life at sea within the framework of the national search and rescue systems; reinforcing maritime surveillance and the mitigation of natural risks and community support in the context of the National Civil Protection Service;
- e) Science, technology and innovation: investing in qualified human resources; ocean-related scientific and technological projects and infrastructures, optimizing existing resources, encouraging and strengthening inter-institutional cooperation and resource-sharing; and actively participating in international networks;
- f) Environment and nature conservation: ensuring the proper functioning and maintenance of marine and coastal ecosystem services; promoting knowledge and protection of marine biodiversity; restoring damaged habitats and safeguarding essential areas for the conservation of living and non-living resources, particularly through the creation of a network of marine protected areas; ensuring the prevention and control of pollution,

including the effects of onshore and inland human activities on the marine environment; combating and preventing the introduction of non-indigenous species; and ensuring the general monitoring of the marine environment health;

- g) Education, culture, awareness-raising and outreach: highlighting the importance of the ocean, in all its dimensions, into the school curricula; publicizing the importance of maritime activities to society in centres, aquariums, oceanariums and sea-related museums; promoting environmental education and encouraging naval and nautical education; and enhancing the underwater cultural heritage;
- h) Tourism, leisure, sport and recreational sailing: promoting the ocean as a distinguishing factor in the universe of tourist attractions and stimulating sea-related activities that provide leisure, recreational and sporting activities, developing conditions for easy and natural access to the sea; promoting nautical and oceanic tourism through the organization of prestigious international sporting events, such as sailing, rowing, canoeing, boating, diving and bird- and whale-watching; encouraging fishing-related tourism; making the most of the major classified natural areas along our coasts, where the Autonomous Regions of the Azores and Madeira play an important role in the promotion of ecotourism; developing cruise ship tourism, which is expanding rapidly in this country;
- i) Foreign policy: promoting the central position of Portugal in the Atlantic and reinforcing international relations with other continents, particularly in the transatlantic context and with the community of Portuguese-speaking countries, affirming Portugal as one of the maritime nations of Europe and defending our national interests and objectives in all relevant international fora.

A set of three actions that should be given priority was identified. Given the demands of the present international policy context and the need for internal organization to deal with maritime issues, these actions should be implemented immediately.

These actions aim at the establishment of a coordinating structure and will allow a response to the 17th Constitutional Government Program, which seeks to “promote the coordination, at Government level, of all sea-related areas under the control of

different authorities”. This is the best way to respond to the challenges ahead in an efficient manner.

Eight structural actions that materialize the three strategic pillars were also defined. The measures associated with these structural actions shall be implemented immediately although some of them might only produce results in the medium/long term, given their complexity and their intersectoral nature.

These measures, and any others considered relevant, will be the target of specific action plans promoted by the future coordinating structure, that shall define the main agents and stakeholders involved and their roles, the financial funds and their sources, and the indicators to use in the evaluation procedures.

A—PRIORITY ACTIONS

The steps to ensure the effective coordination of maritime affairs and to respond to the challenges of the international political agenda are expressed in three priority actions, to which Portugal must respond immediately. These actions will make it possible to monitor the on going processes and to consolidate the bases for the implementation of the National Ocean Strategy.

1. To create a coordinating structure for the implementation of the National Ocean Strategy, based in the articulation and participation of all stakeholders, and on the accountability of the relevant sectoral policies. This strategy is to be applied nationwide, recognizing the ocean as a relevant factor for national cohesion and identity. The Autonomous Regions of Madeira and the Azores are of great importance to the national ocean policy due to of their geo-strategic position, their accumulated knowledge and their potential for the development of significant economic activities.

In view of the present context, the coordination mechanism to be adopted will be based on the creation of an Interministerial Commission for Maritime Affairs (ICMA), consisting of all ministries with authority in maritime issues and the Autonomous Regions, with a flexible structure and a mandate that allows it to effectively implement this strategy.

The main tasks of this interministerial commission are:

- a) To coordinate, monitor and evaluate the implementation of the National Ocean Strategy with other cross-cutting strategies, planning instruments and programs;
- b) To contribute to the coordination, implementation and monitoring of Government-approved cross-cutting actions, measures and policies related to maritime affairs;
- c) To promote the participation in international fora on maritime affairs and the coherence of the Portuguese positions in those fora, in support to the Ministry of Foreign Affairs;
- d) To promote favourable conditions for the attraction of private investment to sea-related activities, in coordination with the competent bodies, making it possible to develop a strong and modern maritime policy, that makes a wise use of the country's resources and assets;
- e) To stimulate the participation of public and private institutions, governmental and non-governmental organizations, and civil society in the implementation of the National Ocean Strategy.

According to what was established in the 17th Constitutional Government Program, a Permanent Forum for Maritime Affairs, open to all civil society actors, will be created. This top-priority action involves the adoption of the following measures:

- a) Creation of the Interministerial Commission for Maritime Affairs;
- b) Definition of an information management model and the establishment of the Permanent Forum for Maritime Affairs.

2. *To improve the coordination and articulation of national positions in the various international fora regarding maritime affairs.* This is a central action designed to affirm Portugal as a country that consistently defends its interests and objectives and assumes a leadership position on international dossiers relating to maritime affairs.

It is essential that the coordinating structure to be created supports the Ministry of Foreign Affairs, by making an effective contribution to the preparation of the Portuguese positions to be presented in the various international fora,

maximizing the articulation and coherence of Portugal's action.

To do so, it is necessary to identify the main international fora relevant to the Oceans Agenda, having in consideration Portugal's specific interests, and to define those fora that should be permanently monitored. This work requires the active involvement and participation of all authorities with technical competence in the various areas of maritime affairs.

This top-priority action involves the adoption of the following measures:

- a) To identify the national delegates to the various international fora and the systems of appointment, communication, validation and transmission of information and to define those fora that should be permanently followed, with particular emphasis to the United Nations and the European Union;
- b) To identify and evaluate the set of technical, diplomatic and political skills and competences that are needed to assure an effective representation of Portugal in the various ocean fora;
- c) To promote and monitor preparatory meetings with the authorities involved, backing the Ministry of Foreign Affairs, for the coordination of Portuguese positions in the international fora;
- d) To create an appropriate information processing system, through the implementation of rapid and efficient information archiving, communication and circulation schemes.

3. *The technical, diplomatic and political follow-up of the public discussion on the Green Paper of the European Maritime Policy and its further steps,* during which it is essential to mobilize the country and evaluate the opportunities, threats, advantages and disadvantages of that policy, in order to guarantee that Portugal remains at the forefront of the new European approach to maritime affairs, through an informed, effective and comprehensive participation.

The end of the Green Paper of the European Maritime Policy discussion period coincides with the start of the Portuguese Presidency of the European Union. This policy will be central to the Portuguese Presidency, thus making it possible to achieve and maintain a position of leadership in the European maritime affairs.

The discussions to be held after the presentation of the Green Paper and the follow-up process, possibly leading to a White Paper or action plan, clearly justify the inclusion of the maritime policy as one of the subjects to be given priority and will require constant and efficient monitoring of progress of this European policy over the next years.

This top-priority action involves the adoption of the following measures:

- a) Cooperation with the Ministry of Foreign Affairs and the involvement of all authorities, the Autonomous Regions, civil society, non-governmental organizations, regional and local agencies in the discussion of the Green Paper and in the preparation of a future action plan, enabling Portugal to assume a leadership position in the next steps of the European maritime policy;
- b) Promotion of events, debates and workshops about the lines of action of the European maritime policy;
- c) Promotion of awareness-raising of Portugal's particular characteristics in the European context, the specificities of the Portuguese regions as centres for the development of maritime policies and the peculiarities of the EU's ultra-peripheral regions, such as the archipelagos of Madeira and the Azores.

B—STRATEGIC ACTIONS

Given the cross-cutting nature of the National Ocean Strategy, a set of eight strategic actions materialized by transversal measures intended to create favourable conditions for the sustainable use of the ocean, were identified.

The implementation of these strategic actions, in articulation with other national strategies, will make it possible to put into operation the strategic pillars, adding value to on going actions and contributing to the central objective of defining the ocean as a “national project”.

The eight strategic actions are:

- a) To mobilize and raise awareness of society of the importance of the ocean. One of the main difficulties associated with the implementation

of a National Ocean Strategy is the lack of visibility of maritime affairs in Portuguese society. Although the glories of the past are certainly present in our culture, the truth is that few citizens look at the ocean as a life, investment, or business opportunity. To achieve that goal it is necessary to invest in medium- and long-term measures that provide a way of increasingly mobilizing society to the importance of the ocean as a development factor and also to encourage continuous actions with a major immediate impact, accelerating the proximity between the Portuguese and the sea. Without a mobilization capable of turning the ocean into a national project, it will be difficult for this strategy to effectively achieve its objectives;

- b) It is also necessary to encourage education and outreach programs aimed at the divulgence of ocean-related activities in schools, promoting the diffusion of “the ocean” topic at all levels of education. This will include the promotion of nautical sports as part of the sports curriculum in schools, the involvement of basic and secondary education students in sea-related jobs and activities and professional and advanced training courses in these areas;
- c) The unique conditions that our country presents in the European context require the promotion of Portugal as a centre of excellence in ocean sciences, through the optimization of existing resources and the investment in the training and attraction of highly qualified human resources, and the creation of infrastructures that will make it possible to achieve this important project;
- d) The main tools for promotion of ocean-related economic activities are marine spatial planning and integrated coastal zone management. To do so, the mapping of current and future activities and the implementation of simplification procedures that foster the maritime economy need to be developed, safeguarding environmental sustainability and allowing to identify opportunities for new uses and to promote the coordination of the monitoring, surveillance, control, security and national defense systems;
- e) It is also necessary to protect Portugal's valuable natural marine heritage through: a knowledge and evaluation of marine biodiversity and the assessment of geological, archaeological, aesthetic and historical values; the implementation

- of a national network of marine protected areas; the restoration of damaged ecosystems and the marine environment monitoring; the implementation of sustainable procedures for the management of living resources; and research and preservation of our underwater cultural heritage;
- f) A strong and sustained maritime economy is only possible if the mechanisms that enable investors to support maritime activities are created. To do so it is essential to provide credible up-to-date information that can be used to enhance the economic and social development of the country. It is also necessary to promote the definition of rapid, transparent and investment-friendly mechanisms for the creation and attraction of maritime industries and the exploitation of existing natural resources;
 - g) There is a set of new ocean-related activities in which Portugal is in an exceptionally good position to develop. These include, among others, offshore aquaculture, blue biotechnology, renewable energy and underwater robotics. Thus, it is important to promote favourable conditions for the installation of those industries and activities in this country, fostering their economic and

technological potential and projecting into the future the benefits of that investment;

- h) Finally, no National Ocean Strategy can be effectively implemented without an efficient integrated system of surveillance, security and national defense, holding the resources to provide an effective and articulated system of maritime surveillance, protection against natural risks and prevention of pollution, terrorism, drug- trafficking and other illegal activities.

These measures, and any others that may come to be considered relevant, will be developed through specific action plans where the main stakeholders and their roles, the financial resources to be mobilized and their sources, and the evaluation indicators are identified. These action plans will be developed by the competent authorities and coordinated by the Interministerial Commission for Maritime Affairs.

The following Annex contains a table setting out the eight strategic actions, a set of associated measures and their relation with the three strategic pillars of this *National Ocean Strategy*.

ANNEX

STRATEGIC ACTIONS

Pillars: A—Knowledge; B— Spatial planning;

C—Promotion and defense of national interests and objectives

Strategic Actions	Measures	Pillars		
		A	B	C
Awareness raising and mobilization of society to the importance of the ocean.	Adopt the ocean as a distinguishing developmental factor for the country.	x		x
	Ongoing promotion of media publicity for maritime activities, to reach Portuguese society.	x		x
	Promotion of environmental education.	x		
	Promotion of maritime sports.	x	x	
	Preservation and adequate exploitation of the underwater archaeological and historical cultural heritage, fostering the study of social and cultural aspects of ocean-related activities, and the preservation of relevant historical, archaeological and cultural evidence in specialized museums.	x		x
	Promotion of prestigious international sea and ocean-related sports events in Portugal.			x
	Promotion of sea-related activities within the framework of the Community of Portuguese Speaking Countries, which increase cooperation, contributing to the International Agenda for the Oceans.	x		x
Promotion of education and outreach programs of ocean-related activities in schools.	Implement integrated education and outreach programs in schools on the various aspects ocean issues: historical, cultural, social, economic, scientific and environmental.	x		
	Promotion of professional training courses in secondary education, oriented towards ocean-related activities.	x		
	Promotion of the various aspects of maritime activities in university courses in top-priority areas for the country.	x		
	Encouraging the teaching of sailing, swimming, rowing and other nautical sports and activities in schools, in partnership with clubs and municipalities.	x	x	
	Developing study programs for young people to visit companies and corporations of the maritime sector as a way of raising their awareness and promoting those jobs.	x		
	Developing life long learning and training programs in maritime activities	x		

Strategic Actions	Measures	Pillars		
		A	B	C
Promotion of Portugal as a European centre of excellence in ocean sciences.	Promoting the definition of strategic lines of research in the public policies on maritime issues and reinforcing investment in ocean sciences.	x		x
	Promoting an articulated and coordinated involvement of public research institutions working in maritime issues on ocean and coastal zones research, optimizing the sharing of resources and information.	x	x	
	Create incentives for investment in suitable infrastructures and resources that match the strategic lines defined, to be shared by the research institutions.	x		
	Implement a network of State and associated laboratories, research units and centres in ocean sciences, allocating long-term funds and defining data supply protocols that feed the lines of action defined for the national ocean policy.	x		x
	Promote Portugal as a centre for deep-sea research in Europe, enhancing the existing natural conditions in the Autonomous Regions of the Azores and Madeira.	x		x
	Commitment to marine research in the areas of blue biotechnology and biodiversity.	x		
	Mapping biological, geological and mineral resources both in the ocean floor and subsoil and in the water column, contributing to a better knowledge of large marine ecosystems and to the definition of ecological regions.	x	x	x
	Study and safeguard of underwater archaeological assets, protecting them from dilapidation and degradation and supporting their research.	x	x	x
	Promoting the integration of existing databases, managing data and recovering historical information, promoting data access and sharing at national and international levels, contributing to the global ocean research and monitoring network.	x	x	
	Creation of mechanisms that encourage knowledge transfer from the State and associated laboratories, universities and research centres to companies and corporations, and promotion of scientific jobs in maritime areas.	x		
Spatial planning of maritime activities.	Mapping the use of ocean and coastal zones by different activities.	x	x	
	Promote spatial planning of existing activities, foreseeing potential and future uses and mapping out opportunities at local, regional and national levels.	x	x	
	Expedition and simplification of activity licensing procedures.	x	x	
	Coordination of security, monitoring, surveillance and control systems in maritime and coastal activities.	x	x	x

Strategic Actions	Measures	Pillars		
		A	B	C
Protection and restoration of marine ecosystems.	Promote the conservation, knowledge and adequate use of marine biodiversity.	x	x	x
	Establish a national network of marine protected areas and implement the "Natura 2000" network in the marine environment.	x	x	x
	Maintenance of habitats in a favourable state of conservation and recovery of damaged habitats; implementation of sustainable management measures for the exploitation of living resources; assuring an integrated management and environmental sustainability in the use of non-living marine resources; and monitoring the marine environment health.	x	x	x
Development of the maritime economy	Promote detailed studies of the current situation and the potential represented by the maritime economy and the associated cluster of activities, using data from the National Statistics Institute and other public and private institutions that deal with maritime affairs, adopting methods compatible with European standards.	x	x	x
	Creation of a maritime economy observatory, defining the group of activities to be monitored, methods and frequency of monitoring and data collection criteria, providing reliable information to support decisions.	x	x	x
	Enhancing the ocean as a distinguishing element in tourist offer, creating conditions for the best use of the ocean and coastal zones and supporting the quality and diversity of the range of tourist products.	x	x	x
	Promotion of the competitiveness of our national ports, investing in intermodality, the creation of logistical chains and the implementation of monitoring and procedure-simplifying instruments.		x	
Support for new forms of technology applied to maritime activities.	Creation of conditions for the installation, testing and development of emerging forms of technology with the potential to contribute to the sustainable development of maritime activities, such as renewable forms of energy, aquaculture, underwater robotics, instruments and sensors for the study of the ocean, blue biotechnology and genetic resources.	x	x	x
	Implementation of the maritime coastal traffic control system (VTS) and the international ship and port facility security code (ISPS).		x	x

Strategic Actions	Measures	Pillars		
		A	B	C
National defense, security, surveillance and protection of maritime zones under Portuguese sovereignty or jurisdiction.	Clarification, where necessary, of the competencies attributed to the different agencies dealing with maritime affairs, ensuring the effectiveness of the Maritime Authority System in that field.		x	x
	Coordinate existing resources held by the various agencies with competences attributed by the Maritime Authority System, optimizing their use and effectiveness.	x	x	x
	Identification of the main areas of risk; investing in the adequate resources to minimize those risks; and implementing a natural disaster observation and warning system.		x	x
	Safeguarding national interests in matters of national defense, security and surveillance in the international context.		x	x
	Conclusion of the extension of the Continental Shelf project	x	x	x

PRESIDENCY OF THE COUNCIL OF MINISTERS (PRIME MINISTER'S OFFICE)

COUNCIL OF MINISTERS RESOLUTION

NO. 40/2007

The National Marine Strategy, hereinafter abbreviated as the Strategy, adopted under Council of Ministers resolution No. 163/2006, 12th December, sets forth, as one of its main goals, the integration and coordination of cross-cutting policies related to marine affairs, in compliance with the goal laid down in the Programme of the XVII Constitutional Government to "promote the coordination, within government, of all matters pertaining to the sea which come under different regulatory bodies".

The first priority action under said Strategy thus reflects the need to set up a coordination facility to achieve linkages and the participation of all concerned, including a joint accountability requirement placed on the relevant sector policies. In this context, the coordination facility must be flexible, so as to secure sustained inter-ministerial links, adequate support and consultation on marine related cross-cutting policies and the proper implementation of the Strategy.

Another priority action calls for improved links and the coordination of national positions on marine related matters in various international fora to support of the Ministry of Foreign Affairs, and thus contribute to the effective preparation of Portuguese positions to be upheld in these fora, as well as mechanisms for disseminating decision making support information.

Finally, technical, diplomatic and political support to defining and implementing, within the European Union, marine policies is essential to Portugal, given her geo-strategic position, the natural conditions and the dimension of her maritime territory.

In this connection, this resolution provides for the introduction of said coordination facility, as well as redefined terms of the mandate and the composition of the Mission for Marine Affairs Facility (EMAM), to meet the new circumstances, following the attainment of full compliance with goals previously set by the Government in Council of Ministers Resolution No. 128/2005, 10th August which established said Mission.

Hence:

In pursuance of paragraph g), Article 199 of the Constitution, the Council of Ministers resolves to:

- 1** – Set up, under the National Ministry of Defence, the Inter-ministerial Marine Affairs Commission (CIAM), with, as permanent members, the Ministers of State and of Internal Administration, of State and of Foreign Affairs, of the Presidency, of the Environment, of Town and Country Planning and Regional Development, of the Economy and Innovation, of Agriculture, of Rural Development and Fisheries, of Public Works, Transport and Communications, of Education, of Science, Technology and Higher Education and of Culture, or their representatives, and by representatives of the Regional Governments of the Autonomous Regions of Madeira and the Azores.
- 2** – The CIAM may also include, on a non-permanent basis, representatives of other ministries, private entities and non-government organisations where deemed appropriate.
- 3** – Decides that the CIAM shall have the following goals:
 - a) Coordinate, support and evaluate the implementation of the National Marine Strategy, secure its links with other strategies, planning instruments

- and programmes of a clearly cross-cutting nature;
- b) Contribute to the coordination, implementation and support of government approved cross-cutting actions, measures and policies related to marine affairs;
 - c) Promote in conjunction with the Ministry of Foreign Affairs and with the ministries with relevant sector competences, participation in international fora related to marine matters, consistency in the positions upheld therein and the dissemination of decision making support information;
 - d) Urge the regulatory bodies to draft specific action plans in pursuance of the National Marine Strategy as well as other plans which are deemed relevant, wherein the main actors and their duties, the attendant financial resources and their origination, and the evaluation indicators to be employed shall be defined;
 - e) Promote conditions to attract private investment, in conjunction with other bodies with responsibilities in this area, for marine related activities that will lead to the development of a strong and modern marine economy, using the potential and the resources the country has to offer;
 - f) Set up a Standing Forum on Marine Affairs, open to all civil society, and promote, in this area, the establishment of a reflection and support group on marine affairs on which persons of recognised merit, non governmental organisations and private entities shall serve.
- 4** – Decide that the CIAM operating regulation shall be adopted by joint order of the members of the government listed in No.2 of this resolution.
- 5** – Decide that the CIAM shall be supported by the Marine Affairs Mission Facility (EMAM).
- 6** – Decide that the mandate of the EMAM shall be extended to 31st December 2009.
- 7** – Decide that the goals previously set for the EMAM, and now met, shall be redefined as follows:
- a) Discharge the executive duties in support of the president of the CIAM required for the coordination, support and evaluation of the implementation of the *National Marine Strategy* and of the cross-cutting measures and policies related to marine affairs adopted by the government;
 - b) Propose to the CIAM the promotion and the application of specific measures with a view to carrying out the actions set forth in the *National Marine Strategy*;
 - c) Prepare orders of business for consideration at CIAM meetings;
 - d) Submit to the CIAM opinions on legislative initiatives on marine affairs pertaining to actions and measures contained in the National Marine Strategy;
 - e) Support the CIAM in implementing and energizing the Standing Forum for Marine Affairs;
 - f) Draw up and submit annual progress reports to the CIAM.
- 8** – Decide that the EMAM shall consist of the following elements:
- a) A head of mission to lead the EMAM who shall command the remuneration of a central public administration grade 1 senior administrative official;
 - b) An assistant with advisory duties to the head of mission who shall command the remuneration of a central public administration grade 2 senior administrative official.
- 9** – Decide that the senior technical staff and assistant administrative career staff required to perform the mission shall be requisitioned by the Secretary-General of the Ministry of National Defence from amongst the staff of the services and bodies of the central or regional public administration on a proposal from the head of mission.
- 10** – Decide that the head of mission shall have the following powers:
- a) Represent the Mission Facility to institutions;
 - b) Develop, coordinate and support the work of the Mission Facility;
 - c) Authorize necessary current expenditure of the Mission Facility;
 - d) Promote hearings of any public or private entities deemed useful in achieving its goals and, in particular, the ministerial departments competent in the relevant area;
 - e) Carry out all the acts needed to achieve the aforementioned goals and actions that fall within its competence and, for this purpose, avail itself of the prompt assistance and cooperation of indirect and direct state administration services and bodies ;
 - f) Provide the secretariat for CIAM meetings.

11 – Establish that the personnel of the EMAM, in accordance with the composition set forth in No. 8 of this resolution, shall be appointed and dismissed by order of the Minister of National Defence.

12 – Establish that the Secretary-General of the Ministry of National Defence shall provide logistical and financial support to the EMAM operations.

13 – Determine that the budgetary expenditures stemming from the operations and the redefinition of the EMAM mandate shall be funded out of the Ministry of National Defence budget.

Presidency of the Council of Ministers (Prime Minister's Office), 8th February 2007 – *Prime Minister, José Socrates Carvalho Pinto de Sousa.*

National Ocean Policy of **THE RUSSIAN FEDERATION**

DATED: 27 July 2001

PURPOSE

Implementation of the Marine Policy Document should enable further reinforcement of Russia's position as a leading marine power and creation of favourable conditions for achieving the goals and fulfilling the missions of marine policy.

ADDITIONAL INFORMATION

Approved by the President of the Russian Federation, V. V. Putin, on No. Pr-1387. The Marine Policy Document of the Russian Federation (known as the "Marine Policy Document") is the fundamental document defining the State policy of the Russian Federation in the field of marine activity – the domestic marine policy of the Russian Federation.

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MARINE POLICY DOCUMENT OF THE RUSSIAN FEDERATION FOR THE PERIOD UP TO 2020

1. GENERAL PROVISIONS

Exploiting the expanses and resources of the world's oceans is one of the main aims of the development of the world's civilization in the third millennium. The essence of the domestic policy of the leading maritime powers and most States of the international community will, in the foreseeable future, consist of independent activity and cooperation in exploiting the world's oceans, as well as inevitable competition in that regard.

Historically, Russia has been a leading marine power, a consequence of its regional and geographical features, location and role in global and regional international relations. It has earned that status thanks to its geographical position bordering three oceans and the length of its maritime borders, as well as because of huge investment in study of the ocean, development of maritime shipping and many great discoveries by well-known Russian sailors and voyagers.

The Marine Policy Document of the Russian Federation (hereinafter known as the "Marine Policy Document") is the fundamental document defin-

ing the State policy of the Russian Federation in the field of marine activity – the domestic marine policy of the Russian Federation (hereinafter "domestic marine policy").

Marine activity is the activity of the Russian Federation in studying, exploiting and using the ocean in the interests of security and the sustainable economic and social development of the State (hereinafter known as "marine activity").

The legal basis of the Marine Policy Document is the Constitution of the Russian Federation, federal legislation and other regulations of the Russian Federation, the *United Nations Convention on the Law of the Sea* of 1982 and international agreements on marine activity and the use of the resources and space of the world's oceans.

The Marine Policy Document builds on the marine activity-related provisions of the National Security Guidelines of the Russian Federation, the Domestic Policy Guidelines of the Russian Federation, the Military Policy Document of the Russian Federation, the

Shipping Policy Guidelines of the Russian Federation, the Policy Foundations of the Russian Federation in the Field of Naval Activity for the Period up to 2010 and other regulations of the Russian Federation.

The whole of the forces and means of the State and the possibilities for their use in implementing domestic policy constitute the marine capacity of the Russian Federation. The foundation of the marine capacity of the Russian Federation are the Naval Forces, the coastguard agencies of the Federal Coastguards, the

non-defence sea fleet (hereinafter known as the "Russian Fleet"), as well as infrastructure which ensures their operation and development and the marine economic and naval activity of the State.

Implementation of the Marine Policy Document should enable further reinforcement of Russia's position as a leading marine power and creation of favourable conditions for achieving the goals and fulfilling the missions of marine policy.

2. OUTLINE OF DOMESTIC **MARINE POLICY**

Domestic marine policy is the definition by the State and society of goals, missions, targets and means of ensuring the national interests of the Russian Federation on the coast, in inland sea waters, in territorial waters, in the exclusive economic zone, on the continental shelf of the Russian Federation and the high seas.

The State and society act through the elements of domestic marine policy. The State implements domestic policy through the agencies of the State authorities of the Russian Federation and its constituent elements. Society participates in shaping and applying domestic marine policy through the representative bodies of the Russian Federation, local authorities and civil society organizations operating in accordance with the Constitution of Russian Federation and the legislation of the Russian Federation.

The main ways of implementing the elements of domestic marine policy are:

- Identifying the priorities of domestic marine policy in the short- and long-term perspective;
- Identifying the content of domestic marine policy;
- Managing the elements of marine capacity of the State and the economic and science Branches associated with marine activity;
- Creating favourable legal regulations and economic, information technology, science, staffing and other support for marine policy;
- Evaluating the effectiveness of domestic marine policy and its timely updating.

1. NATIONAL INTERESTS OF THE RUSSIAN FEDERATION IN THE WORLD'S OCEANS AND THE AIMS AND PRINCIPLES OF DOMESTIC MARINE POLICY

National interests of the Russian Federation in the world's oceans

The national interests of the Russian Federation in the world's oceans are a balance of the interests of individuals, society and the State as regards marine activity carried out on the basis of marine capacity of the State.

The following are associated with the national interests in the world's oceans:

- The inviolability of the sovereignty of the Russian Federation, regarding its inland sea waters, territorial waters and the airspace above them and the seabed and mineral wealth;
- Guarantee of the sovereign rights and the legal safeguarding of the Russian Federation carried out in the exclusive economic zone and on the continental shelf of the Russian Federation with a view to exploring, exploiting and conserving natural resources, both living and non-living found in the seabed and superjacent waters, management of those resources, production of energy using water, current and the wind, creation and use of artificial islands, installations and structures, marine research, protection and conservation of the marine environment;
- Freedom of the high seas, including freedom of maritime shipping, flights, fishing, scientific research and freedom to lay submarine cables and pipes;
- Safety of life at sea, preventing pollution of the marine environment, monitoring the functioning of vital sea lines of communication, creating

conditions conducive to maximizing the benefits of the maritime economic activity of the population of the Russian Federation, in particular in its coastal regions, as well as the activity of the State as a whole.

Aims of domestic marine policy

The aims of domestic marine policy consist of acting on and protecting the interests of the Russian Federation in the world's oceans and reinforcing the position of the Russian Federation among the leading maritime powers.

Some of the fundamental aims of domestic marine policy are as follows:

- Preserving sovereignty in inland sea waters, territorial waters, as well as in the airspace above them, the seabed and mineral resources therein;
- Ensuring jurisdiction and protection of sovereign rights in the exclusive economic zone to explore, exploit and conserve both living and non-living natural resources found in the seabed, below the seabed and in the superjacent waters, management of those resources, production of energy using water, current and the wind, creation and use of artificial islands, installations and structures, marine research, protection and conservation of the marine environment;
- Application and protection of the sovereign rights of the Russian Federation on the continental shelf as regards exploration and exploitation of its resources;
- Implementation and protection of the freedom of the high seas, including freedom of maritime shipping, flights, fishing and scientific research, and the freedom to lay submarine cables and pipes;
- Protection of the territory of the Russian Federation from marine conductors, protection and security of the national borders of the Russian Federation at sea and in the airspace above.

Principles of domestic marine policy

The fundamental general provisions, which govern the elements of domestic marine policy as it is formulated and applied, are related to the principles of domestic marine policy.

The principles of domestic marine policy are as follows:

- Compliance with generally recognized standards of international law and international agreements of the Russian Federation related to marine activity;
- The priority of political and diplomatic, economic, information technology and other non-military means of conflict resolution in the world's oceans and elimination of threats to the national security of the Russian Federation from the ocean and sea;
- Possession of the required naval capacity and its effective use where necessary to support by force the marine activity of the State;
- An integrated approach to marine activity as a whole, and its division into separate areas according to changes in the order of priority depending on the geopolitical situation;
- Support for the constituent marine capacity of the Russian Federation at a level which meets Russian national interests, including ensuring the presence of the Russian Navy in remote areas of the world's oceans and Russian research in the Antarctic;
- Cooperation and coordination of efforts to form and implement the domestic policy of the State authorities of the Russian Federation and of its constituent elements, local authorities and relevant civil society organizations operating in accordance with the Constitution of the Russian Federation and the legislation of the Russian Federation;
- Uniting efforts on and coordinating scientific research into the problems related to forming and implementing domestic marine policy;
- State monitoring of ships under the flag of the Russian Federation, State monitoring of ports, monitoring of the state and use of natural resources of inland sea waters, territorial seas, the exclusive economic zone and the continental shelf of the Russian Federation;
- Concentration of the efforts to build and develop the Russian Navy's infrastructure on the territory of the entities of the Russian Federation traditionally associated with seagoing and unification of that infrastructure for military and economic needs;
- Support for the Russian Navy in readiness to carry out the missions before it and the mobili-

- zation readiness of commercial, fishing, scientific research and other specialized fleets;
- Concentration of central and regional resources for the development of communication between the central and coastal parts of Russia, in particular its far-eastern and northern periphery, in the interests of further opening them up;
 - Carrying out of integrated marine scientific research in the interests of the Russian Federation, development of a system for monitoring the state of the marine natural environment and coastal territories;
 - Maintaining and improving the staff training system and teaching and educating young people;
 - Effective information campaign on the aims of domestic marine policy.

2. MISSIONS OF DOMESTIC MARINE POLICY

The missions of domestic marine policy are formulated according to the contents and the principles of domestic marine policy and aimed at achieving its goals.

The missions of domestic marine policy are formed and organized within the remit of the President of the Russian Federation, the Federal Assembly and the Government of the Russian Federation.

The goals of domestic marine policy are of a short- and long-term nature.

The short-term goals are determined according to the following:

- Geopolitical conditions and the military and political situation in the world;
- The socio-economic situation in the Russian Federation and its individual regions;
- Economic conditions on the world markets of maritime transport services, sea products, oil and gas and other resources extracted from the seabed and below;
- Scientific and technological advances;
- The efficiency of marine activity.

In addition, the outcome of the completion of the "World's Oceans" Special Programme is being taken into consideration. The programme was carried out on a permanent basis of analysis of the state and the development trends of the marine activity of the Russian Federation and in the world as a whole, together with systemic research in the area of ensuring the national security of the Russian Federation regarding the study, exploitation and use of the world's oceans.

The long-term missions consist of the contents of domestic marine policy in functional and regional fields and are set out in the present Marine Policy Document.

The missions of domestic marine policy are fulfilled by the federal organs of the executive authorities, the executive authorities of the constituent elements of the Russian Federation and local authorities through the organizations under their control and in the relevant field, as well as the relevant civil society organizations operating in accordance with the Constitution of the Russian Federation and the legislation of the Russian Federation.

3. CONTENTS OF DOMESTIC NATIONAL **MARINE POLICY**

The Russian Federation is implementing a gradual and consistent domestic marine policy by meeting short- and long-term goals consistent with operating and regional aims.

1. OPERATING AIMS OF DOMESTIC MARINE POLICY

These are the operational areas of marine activity, such as: the activity of the State and society in the field of shipping, exploitation and conservation of resources and the space of the world's oceans, marine science, naval and other areas of marine activity.

Shipping

Shipping has the greatest significance for the Russian Federation, both in ensuring domestic shipping, in particular in the regions where maritime transport is the only form of transport, and in foreign economic activity. Shipping continues to play a decisive role in the survival of the regions of the far north and east.

The domestic shipping policy consists of implementing the provisions of the Shipping Policy Framework of the Russian Federation, the main aims of which are to support the fleet and coastal and port infrastructure at a level which guarantees the economic independence and national security of the State, to reduce shipping costs and increase the volume of foreign-trade and transit shipping through the country's territory.

For that to happen, the following long-term goals must be met:

- Forming a regulatory basis for marine activity which meets the standards of international law
- and corresponds with the interests of the Russian Federation;
- Ensuring the competitive advantage of maritime transport and creating conditions for attracting investment and rolling capital funds;
- Establishing the necessary conditions for sustainable renewal of the fleets under the control of Russian shipping companies and registered in the shipping records of the Russian Federation;
- Increasing Russian shipping companies' share of the overall volume of shipping of foreign-trade and transit freight;
- Modernizing the fleet, reducing the average age of ships, monitoring Russian shipping companies and building new ships which comply with international standards;
- Adding the task of building a fleet to the list of the State priority tasks and creating conditions which stimulate the building of a fleet in national businesses;
- Renewal of the transport fleet of basic-class ships, including for shipping containers and specialized freight, at a level at which it could be fully guaranteed to meet the needs of the country, taking into account the possible transfer of some ships to the Navy in time of mobilization;
- Maximizing the transport fleet for the delivery of goods to the Northern Territories through forecasting and in the light of navigational, hydrographical, hydrometeorological and other conditions;
- Maintaining the position of world leader in building and exploiting nuclear-powered icebreakers;
- Developing coastal and port infrastructure in the light of existing and long-range shipping, the state of freight centres and freight volume, and increasing the share of Russian ports in the processing of such freight;
- Increasing export of the services of national shipping companies and sea ports;
- Developing multimodal freight transport with

the involvement of maritime and other forms of transport through modern transport and logistical technologies;

- Improving shipping safety, labour force protection and protection of the environment from possible negative consequences of the marine activity, for example by establishing special licensing conditions and requirements;
- Governing the method for outsourcing vessels of Russian shipping companies to ensure that the mobilization requirements of the State are provided for by means of improving the regulatory framework.

Exploitation and conservation of the resources of the world's oceans

Exploitation and conservation of the resources of the ocean is a compulsory and necessary condition of conserving and extending the reserve of raw materials of the Russian Federation and of ensuring its economic and food independence.

(a) Maritime industrial fishing

The Russian Federation is one of the world's leading industrial fishing States. Fishing is of great significance to the commodity pool of the country and is one of the sources of employment for the inhabitants of most coastal regions. In the near future, the majority of fishing stock will be made up of the living resources of the exclusive economic zone of the Russian Federation.

In order for the Russian Federation to effectively exploit living marine resources and maintain its position among the leading maritime powers in industrial fishing, the following long-term goals are being met:

- Specialized research and monitoring of the living resources of the ocean;
- Optimizing fishing in the exclusive economic zone of the Russian Federation, strengthening State monitoring of fish catches and effective use of the fishing fleet, including through a system of monitoring based on modern telecommunications, surveillance and information processing;
- Optimizing the management of the fishing fleet on the basis of effective forecasting of the spatial and temporal distribution of living resources in

sea and ocean waters accessible for fishing;

- Developing sea-farming;
- Maintaining and increasing the volume of traditional fishing of living resources in the exclusive economic zones of other States;
- Widening the scope of research and returning to fishing in the open parts of the world's oceans with resource-saving integrated processing of raw materials at the site of the catch, and the creation of new technological processes and equipment for waste-free production;
- Revision of the method limiting the use of Russian water living resources on a free-of-charge basis;
- Creating conditions for preferential placing of orders for building fishing vessels in Russian shipyards and in the shipyards of those countries in whose economic zones the Russian fishing fleet operates, and introducing practices for settling arrears owed to the Russian Federation by buying goods and services from the debtor countries granting a licence to Russian fishing operators to fish in their economic zones;
- Conserving and developing State licensing for building new and selling second-hand vessels with a view to maintaining an optimal ratio between the number of craft and the size of the allowable catch, as well as systematically and effectively renewing the fishing fleet;
- Promoting the participation of the Russian Federation in the activities of international fishery organizations in connection with further development of international coordination processes, regulation through international fishing law and tightening the requirements for protecting and conserving the marine environment;
- Safeguarding the interests of the Russian Federation in exploiting fish stocks and their conservation in remote regions of the world's oceans, as well as adopting and ensuring strict compliance measures agreed with countries which border the sea, aimed at conserving the populations of valuable species of fish and other living resources in the Caspian Sea and the Sea of Azov.

(b) Exploitation of mineral and energy resources

The prospect of exhausting oil and gas reserves and other mineral resources in the continental area has required a change in direction of exploration and the exploitation of mineral resources on the con-

tinental shelf, and, ultimately, in the ocean depths and the deep-sea bed.

In the interests of maintaining and further extending the base of raw materials, creating a strategic reserve of stocks and ensuring long-term exploitation of the ocean's mineral and energy resources, the following long-term goals are being met:

- Studying the geological aspects and identifying the resource capacity of the continental shelf of the Russian Federation through State monitoring of the geological environment, as well as measuring physical fields above the seabed, mapping, boring and work lifting loads from the seabed;
- Exploiting the mineral and energy resources of the world's oceans;
- State monitoring and regulation of exploration and monitoring exploitable fossil fuel and mineral resources in the ocean, taking into account the defence interests of the State;
- Processing known fields and intensive prospecting of oil and natural gas on the continental shelf of the Russian Federation;
- Maintaining, on the continental shelf of the Russian Federation, detected stocks of mineral resources as a strategic reserve;
- Creating conditions and opportunities to explore and extract resources of the deep-water regions of the world's oceans (in the seabed and below), strengthening within the framework of the terms of reference of the International Seabed Authority the rights of the Russian Federation to prospect and exploit the resources of the seabed beyond coastal jurisdiction;
- Exploiting technologies for producing electrical energy by using ebb-and-flow phenomena, coastal winds and wind-generated waves, temperature gradients of the water, thermal energy and currents and thermal calorific value algal biomass;
- Developing new technical means and advanced technology for studying and exploiting the mineral resources of the world's oceans and continuing work on specialized shipbuilding.

Improving scientific work

The application and protection of the national interests of the Russian Federation in the field of marine

activity are ensured by the achievements of national marine science, pure and applied research and prospecting related to marine activity in the ocean.

The long-term goals in this area are conserving and developing scientific facilities for building a Russian fleet, researching the marine environment, the resources and the expanses of the world's oceans, developing the scientific research and Lotzmeister fleets, ensuring the production of maritime navigation, geophysical, fishing and other specialized maps and sailing directions for every region of the ocean, creating a federal fund of marine cartography and a database of maps in electronic and digital form, and rehabilitating facilities for the production of national oceanographic and hydrometeorological instruments.

Achievement of the given goals is ensured by continuing scientific research into:

- The continental shelf, exclusive economic zone, territorial seas and the inland seas of the Russian Federation;
- The living marine resources and dynamics of the ecosystem of the world's oceans and the inland seas of the Russian Federation;
- The problems of the hydrometeorological, navigational and hydrographical, search-and-rescue and information technology support for the activity of the Russian fleet;
- Hydrometeorological phenomena in the coastal waters of the Russian Federation and the remote areas of the world's oceans;
- The influence of the ocean on the planet's ecosystem;
- The natural environment and the global processes occurring in the world's oceans and related areas;
- The formation of continental platforms and rises, underwater canyons, mountains, rift valleys and the seabed of the ocean;
- Problems related to building vessels, shipbuilding, maritime instrument manufacturing and development of the infrastructure of the Russian fleet;
- Economic, political and legal problems in exploiting the expanses and resources of the world's oceans;
- Problems related to building, developing and exploiting the Naval Fleet and other areas of naval science;

- Principles and methods aimed at reducing ecological pressure in the waters of the ocean and the inland seas of the Russian Federation.

Carrying out naval activities

The naval activity of the Russian Federation is the activity of the State in studying, exploring and exploiting the world's ocean in the interests of the country's defence and security with the involvement of the military elements of its marine capacity (the Navy and the Sea Border Police of the Russian Federation).

The main goals, principles and priority areas of the naval activities of the Russian Federation are set out in the Policy Foundations on Naval Activity of the Russian Federation for the period up until 2010, approved by the President.

Naval activity related to the protection and guarantee of the national interests of the Russian Federation in the world's oceans is one of the categories of the above-listed State priorities.

Response to the challenge of warding off threats and guaranteeing the national interests and security of the Russian Federation and its allies on the world's oceans is based on supporting a sufficient naval capacity for the Russian Federation.

The Navy is one of the main elements and foundations of the marine capacity of the Russian Federation, one of the instruments of the State's foreign policy, and is charged with defending the interests of the Russian Federation and its allies in the world's oceans by military methods, upholding the military and political stability in the seas belonging to the Russian Federation and military security from a marine and ocean point of view.

The Navy deters the use of military force and threats to use force with regard to the Russian Federation, defends by military means the sovereignty of the Russian Federation extending beyond the borders of its land territory to inland seas, territorial seas and the sovereign rights to the exclusive economic zone and to the continental shelf, as well as the freedom of the high seas. In addition, the Navy creates and support conditions for guaranteeing the safety of the fishing activity of the

Russian Federation in the world's oceans, ensures the military presence of the Russian Federation in the world's oceans, displays the flag and military strength, provides visits of the ships and vessels of the Navy, and participates in military, peacekeeping and humanitarian actions of the world community corresponding to the interests of the Russian Federation.

The regionally deployed strategic alliance of the Navy – the Northern, Pacific, Baltic and Black Sea fleets, as well as the Caspian Sea flotilla – is a powerful basis for meeting the goals of domestic marine policy in the relevant regional areas.

The quantitative and qualitative composition of the fleets and the flotilla is supported to a level appropriate for the threats to the security of the Russian Federation in specific regional areas, and they are provided with independent infrastructures for deployment, shipbuilding and ship repair.

To meet the goals of the defence and surveillance of the borders of the Russian Federation at sea, the following are envisaged:

- Guarantee that moral and physical persons comply with State border regulations and the frontier regime;
- Guarding of the inland seas, territorial seas, the exclusive economic zone and the continental shelf of the Russian Federation and their natural resources;
- Performance of the Russian Federation Border Police's mission to coordinate the activity of the federal executive authorities in guarding the inland seas, territorial waters, the exclusive economic zone and the continental shelf of the Russian Federation and their natural resources;
- Monitoring of the activity of the ships of foreign States in inland seas, territorial seas, the exclusive economic zone and on the continental shelf of the Russian Federation;
- Implementation of bilateral and multilateral agreements between States through the extension of confidence-building measures in border zones, exchange of information on illegal migration and suppression of the illegal arms, explosives and drugs trades.

2. REGIONAL AIMS OF DOMESTIC MARINE POLICY

These concern areas of marine activity linked to the specific characteristics of the separate regions of the Russian Federation and the world, which include a number of highly significant territories and waters for the Russian Federation, as well as associated general geo-physical, geo-economic, politico-economic or geo-military characteristics.

The following are some of the main regions for the domestic marine policy of the Russian Federation: the Atlantic, Arctic, Pacific, Caspian and Indian Ocean areas. Domestic marine policy is built around the specific characteristics of those areas.

Atlantic region

Domestic marine policy in the Atlantic region is characterized by heightened economic, political and military pressure from the NATO-bloc countries, their advance eastwards and a sharp reduction in opportunities for the Russian Federation to carry out its marine activity.

In the Baltic Sea:

- Developing coastal and port infrastructure and renewing commercial marine and other (fluvio-marine) sailing fleets;
- Establishing conditions for a stable economic partnership with the Baltic countries, rational joint use of marine natural resources and the inclusion of comprehensive confidence-building measures in all areas of marine activity;
- Settling issues connected to the delimitation of maritime space and the continental shelf between the Russian Federation, adjacent and opposite States;
- Ensuring the economic and military security of the Kaliningrad province of the Russian Federation and developing shipping channels;
- Creating conditions including and with the involvement of the region's capacities for deployment and use of existing marine capacity, and ensuring the protection of the sovereignty and the sovereign and international rights of the Russian Federation in the Baltic.

In the Black Sea and the Sea of Azov:

- Renewing commercial marine and other (fluvio-marine) sailing fleets and modernizing and developing coastal and port infrastructures;
- Improving the legal basis for the operations of the Black Sea fleet of the Russian Federation in the territory of Ukraine and maintaining Sevastopol as its main base;
- Creating conditions including and with the involvement of the region's capacities for deployment and use of existing marine capacity, and ensuring the protection of the sovereignty and the sovereign and international rights of the Russian Federation in the Black Sea and the Sea of Azov;
- Developing passenger transportation from the Krasnodar regional ports to Mediterranean countries, as well as internal Black Sea ferry transport.

In the Mediterranean:

- Implementing a targeted policy for turning it into a zone of military and political stability and good neighbourliness;
- Ensuring a sufficient naval presence of the Russian Federation in the region.

In the Atlantic Ocean, the aim is to develop and build up the volume of fishing, shipping, scientific research and monitoring of the marine environment.

Domestic marine policy in the Atlantic region is necessarily linked to the domestic marine policy in the Arctic region.

Arctic region

Domestic marine policy in the Arctic region is determined by the particular importance of ensuring the free passage of the Russian fleet to the Atlantic, the wealth of the exclusive economic zone and the continental shelf of the Russian Federation, the decisive role of the Northern fleet for the defence of the State from a marine and ocean point of view, as well as the growing significance of the Northern Sea Route to the sustainable development of the Russian Federation.

Domestic marine policy in the region is based on creating conditions for the activity of the Russian fleet in the Barents Sea, the White Sea and other Arctic seas, along the Northern Sea Route and in the northern part of the Atlantic.

In addition, the following long-term goals are being tackled:

- Researching and exploring the Arctic with a view to developing the export sector of the economy and resolving social problems as a priority;
- Protecting the interests of the Russian Federation in the Arctic;
- Creating ice-class vessels for shipping, specialized fishing boats and scientific research and other fleets;
- Taking into consideration the defence interests of the State in prospecting for and exploiting reserves of bioresources and mineral raw materials in the exclusive economic zone and on the continental shelf of the Russian Federation;
- Creating conditions including and with the involvement of the region's capacities for deployment and use of existing marine capacity, and ensuring the protection of the sovereignty and the sovereign and international rights of the Russian Federation in the Arctic region;
- Restricting foreign naval activity in agreed areas and zones in accordance with bilateral and multilateral agreements with leading maritime powers;
- Safeguarding the national interests of the Russian Federation as regards the Northern Sea Route and ensuring centralized State management of this transport system, ice-breaking services and equal access for the relevant transporters, including foreign transporters;
- Renewing and safely exploiting the nuclear-powered ice-breaking fleet;
- Maintaining the interests of the Russian Federation in the delimitation of maritime space and the seabed of the Arctic Ocean with the surrounding States;
- Consolidating the efforts and resources of the federal centre and the constituents of the Russian Federation in developing the Arctic navigation, sea and river estuary ports and delivering goods to the Northern Territories, as well as consolidating the information systems which safeguard this activity.

Pacific region

The significance of the Pacific coast for the Russian Federation is great and continuing to grow. The Russian Far East has colossal resources, in particular in the exclusive economic zone and on the continental shelf; it is, however, sparsely populated and relatively isolated from the industrially developed regions of the Russian Federation. These contradictions are compounded by the intensive economic and military development of the neighbouring States of the Asia-Pacific region which is having a very real impact on economic, demographic and other processes in the region.

Domestic marine policy in the Pacific region is based on meeting long-term goals in the Sea of Japan, the Sea of Okhotsk and the Bering Sea, in the north-western Pacific and the eastern Arctic along the Northern Sea Route. For example:

- Accelerating socio-economic development in the Russian Far East on the basis of the marine activity of the Russian Federation;
- Boosting shipping in connection with the growing participation of the Russian Far East in division of labour in the Asia-Pacific region;
- Intensifying prospecting for and exploitation of living marine resources and mineral raw materials in the exclusive economic zones and on the continental shelves of the Russian Federation and of the States of South-East Asia in accordance with agreements made;
- Creating conditions including and with the involvement of the region's capacities for deployment and use of existing marine capacity, and ensuring the protection of the sovereignty and the sovereign and international rights of the Russian Federation in the Pacific region;
- Developing coastal and port infrastructure and the Russian fleet in the Far East, especially on the islands of Sakhalin and Kurile;
- Concluding intergovernmental agreements on restricting military activity in agreed areas and zones;
- Boosting cooperation with the countries of the Asia-Pacific region in ensuring the safety of maritime traffic, the fight against piracy, drug-dealing and contraband, as well as helping vessels in distress and life-saving at sea;

**OF THE RUSSIAN
FEDERATION**

- Making more effective use of existing transport infrastructures in the region for attracting to the main Trans-Siberian line transit shipping which is going from South-East Asia and the United States of America to Europe and other countries, and implementing measures aimed at maximizing the exploitation of national freight bases in this region.
- Preventing the Russian fleet from being supplanted within the market of maritime transport services;
- Organizing ferry transport as a part of intermodal transport with passages to outlets in the Mediterranean basin and the Baltic Sea;
- Developing, rehabilitating and specializing existing ports.

Caspian region

The Caspian region has unique mineral and biological resources in terms of volume and quality. In this region the following long-term goals are being met:

- Identifying the benefits for the Russian Federation of the international legal regulations of the Caspian Sea, as well as a way of exploiting fish stocks and oil and gas deposits;
- Jointly working with coastal States to conserve the marine environment;
- Creating conditions including and with the involvement of the capacities of the constituents of the Russian Federation for deployment and use of existing marine capacity;
- Renewing commercial marine and other (fluvio-marine) sailing fleets;

Indian Ocean region

Domestic marine policy in the Indian Ocean region provides for meeting the following long-term goals:

- Extending Russian transport and industrial fishing traffic and working jointly with other States to protect it from piracy;
- Carrying out scientific research in Antarctica as a major element of implementing State policy aimed at maintaining and strengthening the position of Russia in this region;
- Carrying out a targeted policy to turn the Indian Ocean into a zone of peace, stability and good neighbourliness and ensuring the regular military presence of the Russian Federation in the Indian Ocean.

4. APPLICATION OF DOMESTIC **MARINE POLICY**

1. ADMINISTRATION OF MARINE ACTIVITY

Administration as regards the formulation and application of domestic marine policy consists of identification by the State authorities of the Russian Federation and the State authorities of the constituents of the Russian Federation of priority tasks and the contents of domestic marine policy in the short- and long-term, of managing the State's existing marine capacity and the economic and scientific sectors related to marine activity in the context of planning such activity and of building a Russian fleet.

The President of the Russian Federation identifies the priority tasks and contents of domestic marine policy in the short- and long-term, adopts measures safeguarding the sovereignty of the Russian Federation in the world's oceans, protects and implements the interests of the individual, society and the State as regards marine activity in accordance with the constitutional authorities, and directs domestic marine policy.

The Federal Assembly of the Russian Federation undertakes, within the remit of its constitutional powers, legislative activity on implementing domestic marine policy.

The Government of the Russian Federation, through the federal organs of executive authority and the Naval College provides leadership in carrying out the missions of domestic marine policy.

The Security Council of the Russian Federation, as a constitutional body attached to the President of the Russian Federation, detects threats, identifies the vitally important interests of society and the State and elaborates the basic aims of the security strategy of the Russian Federation in the world's oceans. The Federal executive authorities, working together, manage, within the limits of their competence, the marine activity of the Russian Federation.

2. ECONOMIC PROVISION

To successfully implement domestic marine policy, economic support for the marine activity of the Russian Federation is crucial, which includes:

- Integrated use of economic management capacities; regulation of monetary arrangements, conclusion of State contracts, optimization of tax, antimonopoly and customs regulations and provision of differentiated State aid;
- Formation of favourable conditions for attracting extrabudgetary sources of funding, including foreign investors, pursuant to improving the regulatory basis and targeted State support for investment projects;
- Creation of conditions for redirecting the supply of fishery produce to the domestic market;
- Effective development and placement of the elements of marine capacity of the Russian Federation in the regions;
- Prioritized use of the resources of the Federal budget and the budgets of the constituents of the Russian Federation on the territories in which the Russian fleet is located and guarantee of their effective expenditure;
- Creation of conditions to attract labour to the coastal regions of the Russian Federation which have unfavourable natural and climate conditions;
- Strategic reorganization of important but ineffectively functioning shipping companies and organization of their fleet;
- Restriction of foreign capital access to the specific types of marine activity which have an impact on the national security of the Russian Federation;
- Support of science-driven, energy- and resource-saving technologies in research, exploitation and use of the space and resources of the world's oceans;
- Guaranteed release of the necessary sums of allocations needed for implementing State pro-

grammes for building and developing the military component of the marine capacity of the Russian Federation;

- Creation of conditions which increase the competitive ability of the Russian fleet, ports and industrial sectors in order to ensure their functioning;
- State support for marine educational establishments and organizations, the activity of which is connected with fulfilling the international obligations of the Russian Federation in training staff and ensuring the security of marine transport;
- State support for individual transport systems and State funding of expenditure on the maintenance, building and exploitation of icebreakers and ice-class transport vessels, primarily through atomic power plants and the creation of specialized systems for their deployment;
- State support for scientific research in the open parts of the world's oceans and the seas of Russia and creation of a single system of information on the condition of the ocean and new technological processes and equipment for wasteless production;
- Support and development for national orbital clusters of satellites for geological sounding of the Earth, navigation, communications and observation, systems for monitoring pollution of Russia's seas and terrestrial satellite-assisted information analysis centres;
- Safeguarding of the development of traditional marine sectors of the economy of minority peoples in coastal regions and the creation of a sustainable system for ensuring food products and goods for them.

3. ENSURING SAFETY OF MARINE ACTIVITY

Marine activity is implemented along with the necessary range of concrete security measures linked to the specific nature of water.

Marine activity security includes safety for marine traffic, search and rescue at sea and protection and conservation of the marine environment.

Marine traffic safety is ensured by:

- Rigorous compliance with the relevant standards of international law and Russian legislation;
- Maintenance, improvement and development of the means of navigational and hydrographical

and hydrometeorological support and the creation of a single State hydrographical service in the Russian Federation;

- Monitoring by the State that class requirements for the technical state and suitability of vessels are upheld, that those vessels are comprehensively equipped and that crews are provisioned, trained and licensed;
- Operative dissemination to seafarers of necessary information.

To ensure search and rescue at sea, it is necessary to:

- Improve the existing system of search and rescue for people at sea on the basis of cooperation between the federal executive authorities which have under their control and their remit rescue forces and means, as well as to ensure State support for the development and functioning of this system;
- Develop international cooperation in search and rescue of persons at sea;
- Ensure the creation and the operation of a single State-wide surveillance system for locating Russian vessels and monitoring of the situation in the world's oceans.

The protection and conservation of the marine environment is being achieved by:

- Monitoring of the state of the marine environment and integrated measures for preventing and eliminating the consequences of its pollution and the implementation of measures to prevent oil spills related to exploration, extraction and transportation, as well as the building and rehabilitation of the inlet structures of ports for waste disposal and processing;
- Promotion of the creation and purchase of national equipment for preventing pollution and eliminating the consequences of pollution of the marine environment, as well as replenishment of the Russian fleet with specialized vessels for carrying out environmentally friendly work;
- Development of the infrastructure of the national nuclear-powered fleet, its safe exploitation and improvement of technology for recycling nuclear-powered vessels;
- The Russian Federation's fulfilment of its international obligations in the field, including as regards opportunities for international cooperation;

- Resolution of the conflict between the great quantity and intensity of extraction of oil and gas and other resources from the seabed and the need to conserve, propagate and extract the bioresources of the world's oceans.

4. STAFFING

Staffing of all forms of marine activity is of primary importance and is provided for by:

- Creating conditions for keeping and attracting qualified staff as shipboard personnel and marine activity managers;
- Maintaining and developing educational establishments specialized in all types of marine activity;
- Creating a training system for the management staff of the State authorities of the Russian Federation and the State authorities of the constituents of the Russian Federation in the field of marine activity;
- Strengthening Russian maritime traditions, extending the network of maritime children's schools and young sailor and triton clubs and viewing teaching in those schools and clubs as the first stage of training for service and work in the Russian fleet;

CONCLUSION

Implementing the provisions of the Marine Policy Document of the Russian Federation will facilitate the achievement of great efficiency in marine activity, the sustainable development of the State, the protection and guarantee of the national interests and security of the Russian Federation on the world's oceans and the reinforcement of the international standing of Russia.

The general criteria for an effective domestic marine policy are as follows:

- The scope of the implementation of short- and long-term tasks of domestic marine policy;
- The scope of the enjoyment of the sovereign rights in the exclusive economic zone and on

- Ensuring State support for maintaining and exploiting training ships and facilities of maritime-oriented educational establishments.

5. PROVISION OF INFORMATION

The provision of information support for marine activity primarily provides for the support and development of global information systems guaranteeing Russia marine activity, including systems of navigational hydrographical, hydrometeorological and other types of support, a single system of information on the state of the world's oceans and a single awareness-raising system on the surface and underwater situation established using the forces and means of the Ministry of Defence of the Russian Federation, the Federal Hydrometeorology and Environmental Monitoring Service of the Russian Federation and the other relevant federal executive authorities of the Russian Federation, with a view to the integrated and effective use of the systems, facilities and means of the various departmental subdivisions. The provision of information is a basis for decision-making in the field of marine activity at all levels.

the continental shelf of the Russian Federation and the freedom of the high seas by commercial, fishing, scientific research and other specialized fleets;

- The ability of the military elements of Russia's marine capacity (in cooperation with the Armed Forces of the Russian Federation, troops and military units) to ensure the protection of the interests and security of the Russian Federation.

By clearly stating its marine policy, the Russian Federation intends to decisively and resolutely strengthen its position as one of the leading maritime powers.

National Ocean Policy of **THE UNITED STATES OF AMERICA**

DATED: 2004

PURPOSE

To improve decision making, promote effective coordination, and move toward an ecosystem-based management approach.

While this framework is intended to produce strong, national leadership, it is also designed to support and enhance the critical roles of state, territorial, tribal, and local decision makers.

ADDITIONAL INFORMATION

The last comprehensive review of U.S. ocean policy was conducted in 1969 by the Stratton Commission, and it was called: "Our Nation and the Sea. A Plan for National Action" undertaken by the Commission on Marine Science, Engineering and Resources.

The US Congress passed the Oceans Act of 2000 (P.L. 106-256) to establish a commission to make recommendations for a coordinated and comprehensive national ocean policy. The Commission was called: "US Commission on Ocean Policy". The Commission began its work in September 2001 with a series of nine regional meetings and 18 additional site visits in every coastal region of the country and the Great Lakes.

On September 20, 2004, the Commission submitted its Final Report to the President and Congress, An Ocean Blueprint for the 21st Century.

On December 19, 2004, the Commission officially expired, as called for under the Oceans Act of 2000 (P.L. 106-256).

10

AN OCEAN BLUEPRINT FOR THE 21ST CENTURY

EXECUTIVE SUMMARY

America is a nation intrinsically connected to and immensely reliant on the ocean. All citizens—whether they reside in the country's farmlands or mountains, in its cities or along the coast—affect and are affected by the sea. Our grocery stores and restaurants are stocked with seafood and our docks are bustling with seaborne cargo. Millions of visitors annually flock to the nation's shores, creating jobs and contributing substantially to the U.S. economy through one of the country's largest and most rapidly growing economic sectors: tourism and recreation.

The offshore ocean area under U.S. jurisdiction is larger than its total land mass, providing a vast expanse for commerce, trade, energy and mineral resources, and a buffer for security. Born of the sea are clouds that bring life-sustaining water to our fields and aquifers, and drifting microscopic plants that generate much of the oxygen we breathe. Energy from beneath the seabed helps fuel our economy and sustain our high quality of life. The oceans host great biological diversity with vast medical potential and are a frontier for exciting exploration and effective education. The importance of our oceans, coasts, and Great Lakes cannot be overstated; they are critical to the very existence and wellbeing of the nation and its people. Yet, as the 21st century dawns, it is clear that these invaluable and life-sustaining assets are vulnerable to the activities of humans.

Human ingenuity and ever-improving technologies have enabled us to exploit—and significantly alter—the ocean's bounty to meet society's escalating needs. Pollution runs off the land, degrading coastal waters and harming marine life. Many fish populations are declining and some of our ocean's most majestic creatures have nearly disappeared. Along our coasts, habitats that are essential to fish and wildlife and provide valuable services to humanity continue to suffer significant losses. Non-native species are being introduced, both intentionally and accidentally, into distant areas, often resulting in significant economic costs, risks to human health, and ecological consequences that we are only beginning to comprehend.

Yet all is not lost. This is a moment of unprecedented opportunity. Today, as never before, we recognize the links among the land, air, oceans, and human activities. We have access to advanced technology and timely information on a wide variety of scales. We recognize the detrimental impacts wrought by human influences. The time has come for us to alter our course and set sail for a new vision for America, one in which the oceans, coasts, and Great Lakes are healthy and productive, and our use of their resources is both profitable and sustainable.

NATIONAL OCEAN POLICY
**OF THE UNITED STATES
OF AMERICA**

It has been thirty-five years since this nation's management of the oceans, coasts, and Great Lakes was comprehensively reviewed. In that time, significant changes have occurred in how we use marine assets and in our understanding of the consequences of our actions. This report

from the U.S. Commission on Ocean Policy provides a blueprint for change in the 21st century, with recommendations for creation of an effective national ocean policy that ensures sustainable use and protection of our oceans, coasts, and Great Lakes for today and far into the future.

THE VALUE OF OCEANS **AND COASTS**

America's oceans, coasts, and Great Lakes provide tremendous value to our economy. Based on estimates in 2000, ocean-related activities directly contributed more than \$117 billion to American prosperity and supported well over two million jobs. By including coastal activities, the numbers become even more impressive; more than \$1 trillion, or one-tenth of the nation's annual gross domestic product, is generated within the relatively narrow strip of land immediately adjacent to the coast that we call the nearshore zone. When the economies throughout coastal watershed counties are considered, the contribution swells to over \$4.5 trillion, fully half of the nation's gross domestic product, accounting for some 60 million jobs.

The United States uses the sea as a highway for transporting goods and people and as a source of energy and potentially lifesaving drugs. Annually, the nation's ports handle more than \$700 billion in merchandise, while the cruise industry and its passengers account for another \$12 billion in spending. More than thirteen million jobs are connected to maritime trade. With offshore oil and gas operations expanding into ever deeper waters, annual production is now valued at \$25–\$40 billion, and yearly bonus bid and royalty payments contribute approximately \$5 billion to the U.S. Treasury. Ocean exploration has also led to a growing and potentially multi-billion dollar industry in marine-based bioproducts and pharmaceuticals.

Fisheries are another important source of economic revenue and jobs and provide a critical supply of healthy protein. They also constitute an important cultural heritage for fishing communities. The commercial fishing industry's total annual value exceeds \$28 billion, with the recreational saltwater fishing industry valued at around \$20 billion, and the annual U.S. retail trade in ornamental fish worth another \$3 billion.

Every year, hundreds of millions of people visit America's coasts to enjoy the oceans, spending billions of dollars and directly supporting millions of jobs. Nationwide, retail expenditures on recreational boating alone exceeded \$30 billion in 2002. In fact, tourism and recreation is one of the nation's fastest-growing business sectors, enriching economies and supporting jobs in communities virtually everywhere along the shores of the United States and its territories. Over half of the U.S. population lives in coastal watersheds, and more than 37 million people and 19 million homes have been added to coastal areas during the last three decades, driving up real estate values and requiring ever greater support services.

These concrete, quantifiable contributions are just one measure of the value of the nation's oceans, coasts, and Great Lakes. There are many even more important attributes that cannot be given a price tag, such as global climate control, life support, cultural heritage, and the aesthetic value of the ocean with its intrinsic power to relax, rejuvenate, and inspire.

TROUBLE IN PARADISE

Unfortunately, our use and enjoyment of the ocean and its resources have come with costs, and we are only now discovering the full extent of the consequences of our actions. In 2001, 23 percent of the nation's estuarine areas were considered impaired for swimming, fishing, or supporting marine species. In 2003, there were more than 18,000 days of closings and advisories at ocean and Great Lakes beaches, most due to the presence of bacteria associated with fecal contamination. Across the globe, marine toxins afflict more than 90,000 people annually and are responsible for an estimated 62 percent of all seafood related illnesses. Harmful algal blooms appear to be occurring more frequently in our coastal waters and non-native species are increasingly invading marine ecosystems. Experts estimate that 25 to 30 percent of the world's major fish stocks are overexploited, and many U.S. fisheries are experiencing serious difficulties. Since the Pilgrims first arrived at Plymouth Rock, over half of our fresh and saltwater wetlands—more than 110 million acres—have been lost.

Coastal waters are one of the nation's greatest assets, yet they are being bombarded with pollutants from a variety of sources. While progress has been made in reducing point sources of pollution, nonpoint source pollution has increased and is the primary cause of nutrient enrichment, hypoxia, harmful algal blooms, toxic contamination, and other problems that plague coastal waters. Nonpoint source pollution occurs when rainfall and snowmelt wash pollutants such as fertilizers, pesticides, bacteria, viruses, pet waste, sediments, oil, chemicals, and litter into our rivers and coastal waters. Other pollutants, such as mercury and some organic chemicals can be carried vast distances through the atmosphere before settling into ocean waters.

Our failure to properly manage the human activities that affect the nation's oceans, coasts, and Great Lakes is compromising their ecological integrity, diminishing our ability to fully realize their potential, costing us jobs and revenue, threatening human health, and putting our future at risk.

THE WORK OF THE U.S. COMMISSION ON OCEAN POLICY

Congress clearly recognized both the promise of the oceans and the threats to them when it passed the Oceans Act of 2000, calling for establishment of a Commission on Ocean Policy to establish findings and develop recommendations for a coordinated and comprehensive national ocean policy. Pursuant to that Act, the President appointed sixteen Commission members drawn from diverse backgrounds, including individuals nominated by the leadership in the United States Senate and House of Representatives. The Commission held sixteen public meetings around the country and conducted eighteen regional site visits, receiving testimony, both oral and written, from hundreds of people. Overall, the Commission heard from some 447 witnesses, including over 275 invited presentations and an additional 172 comments from the public, resulting in nearly 1,900 pages of testimony.

The message from both experts and the public alike was clear: our oceans, coasts, and Great Lakes are in trouble and major changes are urgently needed in the way we manage them. The Commission learned about new scientific findings that demonstrate the complexity and interconnectedness of natural systems. It also confirmed that our management approaches have not been updated to reflect this complexity, with responsibilities remaining dispersed among a confusing array of agencies at the federal, state, and local levels. Managers, decision makers, and the public cried out for improved and timely access to reliable data and solid scientific information that have been translated into useful results and products.

Another steady theme heard around the country was the plea for additional federal support, citing decades of underinvestment in the study, exploration, protection, and management of our oceans, coasts, and Great Lakes. Finally, the point was made that we must enhance ocean-related education so that all citizens recognize the role of the oceans, coasts, and Great Lakes in their own lives and the impacts they themselves have on these environments.

Following extensive consideration, and deliberation of a broad array of potential solutions, the Commission presented a preliminary report in early 2004. Comments were solicited from state and territorial governors, tribal leaders, and the public; the response was overwhelming. Thoughtful, constructive feedback was received from thirty-seven governors (including 33 of the 34 coastal state governors), five tribal leaders, and a multitude of other organizations and individuals—over one thousand pages in all. Commenters were nearly unanimous in praising the report, agreeing that our oceans are in trouble, and supporting the call for action to rectify the situation. Where governors and others offered corrections or suggestions for improvement, the Commission paid close attention and made changes as needed.

This final report lays out the Commission's conclusions and detailed recommendations for reform—reform that needs to start now, while it is still possible to reverse distressing declines, seize exciting opportunities, and sustain the oceans and their valuable assets for future generations

A VISION AND STRATEGY FOR THE 21ST CENTURY AND BEYOND

The Commission began by envisioning a desirable future. In this future, the oceans, coasts, and Great Lakes are clean, safe, prospering, and sustainably managed. They contribute significantly to the economy, supporting multiple, beneficial uses such as food production, development of energy and mineral resources, recreation and tourism, transportation of goods and people, and the discovery of novel medicines, while preserving a high level of biodiversity and a wide range of critical natural habitats.

In this future, the coasts are attractive places to live, work, and play, with clean water and beaches, easy public access, sustainable and strong economies, safe bustling harbors and ports, adequate roads and services, and special protection for sensitive habitats and threatened species. Beach closings, toxic algal blooms, proliferation of invasive species, and vanishing native species are rare. Better land-use planning and improved predictions of severe weather and other natural hazards save lives and money.

In this future, the management of our impacts on the oceans, coasts, and Great Lakes has also changed. Management boundaries correspond with ecosystem regions, and policies consider interactions among all ecosystem components. In the face of scientific uncertainty, managers balance competing considerations and proceed with caution. Ocean governance is effective, participatory, and well coordinated among government agencies, the private sector, and the public.

The Commission envisions a time when the importance of reliable data and sound science is widely recognized and strong support is provided for physical, biological, social, and economic research, as well as ocean exploration. The nation invests

in the needed scientific tools and technologies, including ample, well-equipped surface and underwater research vessels, reliable, sustained satellites, state-of-the-art computing facilities, and innovative sensors that can withstand harsh ocean conditions. A widespread network of observing and monitoring stations provides a steady stream of data, and scientific findings are translated into practical information and products for decision makers, vessel operators, educators, and the public.

In this hoped-for future, better education is a cornerstone of national ocean policy, with the United States once again joining the top ranks in math, science, and technology achievement. An audacious program to explore unknown reaches of the ocean inspires and engages people of all ages. An ample, diverse, well-trained, and motivated workforce is available to study the oceans, set wise policies, develop and apply technological advances, and engineer new solutions. An effective team of educators works closely with scientists to learn and teach about the oceans—its value, beauty, and critical role on the planet. And, as a result of lifelong education, all citizens are better stewards of the nation's resources and marine environment.

Finally, the Commission's vision sees the United States as an exemplary leader and full partner globally, eagerly exchanging science, engineering, technology, and policy expertise with others, particularly those in developing countries, to facilitate the achievement of sustainable ocean management on an international level.

While progress has been made in a number of areas, the nation's existing system for managing our oceans, coasts, and Great Lakes is simply unable to effectively implement the appropriate guiding principles and realize a positive long-term vision.

The Commission recommends moving toward an ecosystem-based management approach by focusing on three cross-cutting themes: (1) a new, coordinated national ocean policy framework to improve decision making; (2) cutting edge ocean data and science translated into high-quality

information for managers; and (3) lifelong ocean-related education to create well-informed citizens with a strong stewardship ethic. These themes are woven throughout the report, appearing again and again in chapters dealing with a wide variety of ocean challenges.

A NEW NATIONAL **OCEAN POLICY FRAMEWORK**

To improve decision making, promote effective coordination, and move toward an ecosystem-based management approach, a new National Ocean Policy Framework is needed. While this framework is intended to produce strong, national leadership, it is also designed to support and enhance the critical roles of state, territorial, tribal, and local decision makers.

IMPROVED NATIONAL COORDINATION AND LEADERSHIP

At the federal level, eleven of fifteen cabinet-level departments and four independent agencies play important roles in the development of ocean and coastal policy. These agencies interact with one another and with state, territorial, tribal, and local authorities in sometimes haphazard ways. Improved communication and coordination would greatly enhance the effectiveness of the nation's ocean policy.

Within the Executive Office of the President, three entities have some responsibilities relevant to oceans: the Office of Science and Technology Policy addresses governmentwide science and technology issues and includes an ocean subcommittee; the Council on Environmental Quality (CEQ) oversees broad federal environmental efforts and implementation of the National Environmental Policy Act; and the National Security Council's Global Environment Policy Coordinating Committee includes a subcommittee to deal with international ocean issues. But there is no multi-issue, interagency mechanism to guide, oversee, and coordinate all aspects of ocean and coastal science and policy. As part of a new National Ocean Policy Framework, the Commission recommends that Congress establish a National Ocean Council (NOC) within the Executive Office of the President, chaired by an Assistant to

the President and composed of cabinet secretaries of departments and administrators of independent agencies with relevant ocean- and coastal-related responsibilities. The NOC should provide high-level attention to ocean, coastal, and Great Lakes issues, develop and guide the implementation of appropriate national policies, and coordinate the many federal departments and agencies with ocean and coastal responsibilities. The Assistant to the President should also advise OMB and the agencies on appropriate funding levels for important ocean- and coastal-related activities, and prepare a biennial report as mandated by Section 5 of the Oceans Act of 2000. A Committee on Ocean Science, Education, Technology, and Operations and a Committee on Ocean Resource Management should be created under the NOC to support its coordination and planning functions.

A President's Council of Advisors on Ocean Policy, consisting of representatives from state, territorial, tribal, and local governments and academic, public interest, and private sector organizations, should also be established to ensure a formal structure for nonfederal input to the NOC and the President on ocean and coastal policy matters.

A small Office of Ocean Policy should provide staff support to all the bodies discussed above. Pending congressional action, the Commission recommends that the President put this structure in place through an executive order.

GUIDING PRINCIPLES

The Commission believes its vision for the future is both practical and attainable. To achieve it, however, an overarching set of principles should guide national ocean policy.

- **Sustainability:** Ocean policy should be designed to meet the needs of the present generation without compromising the ability of future generations to meet their needs.
- **Stewardship:** The principle of stewardship applies both to the government and to every citizen. The U.S. government holds ocean and coastal resources in the public trust—a special responsibility that necessitates balancing different uses of those resources for the continued benefit of all Americans. Just as important, every member of the public should recognize the value of the oceans and coasts, supporting appropriate policies and acting responsibly while minimizing negative environmental impacts.
- **Ocean–Land–Atmosphere Connections:** Ocean policies should be based on the recognition that the oceans, land, and atmosphere are inextricably intertwined and that actions that affect one Earth system component are likely to affect another.
- **Ecosystem-based Management:** U.S. ocean and coastal resources should be managed to reflect the relationships among all ecosystem components, including humans and nonhuman species and the environments in which they live. Applying this principle will require defining relevant geographic management areas based on ecosystem, rather than political, boundaries.
- **Multiple Use Management:** The many potentially beneficial uses of ocean and coastal resources should be acknowledged and managed in a way that balances competing uses while preserving and protecting the overall integrity of the ocean and coastal environments.
- **Preservation of Marine Biodiversity:** Downward trends in marine biodiversity should be reversed where they exist, with a desired end of maintaining or recovering natural levels of biological diversity and ecosystem services.
- **Best Available Science and Information:** Ocean policy decisions should be based on the best available understanding of the natural, social, and economic processes that affect ocean and coastal environments. Decision makers should be able to obtain and understand quality science and information in a way that facilitates successful management of ocean and coastal resources.
- **Adaptive Management:** Ocean management programs should be designed to meet clear goals and provide new information to continually improve the scientific basis for future management. Periodic reevaluation of the goals and effectiveness of management measures, and incorporation of new information in implementing future management, are essential.
- **Understandable Laws and Clear Decisions:** Laws governing uses of ocean and coastal resources should be clear, coordinated, and accessible to the nation’s citizens to facilitate compliance. Policy decisions and the reasoning behind them should also be clear and available to all interested parties.
- **Participatory Governance:** Governance of ocean uses should ensure widespread participation by all citizens on issues that affect them.
- **Timeliness:** Ocean governance systems should operate with as much efficiency and predictability as possible.
- **Accountability:** Decision makers and members of the public should be accountable for the actions they take that affect ocean and coastal resources.
- **International Responsibility:** The United States should act cooperatively with other nations in developing and implementing international ocean policy, reflecting the deep connections between U.S. interests and the global ocean.

AN ENHANCED REGIONAL APPROACH

Ensuring full state, territorial, tribal, and local participation in ocean policy development and implementation is a critical element of the new National Ocean Policy Framework. Many of the nation’s most pressing ocean and coastal issues are local or regional in nature and their resolution requires the active involvement of state and local policy makers, as well as a wide range of stakeholders.

One of the priority tasks for the new National Ocean Council should be to develop and promote a flexible, voluntary process that groups of states could use to establish regional ocean councils. These regional ocean councils would then serve as focal points for discussion, cooperation, and coordination. They would improve the nation’s ability to respond to issues that cross jurisdictional boundaries and would help policy makers address

the large-scale connections and conflicts among watershed, coastal, and offshore uses. To complement and support this effort, the President should direct all federal agencies with ocean-related functions to immediately improve their regional coordination, moving over time to adopt a common regional structure.

One pervasive problem for state and local managers is lack of sufficient, reliable information on which to base decisions. The Commission recommends that governors within a region identify an appropriate organization to create a regional ocean information program. Such programs will identify user-driven regional priorities for research, data, and science-based information products and help meet those needs by enhancing existing resources and promoting education, training, and outreach in support of improved ocean and coastal management.

COORDINATED GOVERNANCE OF OFFSHORE WATERS

The nation's vast offshore ocean areas are becoming an increasingly appealing place to pursue economic activities. Well-established institutional frameworks exist for longstanding ocean uses, such as fishing and energy extraction; however, authorities governing new activities, such as the placement of wind farms or aquaculture facilities, need to be clarified. A comprehensive offshore management regime is needed that enables us to realize the ocean's potential while safeguarding human and ecosystem health, minimizing conflicts among users, and fulfilling the government's obligation to manage the sea in a way that maximizes long-term benefits for all the nation's citizens.

The National Ocean Council, supported by congressional action where necessary, should ensure that each current or foreseeable activity in federal waters is administered by a lead federal agency. Well-developed laws or authorities that cover existing programs would not be supplanted, but the lead agency would be expected to continue and enhance coordination among all other involved federal partners. For emerging ocean activities whose management is ill defined, dispersed, or essentially non-existent, the National Ocean Council

and Congress, working with affected stakeholders, should ensure that the lead agency provides strong coordination, while working toward a more comprehensive governance structure.

Based on an improved understanding of offshore areas and their resources, the federal government should work with appropriate state and local authorities to ensure that the many different activities within a given area are compatible, in keeping with an ecosystem-based management approach. As the pressure for offshore uses grows, and before serious conflicts arise, it is critical that the National Ocean Council review the complete array of single-purpose offshore programs with the goal of achieving coordination among them.

Ultimately, a streamlined program for each activity should be combined with a comprehensive offshore management regime that considers all uses, addresses the cumulative impacts of multiple activities, and coordinates the many authorities with interests in offshore waters. The National Ocean Council, President's Council of Advisors on Ocean Policy, federal agencies, regional ocean councils, and states will all have roles to play in realizing more coordinated, participatory management of offshore ocean activities. In considering the coordination of ocean activities, marine protected areas provide one valuable tool for achieving more ecosystem-based management of both nearshore and offshore areas. Such areas can be created for many different reasons including: enhancement of living marine resources; protection of habitats, endangered species, and marine biological diversity; or preservation of historically or culturally important submerged archeological resources. Marine protected areas may also provide scientific, recreational, and educational benefits. The level of protection and types of activities allowed can vary greatly depending on the goals of the protected area.

With its multiple use, ecosystem-based perspective, the National Ocean Council should oversee the development of a flexible process—one that is adaptive and based on the best available science—to design, implement, and assess marine protected areas. Regional ocean councils, or other appropriate entities, can provide a forum for engaging all stakeholders in this process.

A STRENGTHENED FEDERAL AGENCY STRUCTURE

Improved coordination through a National Ocean Council is necessary, but not sufficient to bring about the depth of change needed. Some restructuring of existing federal agencies will be needed to make government less redundant, more flexible, more responsive to the needs of states and stakeholders, and better suited to an ecosystem-based management approach. Because of the significant hurdles involved, a phased approach is suggested.

The National Oceanic and Atmospheric Administration (NOAA) is the nation's primary ocean agency. Although it has made significant progress in many areas, there is widespread agreement that the agency could manage its activities more effectively. In addition, many of the recommendations in this report call for NOAA to handle additional responsibilities. A stronger, more effective, science-based and service-oriented ocean agency is needed—one that works with others to achieve better management of oceans and coasts through an ecosystem-based approach.

As an initial step in a phased approach, Congress should pass an organic act that codifies the existence of NOAA. This will strengthen the agency and help ensure that its structure is consistent with three primary functions: management; assessment, prediction, and operations; and research and education. To support the move toward a more ecosystem-based management approach within and among federal agencies, the Office of Management and Budget (OMB) should review NOAA's budget within its natural resource

programs directorate, rather than the general government programs directorate. This change would make it easier to reconcile NOAA's budget with those of the other major resource-oriented departments and agencies, all of which are reviewed as natural resource programs at OMB.

As a second step in the phased approach, all federal agencies with ocean-related responsibilities should be reviewed and strengthened and overlapping programs should be considered for consolidation. Programmatic overlaps can be positive, providing useful checks and balances as agencies bring different perspectives and experiences to the table. However, they can also diffuse responsibility, introduce unnecessary redundancy, raise administrative costs, and interfere with the development of a comprehensive management regime. The Commission recommends that program consolidation be pursued in areas such as area-based ocean and coastal resource management, invasive species, marine mammals, aquaculture, and satellite-based Earth observing. The Assistant to the President, with advice from the National Ocean Council and the President's Council of Advisors on Ocean Policy, should review other federal ocean, coastal, and atmospheric programs, and recommend additional opportunities for consolidation.

Ultimately, our growing understanding of ecosystems and the inextricable links among the sea, land, air, and all living things, points to the need for more fundamental reorganization of the federal government. Consolidation of all natural resource functions, including those involving oceans and coasts, would enable federal agencies to move toward true ecosystem-based management.

SOUND SCIENCE AND **INFORMATION FOR WISE DECISIONS**

An effective national ocean policy should be based on unbiased, credible, and up-to-date scientific information. Unfortunately, the oceans remain one of the least explored and most poorly understood environments on the planet, despite some tantalizing discoveries over the last century.

Sustained investments will be required to: support research and exploration; provide an adequate infrastructure for data collection, science, and management; and translate new scientific findings into useful and timely information products for managers, educators, and the public. This is especially true as we move toward an ecosystem-based management approach that imposes new responsibilities on managers and requires improved understanding of physical, biological, social, and economic forces.

INVESTING IN SCIENCE AND EXPLORATION

Over the past two decades, with our oceans, coasts, and Great Lakes under siege, federal investment in ocean research has stagnated while other fields have grown. As a result, ocean science funding has fallen from 7 percent of the total federal research budget twentyfive years ago to just 3.5 percent today. This lagging support in the United States, combined with growing foreign capability, has lessened the nation's pre-eminence in ocean research, exploration, and technology development. Chronic under-investment has also left much of our ocean-related infrastructure in woefully poor condition.

The current annual federal investment in marine science is well below the level necessary to adequately meet the nation's needs for coastal and ocean information. The Commission urges Congress to double the federal ocean and coastal research budget over the next five years, including a national program of

social science and economic research to examine the human dimensions and economic value of the nation's marine resources. In addition, a dedicated ocean exploration program should be launched to unlock the mysteries of the deep by discovering new ecosystems, natural resources, and archaeological treasures.

A renewed U.S. commitment to ocean science and technology will require not only substantially increased funding, but also improved strategic planning, closer interagency coordination, robust technology and infrastructure, and 21st century data management systems. The Commission recommends: creation of a national strategy for ocean research that will guide individual agencies' ten-year science plans; enhancement and maintenance of the nation's ocean and coastal infrastructure; and development of new technologies, with more rapid transition of experimental technologies into operational applications.

LAUNCHING A NEW ERA OF DATA COLLECTION

The Integrated Ocean Observing System

About 150 years ago, this nation set out to create a comprehensive weather forecasting and warning network. Today it is hard to imagine living without constantly updated and increasingly accurate weather reports. Now it is time to fully incorporate the oceans in this observational and forecasting capability. A sustained, national Integrated Ocean Observing System (IOOS) will provide invaluable economic, societal, and environmental benefits, including improved warnings of coastal and health hazards, more efficient use of living and nonliving resources, safer marine operations, and a better

understanding of climate change. Our information needs are growing and the challenges we face along our coasts and in our oceans are escalating. The nation needs to substantially advance its ability to observe, monitor, and forecast ocean and coastal conditions, and contribute to global Earth observing capabilities

The Commission recommends that the Federal government, through the National Ocean Council, make the development and implementation of the IOOS a high priority, to be organized through a formalized Ocean.US office. The United States simply cannot achieve the levels of understanding and predictive capability needed, or generate the information required by a wide range of users, without the IOOS. While implementation of the IOOS will require significant, sustained funding, estimates suggest that an operational IOOS will save the United States billions of dollars annually through enhanced weather forecasts, improved resource management, and safer, more efficient marine operations.

The IOOS must meet the needs of a broad suite of users, from scientists to the general public. To maximize its benefits, resource managers at federal, regional, state, and local levels will need to explain their information needs and provide guidance on the most useful outputs and products. The regional observing systems, overseen by Regional Associations, will provide a visible avenue for all users to provide input to the national IOOS.

The National Monitoring Network

Despite the growing threats to ocean, coastal, and Great Lakes waters, there is no national monitoring network in place to assess their status, track changes over time, help identify causes and impacts, or determine the success of management efforts. Increased monitoring is needed not only along the nation's coasts, but also inland where pollutants often originate, traveling downstream and ultimately affecting coastal waters. A national monitoring network is essential to support the move toward an ecosystem-based management approach that considers the impacts of human activities within the context

of the broader biological and physical environment. NOAA, EPA, and USGS should lead an effort to develop a national monitoring network that coordinates and expands existing efforts by federal, state, local, and private entities.

Because of the inherent overlap between inland, coastal, and open-ocean waters, NOAA should ensure that the national monitoring network includes adequate coverage in both coastal areas and the upland reaches that affect them, and that it is closely linked with the IOOS. User communities should participate fully in developing the network, and the data collected should be made available in useful formats to managers and stakeholders so they can make continual progress toward ecosystem-based management goals. The design and implementation of the national monitoring network will require not only federal coordination, but also significant input from states and regional entities.

TURNING DATA INTO USEFUL INFORMATION

The data generated from increased research, enhanced monitoring networks, and new observing systems will be essential in improving our management of ocean and coastal resources. However, two major challenges face today's data managers: the sheer volume of incoming data, which strains storage and assimilation capabilities, and the demand for timely access to the data in a variety of formats by user communities. Meeting these challenges will require a concerted effort to modernize the current data management system and will require greatly improved interagency planning and coordination. The Commission recommends the creation of several new programs and partnerships to achieve these goals.

First, Congress should amend the National Oceanographic Partnership Act to establish Ocean.IT, a new federal interagency mechanism to oversee ocean and coastal data management. This interagency group will enhance coordination, harmonize future software and hardware acquisitions and upgrades, and oversee strategic planning and funding. Building partnerships with the private sector and academia should also be a major goal of Ocean.IT.

Second, NOAA and the U.S. Navy should establish an ocean and coastal information management and communications partnership to generate information products relevant to national, regional, state, and local operational needs. Building upon the Navy's model for operational oceanography, this partnership would rapidly advance U.S. coastal and ocean analyses and forecasting capabilities by drawing on the distinct, yet complementary capabilities of each organization and using all available physical, biological, chemical, and socioeconomic data.

The Commission recommends the creation of two additional programs that will aid in the creation and dissemination of information: multi-stakeholder regional ocean information programs to develop and disseminate useful information products on a regional basis; and accelerated coastal and ocean mapping and charting, coordinated through the Federal Geographic Data Committee.

EDUCATION: **A FOUNDATION FOR THE FUTURE**

Testing results suggest that, after getting off to a good start in elementary school, by the time U.S. students graduate from high school their achievement in math and science falls well below the international average. More specifically, a 1999 study revealed that just 32 percent of the nation's adults grasp simple environmental concepts and even fewer understand more complex issues, such as ecosystem decline, loss of biodiversity, or watershed degradation. It is not widely understood that nonpoint source pollution threatens the health of coastal waters, or that mercury in fish comes from human activities via the atmosphere. From excess application of fertilizers, pesticides, and herbicides on lawns, to the trash washed off city streets into rivers and coastal waters, ordinary activities contribute significantly to the degradation of the marine environment, but without an informed and educated citizenry, it will be difficult to achieve a collective commitment to stewardship, sustained investment, and more effective policies.

A new national ocean policy should include a strong commitment to education to reverse scientific and environmental illiteracy, create a strong, diverse workforce, produce informed decision makers, and develop a national steward-

ship ethic for the oceans, coasts, and Great Lakes. The Commission recommends that all ocean-related agencies take responsibility for promoting education and outreach as an integral part of their missions. Ocean education at all levels, both formal and informal, should be enhanced with targeted projects and continual assessments and improvement.

A national ocean education office, Ocean.ED, should be created under the National Ocean Council to promote nationwide improvements in ocean education. As an interagency office, Ocean.ED should develop a coordinated national strategy and work in partnership with state and local governments and with K-12, university level, and informal educators. The National Science Foundation Centers for Ocean Science Education Excellence provide one outstanding model that should be expanded. Other recommendations include increased funding for training and fellowships, targeted efforts to increase participation by under-represented groups, and closer interaction between scientists and educators. All ocean-related agencies must explore innovative ways to engage people of all ages in learning and stewardship, using the excitement of ocean science and exploration as a catalyst.

SPECIFIC MANAGEMENT CHALLENGES

Building on the foundation of improved governance, new scientific information, and enhanced education, the Commission's report covers the full breadth of topics included in its charge from Congress. As a result, it includes over 200 recommendations that span the gamut of ocean and coastal issues, ranging from upstream areas to the depths of the sea, from practical problem solving to broad guidance for ocean policy. Several important issues pose particular challenges and are highlighted in the following sections. The full report addresses these topics and a number of others in much greater depth.

MANAGING COASTS AND THEIR WATERSHEDS

While coastal watershed counties comprise less than 25 percent of the land area in the United States, they are home to more than 52 percent of the total U.S. population. On average, some 3,600 people a day are moving to coastal counties, suggesting that by 2015 coastal populations will reach a total of 165 million. With another 180 million people visiting the coast each year, the pressure on our oceans, coasts, and Great Lakes will become ever more intense and the need for effective management greater.

Population growth and tourism bring many benefits to coastal communities and the nation, including new jobs, businesses, and enhanced educational opportunities. The great popularity of these areas, however, also puts more people and property at risk from coastal hazards, reduces and fragments fish and wildlife habitat, alters sediment and water flows, and contributes to coastal water pollution. Fortunately, we are gaining a much improved understanding of human influences on coastal

ecosystems, whether they originate locally, regionally, or in watersheds hundreds of miles upstream.

Without question, management of the nation's coastal zone has made great strides, but further improvements are urgently needed, with an emphasis on ecosystem-based, watershed approaches that consider environmental, economic, and social concerns. The Commission recommends that federal area-based coastal programs be consolidated and federal laws be modified to improve coastal resource protection and sustainable use. Congress should reauthorize and boost support for the Coastal Zone Management Act, strengthening the management capabilities of coastal states and enabling them to incorporate a watershed focus. The Coastal Zone Management Act, Clean Water Act, and other federal laws should be amended to provide financial, technical, and institutional support for watershed initiatives.

At the highest level, the National Ocean Council should develop national goals and direct changes to better link coastal and watershed management and minimize impacts associated with coastal population and housing growth. The President's Council of Advisors on Ocean Policy can serve as a forum through which nonfederal entities have an opportunity to provide critically needed input to help guide this change. Regional ocean councils can also provide a mechanism for coordinating coastal and watershed management.

GUARDING PEOPLE AND PROPERTY AGAINST NATURAL HAZARDS

Conservative estimates of damages from natural hazards, looking only at direct costs such as those for structural replacement and repair, put nation-

wide losses at more than \$50 billion a year. Some experts believe this figure represents only half or less of the true costs. More accurate figures are unavailable because the United States does not consistently collect and compile such data, let alone focus specifically on losses in coastal areas or costs associated with damage to natural environments.

Many federal agencies have explicit operational responsibilities related to hazards management, while others provide technical information or deliver disaster assistance. The nation's lead agencies for natural hazards planning, response, recovery, and mitigation are the Federal Emergency Management Agency (FEMA) and the U.S. Army Corps of Engineers (USACE). These agencies implement programs that specifically target the reduction and management of risks from natural hazards.

Opportunities for improving Federal natural hazards management include: modifying federal infrastructure policies that encourage inappropriate development in hazard-prone areas; augmenting hazards information collection, analysis, and dissemination; refining the National Flood Insurance Program (NFIP); and undertaking effective and universal state and local hazards mitigation planning.

CONSERVING AND RESTORING COASTAL HABITAT

The diverse habitats that comprise the ocean and coastal environment provide tangible benefits such as filtering pollutants from runoff, buffering coastal communities against the effects of storms, and providing a basis for booming recreation and tourism industries. These habitats also supply spawning grounds, nurseries, shelter, and food for marine life, including a disproportionate number of endangered or commercially important species.

As more people come to the coast to live, work, and visit, coastal habitats are increasingly stressed and damaged. Over the past several decades the nation has lost millions of acres of wetlands, seen the destruction of seagrass and kelp beds, and faced a loss of significant mangrove forests. Cost-effective conservation and restoration programs should be expanded according to a national strategy that sets goals and priorities, enhances the effectiveness and

coordination of individual efforts, and periodically evaluates progress. Many habitat conservation and restoration projects have been successful, but continued progress will depend on sustained funding, improved government leadership and coordination, enhanced scientific research and monitoring, better education and outreach, and solid stakeholder support.

MANAGING SEDIMENT AND SHORELINES

From a human perspective, sediment has a dual nature—desirable in some locations and unwanted in others—making its management particularly challenging. The natural flow of sediment over land and through waterways is important for sustaining coastal habitats and maintaining beaches. Too little sediment can lead to declining habitats, diminishing wetlands and eroding beaches. However, excess or contaminated sediment can block shipping channels, destroy habitats, poison the food chain, and endanger lives. Navigational dredging, infrastructure projects, farming, forestry, urban development, industrial operations, and many other necessary and beneficial human activities can interfere with natural sediment processes, adversely affecting the interests of other stakeholders and the environment.

The nation must overcome several challenges to improve its management of sediment. The natural processes that create, move, and deposit sediment operate on regional scales, while today's management regime generally addresses discrete locations—a single beach, wetland, or port—and rarely addresses broader upstream or coastal activities that affect sediment processes. To complicate matters further, the policies that control sediment dredging, transport, and quality fall under the jurisdiction of an assortment of programs within multiple agencies at all levels of government. Finally, our understanding of natural sediment processes, and how human activities affect sediment movement, is still limited.

A national sediment management strategy is needed that balances ecological and economic needs according to an ecosystem-based management approach. Such a strategy should consider sediment on a multi-project, regional, watershed basis, and should involve all relevant parties. Partici-

pation in watershed management efforts by federal, state, and local entities, along with key stakeholders such as coastal planners and port managers, is an important step in diminishing upland sources of excess or contaminated sediment. Scientifically sound methods for characterizing contaminated sediment, combined with innovative technologies for dredging, treatment, and disposal of this material, will also be critical.

SUPPORTING MARINE COMMERCE AND TRANSPORTATION

Global trade is an essential and growing component of the nation's economy, accounting for nearly 7 percent of the gross domestic product. The vast majority of our import-export goods pass through the nation's extensive marine transportation system. To meet current demands and prepare for expected growth in the future, this system will require maintenance, improvement, and significant expansion.

A first step in the process will be better coordination, planning, and allocation of resources at the federal level. As part of a national move toward an ecosystem-based management approach, the efficient, safe, and secure movement of cargo and passengers should be well coordinated with other ocean and coastal uses and activities, and with efforts to protect the marine environment.

Specific recommendations include giving the Department of Transportation (DOT) lead responsibility within the federal government for oversight of the marine transportation system, including regular assessments of its status and future needs. DOT should develop an integrated national freight transportation strategy that strengthens the links between ports and other modes of transportation to support continued growth of international and domestic trade. In developing a national freight transportation strategy, DOT should work closely with the U.S. Department of Homeland Security and FEMA to incorporate port security and other emergency preparedness requirements.

To ensure good coordination, the Interagency Committee for the Marine Transportation System should be strengthened, codified, and placed under the

oversight of the National Ocean Council. Because marine transportation is primarily a nonfederal activity, the Marine Transportation System National Advisory Council should also be maintained to provide a venue for outside input to the federal government on relevant issues.

ADDRESSING COASTAL WATER POLLUTION

Coastal and ocean water quality is threatened by multiple sources of pollution, including point, non-point, and atmospheric sources, vessels, invasive species, and trash being washed onto beaches and into the ocean. Addressing these many sources requires development of an ecosystem-based and watershed management approach that draws on a variety of management tools. Because water contamination problems are complex and pervasive, their solution will require substantial investments of federal resources and greatly enhanced coordination both among federal agencies (primarily EPA, NOAA, USDA, and USACE) and between the federal government and managers at state, territorial, tribal, and local levels, in addition to watershed groups, nongovernmental organizations, private stakeholders, and the academic and research communities.

Over the last few decades, great strides have been made in reducing water pollution from point sources, although further improvements can be realized through increased funding, strengthened enforcement, and promotion of innovative approaches, such as market-based incentives. Persistently troublesome point sources of pollution, including wastewater treatment plants, sewer system overflows, septic systems, industrial facilities, and animal feeding operations, must continue to be addressed.

But the widespread and growing problem of non-point source pollution has not seen similar success. Significant reduction of such pollution in all impaired coastal watersheds should be established as a national goal with measurable objectives set to meet water quality standards. Federal nonpoint source pollution programs should be better coordinated so they are mutually supportive. Because agricultural runoff contributes substantially to such pollution, USDA should align its conservation programs, technical assistance, and funding with EPA

and NOAA programs for reducing nonpoint source pollution. State and local governments can also play central roles through better land-use planning and storm water management. Pollution reduction efforts should include the aggressive use of state revolving loan funds, implementation of incentives to reward good practices, and improved monitoring to assess compliance and overall progress. Congress should also amend the Clean Water Act to authorize federal financial disincentives to discourage activities that degrade water quality and to provide federal authority to act if a state chronically fails to make progress in controlling nonpoint sources.

Given the natural functioning of hydrologic systems, watersheds are often the appropriate geographic unit within which to address water-related problems. Collaborative watershed groups have had particular success in addressing nonpoint source pollution. The federal government should strengthen collaborative watershed groups by providing them with adequate technical, institutional, and financial support.

Because contaminants can travel long distances through the atmosphere and be deposited far from their origin, EPA and states should also develop and implement regional and national strategies for controlling this source of water pollution, building upon efforts such as the EPA Air-Water Interface Work Plan. In addition, the United States should participate in a vigorous international research program on the sources and impacts of atmospheric deposition and play a leadership role in negotiating international solutions.

LIMITING VESSEL POLLUTION AND IMPROVING VESSEL SAFETY

Ships carry more than 95 percent of the nation's overseas cargo, but their operations also present safety, security, and environmental risks. To minimize these risks, the Commission recommends that the U.S. Coast Guard work with industry partners and enhance incentive programs to encourage voluntary commitments from vessel owners and operators to build a workplace ethic that values safety, security, and environmental protection as central components of everyday vessel operations. These voluntary measures should be complemented by

effective oversight and monitoring, whether conducted by the Coast Guard or third-party audit firms, and backed up by consistent enforcement efforts, including performance-based vessel inspections.

The United States should also work with other nations, through the International Maritime Organization, to enhance flag state oversight and enforcement. Initiatives should include expeditious promulgation of a code outlining flag state responsibilities and development of a mandatory external audit regime to evaluate flag state performance and identify areas where additional technical assistance is needed.

Control over vessels entering U.S. ports should be improved by ensuring that the Coast Guard has sufficient resources to sustain and strengthen its performance-based inspection program for marine safety and environmental protection, while also meeting its enhanced security responsibilities. In addition, the Coast Guard should work at the regional and international levels to increase effective coordination and vessel information sharing among concerned port states.

A number of other important vessel-related priorities are discussed in the report, including the need for a uniform national regime to deal with cruise ship waste streams and reduction of recreational vessel pollution.

PREVENTING THE SPREAD OF INVASIVE SPECIES

The introduction of non-native organisms into ports, coastal areas, and watersheds is causing harm to marine ecosystems around the world resulting in millions of dollars in costs for monitoring, control, and remediation. The most effective weapon against invasive species is prevention. To control the introduction of invasive species through ships' ballast water, a major pathway, the U.S. Coast Guard's national ballast water management program should: incorporate sound science in the development of biologically meaningful, mandatory, and enforceable ballast water treatment standards; develop new treatment technologies, revising the standards as needed to incorporate these technologies; and allow for full consultation with EPA.

To address introduction pathways other than ballast water, such as ships' hulls, anchors, navigational buoys, drilling platforms, fishing activities, the aquarium trade, aquaculture, and floating marine debris, the Departments of Agriculture, Commerce, the Interior, and Homeland Security should more actively monitor and prevent the importation of potentially invasive aquatic species. Because prevention will never be entirely effective, the Commission also recommends the development of a national plan for early detection of invasive species and a system for prompt notification and rapid response.

The National Ocean Council, working with the Aquatic Nuisance Species Task Force and the National Invasive Species Council, should review and streamline the current proliferation of federal and state programs for managing invasive species and should coordinate education and outreach efforts to increase public awareness about the importance of prevention. In the long run, a rigorous program of research, technology development, and monitoring will be needed to understand and effectively prevent aquatic species invasions.

REDUCING MARINE DEBRIS

Marine debris refers to the enormous amount of trash, abandoned fishing gear, and other waste that can be found drifting around the global ocean and washing up along its coastlines, posing serious threats to wildlife, habitats, and human health and safety. Approximately 80 percent of this debris originates on land, either washed along in runoff, blown by winds, or intentionally dumped from shore, while 20 percent comes from offshore platforms and vessels, including fishing boats.

The Commission recommends that NOAA, as the nation's primary ocean and coastal management agency, reestablish its defunct marine debris program to build on and complement EPA's modest program. NOAA and EPA should expand their marine debris efforts, taking advantage of each agency's strengths by pursuing: public outreach and education; partnerships with local governments, community groups, and industry; and strengthened research and monitoring efforts.

An interagency committee under the National Ocean Council should coordinate federal marine debris pro-

grams and take maximum advantage of the significant efforts conducted by private citizens, state and local governments, and nongovernmental organizations. The United States should also remain active on the international level. An immediate priority is the development of an international plan of action to address derelict fishing gear on the high seas.

ACHIEVING SUSTAINABLE FISHERIES

Over the last thirty years, the fishing industry has evolved from being largely unmanaged, with seemingly boundless opportunities, to one that is highly regulated and struggling to remain viable in some places. While the current regime has many positive features, such as an emphasis on local participation, the pairing of science and management, and regional flexibility, it has also allowed overexploitation of many fish stocks, degradation of habitats, and negative impacts on many ecosystems and fishing communities.

The Commission's recommendations to improve fishery management can be grouped into six areas: re-emphasizing the role of science in the management process; strengthening the Regional Fishery Management Council (RFMC) system and clarifying jurisdictions; expanding the use of dedicated access privileges; improving enforcement; adopting an ecosystem-based management approach; and strengthening international management. To strengthen the link between strong science and sustainable fishery management, RFMCs should be required to rely on the peer-reviewed advice of their Scientific and Statistical Committees (SSCs), particularly in setting harvest levels. In particular, an RFMC should not be allowed to approve any measure that exceeds the allowable biological catch recommended by its SSC. Because of their importance in the process, SSC members should be nominated by the RFMCs but appointed by the Administrator of NOAA, and their credentials and potential conflicts of interest should be vetted by an external organization. An expanded research program is needed that involves fishermen where possible and is responsive to managers' requirements.

Several recommendations are made concerning the composition, responsibilities, and jurisdiction of the various federal and interstate fishery man-

agement entities. In particular, membership on the RFMCs needs to be diversified and new members should receive consistent training in the often arcane vocabulary and policies involved in U.S. fishery management.

To reverse existing incentives that create an unsustainable “race for the fish,” fishery managers should explore the adoption of dedicated access privileges to promote conservation and help reduce overcapitalization. Congress should amend the Magnuson–Stevens Fishery Conservation and Management Act to affirm that RFMCs are authorized to institute dedicated access privileges, subject to meeting national guidelines, and every federal, interstate, and state fishery management body should consider the potential benefits of adopting such programs. In addition, Congress should address overcapitalization directly by revising federal programs that subsidize this practice, as well as working with NOAA to develop programs that permanently reduce overcapitalization in fisheries.

Fishery enforcement should be continually strengthened through the adoption of better technologies, such as Vessel Monitoring Systems, better cooperation among federal and state agencies, and enhanced support for the infrastructure, personnel, and programs that make enforcement possible.

Consistent with one of the major themes of this report, fishery management needs to move toward a more ecosystem-based approach to improve its effectiveness and reduce conflicts between socioeconomic forces and biological sustainability. An ecosystem-based management approach will be particularly helpful in protecting essential fish habitat and reducing the impacts of bycatch.

Finally, the U.S. should work with other countries on worldwide adoption and enforcement of international agreements that promote sustainable fishery practices, in particular the United Nations Fish Stocks Agreement and the U.N. Food and Agriculture Organization’s Compliance Agreement and Code of Conduct for Responsible Fisheries. The United States should also continue to press for the inclusion of environmental objectives—particularly those specified in international environmental agreements—as legitimate elements of trade policy.

PROTECTING MARINE MAMMALS AND ENDANGERED MARINE SPECIES

The Marine Mammal Protection Act and the Endangered Species Act are landmark laws that have protected marine mammals, sea turtles, seabirds, and other populations at risk since their passage. However, both Acts need to be updated to support the move toward a more ecosystem-based approach.

As in so many other areas of ocean policy, immediate clarification and coordination of federal agency policies is needed. The Commission recommends that Congress consolidate the jurisdiction for marine mammals within NOAA, and that the National Ocean Council improve coordination between NOAA and the U.S. Fish and Wildlife Service in implementation of the Endangered Species Act, particularly for anadromous species or where land-based activities have significant impacts on marine species. Congress should also amend the Marine Mammal Protection Act to require NOAA to specify categories of activities that are allowed without a permit, those that require a permit, and those that are strictly prohibited. The permitting process itself should be streamlined by using programmatic permitting where possible. The definition of harassment in the Marine Mammal Protection Act should also be revised to cover only activities that meaningfully disrupt behaviors that are significant to the survival and reproduction of marine mammals.

The Commission recommends an expanded research, technology, and engineering program, coordinated through the National Ocean Council, to examine and mitigate the effects of human activities—including fishing, pollution, and climate change—on marine mammals, seabirds, sea turtles and all other marine endangered species. In addition, Congress should expand federal funding for research into ocean acoustics and the potential impacts of noise on marine mammals and other species.

PRESERVING CORAL REEFS AND OTHER CORAL COMMUNITIES

Coral communities are among the oldest and most diverse ecosystems on the planet, rivaling tropical rainforests in biodiversity and potential economic value. Unfortunately, like the rainforests, the world’s

coral reefs are increasingly showing signs of serious decline, with pristine reefs becoming rare and up to one-third of the world's reefs severely damaged according to some estimates.

A strengthened Coral Reef Task Force, under the oversight of the National Ocean Council, should promote immediate actions to reverse the impacts on tropical coral communities from pollution (with EPA and USDA in the lead) and from fishing (with NOAA in the lead). NOAA should be assigned as the lead agency for assessing and protecting the nation's relatively unexplored cold water coral communities, including dedicated research on their distribution and abundance and strategies to reduce major threats to their survival.

Congress should enact a Coral Protection and Management Act that provides direct authorities to protect and manage corals, and creates a framework for research and for cooperation with international efforts. This legislation should include: mapping, monitoring, and research programs to fill critical information gaps; liability provisions for damages to coral reefs, similar to those in the National Marine Sanctuaries Act; outreach activities to educate the public about coral conservation and reduce human impacts; and mechanisms for U.S. involvement in bilateral, regional, and international coral reef programs, particularly through the sharing of scientific, technical, and management expertise.

In many places, harvesting methods continue to damage reefs and overexploit ornamental species. As the world's largest importer of ornamental coral reef resources, the United States has a particular responsibility to help eliminate destructive harvesting practices and ensure the sustainable use of reef resources. The nation should develop standards for the importation of coral species to balance legitimate trade with protection of the world's coral reefs and to ensure that U.S. citizens do not unknowingly promote unsustainable practices.

SETTING A COURSE FOR SUSTAINABLE MARINE AQUACULTURE

Marine aquaculture has the potential to supply a significant part of the ever increasing domestic and global demand for seafood. However, two major

concerns must be addressed: environmental problems associated with some aquaculture operations, particularly net-pen facilities, and a confusing, inconsistent array of state and federal regulations that hinder private sector investment.

The Commission recommends that Congress amend the National Aquaculture Act to designate NOAA as the lead federal agency for implementing a national policy on environmentally and economically sustainable marine aquaculture. Through a new Office of Sustainable Marine Aquaculture, NOAA should develop a single, multi-agency federal permitting process for the industry that ensures that aquaculture facilities meet all applicable environmental standards and protects the sustainability and diversity of wild stocks.

Additional investments in research, demonstration projects, and technical assistance can help the industry address environmental issues, conduct risk assessments, develop improved technology, select appropriate species, and create best management practices.

CONNECTING THE OCEANS AND HUMAN HEALTH

Over the last several decades, scientific studies have demonstrated that the health of humans and the oceans are inextricably linked. Human inputs such as point and nonpoint source pollution adversely affect the health of coastal ecosystems, resulting in conditions which in turn affect human health.

Sewage effluent and stormwater discharges can contaminate water and marine organisms, leading to outbreaks of viral and bacterial diseases with serious medical consequences, and curtailing beach and ocean recreation. Chemicals like polychlorinated biphenyls (PCBs) and toxic metals like mercury enter the oceans from rivers and from atmospheric deposition. Once there, they accumulate in finfish and shellfish, posing potentially serious long-term health threats to consumers. Excessive nutrient inputs from nonpoint source pollution can lead to harmful algal blooms that are toxic to fish and humans and can result in oxygen-depleted "dead zones" that kill marine organisms and decimate recreational and commercial

fishing. Global climate change may also result in the spread of human diseases such as cholera and malaria via the marine environment.

On a brighter note, a growing number of important medical treatments and biotechnologies are now based on chemicals that originate from marine organisms. Marine bioproducts with anti-inflammatory and cancer fighting properties are just a few examples of the promising medical advances found in the oceans. A more focused program of exploration and bioprospecting holds great promise for similar discoveries in the future.

Despite these threats and opportunities, our knowledge of the links between the oceans and human health is in its infancy and remains inadequate to make the science-based decisions that are needed. To expand this knowledge base, Congress should establish a major initiative on the oceans and human health. Existing programs at NOAA, NSF, and the National Institute of Environmental Health Sciences should be coordinated under this initiative, with additional input from EPA and FDA.

MANAGING OFFSHORE ENERGY AND OTHER MINERAL RESOURCES

Oil and gas development on the outer Continental Shelf (OCS) supplies over a quarter of the nation's domestic oil and gas reserves, and contributes thousands of jobs and billions of dollars to the economy. Although controversial in many locations, the process for oil and gas leasing and production is well developed, reasonably comprehensive, and could serve as a model for implementing offshore renewable energy projects within the context of a coordinated offshore management regime.

To maintain a strong link between ocean uses and ocean management, the Commission recommends dedicating federal revenues from OCS energy leasing and production to ensuring the sustainability of ocean and coastal resources. A portion of these funds should be given to coastal states, with larger shares going to OCS producing states to help address the environmental and economic consequences of energy production.

In addition to oil and gas, other offshore energy sources are being explored. The National Ocean Council (NOC), working with the U.S. Department of Energy and others, should determine whether methane hydrates can contribute significantly to meeting the nation's long-term energy needs and, if so, what level of investment in research and development is warranted. Renewable energy sources should also be considered as part of a coordinated offshore management regime. Congress, with input from the NOC, should enact legislation to streamline the licensing of renewable energy facilities in U.S. waters, relying on an open, transparent process that accounts for state, local, and public concerns. The legislation should include the principle that the ocean is a public resource and that the U.S. Treasury should receive a fair return from its use.

ADVANCING INTERNATIONAL OCEAN SCIENCE AND POLICY

The United States has historically been a world leader in international ocean policy, participating actively in the development of international agreements that govern the planet's ocean areas and resources. That leadership must now be reaffirmed and reinvigorated by acceding to the United Nations Convention on the Law of the Sea, enhancing the participation of all ocean-related federal agencies in international discussions and negotiations, and taking a leading role in building international capacity in ocean science and management, particularly in developing countries.

The United States can advance its own interests and contribute to the health of the world's oceans by first ensuring that U.S. domestic policies and actions embody exemplary standards of wise, sustainable ocean management. The new National Ocean Policy Framework will be instrumental in setting this positive tone for the international community. Many additional recommendations for action at the international level are presented throughout the report in the context of specific ocean and coastal management issues, such as international fisheries, global transportation of air pollutants, trade in corals and other living marine resources, the worldwide spread of marine debris, and many others.

IMPLEMENTING A NEW **NATIONAL OCEAN POLICY**

There are over 200 recommendations in the Commission's report, each one calling on specific responsible parties to spearhead its implementation and be accountable for its progress. A large number of recommendations are directed at Congress, the leadership of the executive branch, and federal agencies, as shown in Chapter 31.

Although the Commission has generally targeted few recommendations specifically at state or local governments, it recognizes that a significant enhancement of the ocean and coastal partnership between the federal government and nonfederal governmental and nongovernmental stakeholders is one of the foundations of the new national ocean policy. These entities will have critically important roles to play in the establishment of regional ocean councils, and in areas such as coastal development, water quality, education, natural hazards planning, fishery management, habitat conservation, and much more. Strong state participation is also needed in the design and implementation of regional ocean observing systems and their integration into the national IOOS, as well as in other research and monitoring activities.

A WORTHWHILE INVESTMENT

Implementation of the recommendations in this report will lead to tangible, measurable improvements in U.S. ocean policy and in the health of our oceans, coasts, and Great Lakes. However, significant change cannot be achieved without adequate investments—of time, money, and political will. A summary of costs is presented in Chapter 30, and a detailed breakdown of the cost of each recommendation is provided in Appendix G. The Commission estimates the total additional cost for initiatives outlined in this report at approximately \$1.5

billion in the first year and \$3.9 billion per year after full implementation. The payoff from these investments will be substantial for the United States and its citizens, benefiting our economy, health, environment, quality of life, and security.

LONG TERM SUPPORT: THE OCEAN POLICY TRUST FUND

As noted previously, almost \$5 trillion dollars, or one half of the nation's annual gross domestic product, is generated each year within coastal watershed counties. That enormous economic contribution is now being threatened by the degradation of our oceans, coasts, and Great Lakes. Modest levels of additional funding will reap significant dividends by supporting management strategies that restore and sustain our ocean and coastal resources and maximize their long-term value.

Despite pressing needs, the Commission is mindful of the intense budgetary constraints that exist at both federal and state levels—and is sensitive to the hardships associated with unfunded mandates, whether imposed on state governments or federal agencies. To cover the cost of its recommendations, the Commission believes it is important to identify appropriate, dedicated sources of revenue. In this regard, the nexus between federal offshore activities and the management responsibilities they engender is obvious. Thus, the Commission proposes the creation of an Ocean Policy Trust Fund in the U.S. Treasury, composed of revenues generated from permitted activities in federal waters.

The Trust Fund would start out with OCS oil and gas revenues that are not already committed to the Land and Water Conservation Fund, the National Historic

Preservation Fund, or to certain coastal states based on oil and gas production in the three nautical mile area seaward of their submerged lands. After those existing programs are funded in accordance with law, the remaining OCS monies would be deposited into the Trust Fund. New offshore activities, such as renewable energy, aquaculture, or bio-prospecting, may also produce revenues in time, and these should be added to the Fund. Establishment of, and distributions from, the Ocean Policy Trust Fund should be kept separate from any decisions about whether a particular offshore activity should be authorized and permitted.

Approximately \$5 billion is generated annually from OCS oil and gas revenues. Protecting the three programs noted above would remove about \$1 billion from that total. Thus, some \$4 billion would remain available for the Ocean Policy Trust Fund each year under current projections. It is not possible to estimate the level of revenue that might accompany emerging activities in federal waters, nor to predict when this income could begin to flow, but the amounts may be significant in years to come.

Trust Fund monies should be used to support the additional research, education, and management responsibilities recommended for federal and state agencies and other appropriate coastal authorities, consistent with a coordinated and comprehensive national ocean policy. Such funds would be used to supplement—not replace—existing appropriations for ocean and coastal programs, and to fund new or expanded duties.

CRITICAL ACTIONS RECOMMENDED BY THE U.S. COMMISSION ON OCEAN POLICY

The following key recommendations provide the foundation for a comprehensive national ocean policy that will lead to significant improvements in ocean and coastal management.

Improved Governance

- Establish a National Ocean Council in the Executive Office of the President, chaired by an Assistant to the President.
- Create a non-federal President's Council of Advisors on Ocean Policy.

- Improve the federal agency structure by strengthening NOAA and consolidating federal agency programs according to a phased approach.
- Develop a flexible, voluntary process for creating regional ocean councils, facilitated and supported by the National Ocean Council.
- Create a coordinated management regime for activities in federal offshore waters.

Sound Science for Wise Decisions

- Double the nation's investment in ocean research, launch a new area of ocean exploration, and create the advanced technologies and modern infrastructure needed to support them.
- Implement the national Integrated Ocean Observing System and a national monitoring network.

Education – A Foundation for the Future

- Improve ocean-related education through coordinated and effective formal and informal efforts.

Specific Management Challenges

- Strengthen coastal and watershed management and the links between them.
- Set measurable goals for reducing water pollution, particularly from nonpoint sources, and strengthen incentives, technical assistance, enforcement, and other management tools to achieve those goals.
- Reform fisheries management by separating assessment and allocation, improving the Regional Fishery Management Council system, and exploring the use of dedicated access privileges.
- Accede to the *United Nations Convention on the Law of the Sea* to remain fully engaged on the international level.

Implementation

- Establish an Ocean Policy Trust Fund, based on unallocated revenues from offshore oil and gas development and new offshore activities, that is dedicated to supporting improved ocean and coastal management at federal and state levels.

CALL TO **ACTION**

This report reflects the input of hundreds of Americans from across the nation, testimony from many of the world's leading experts, and months of deliberation. The recommendations contained within can set the course toward a future in which our oceans, coasts, and Great Lakes are healthy, enjoyed, and treasured by all people, and America's marine resources are restored and sustained for generations to come.

The opportunity is here and the time to act is now. A new national ocean policy can be implemented that balances ocean use with sustainability, is based on sound science and supported by excellent education, and is overseen by a coordinated system of governance with strong leadership at national and regional levels. It will take great political will, significant fiscal investment, and strong public support, but in the long run all of America will benefit from these changes.

ANNEXES

ABBREVIATIONS

ACS	Association of Caribbean States
CAR	Regional Autonomous Corporation
CCCP	Centre for Pollution Control of the Pacific
CCO	Colombian Ocean Commission
CNI-PNOEC	National Inter-agency Committee for the National Ocean and Coastal Regions Policy
COLCIENCIAS	Colombian Institute for the Development of Science and Technology “Francisco José de Caldas”
CONPES	National Council for Social and Economic Policy
CORALINA	Corporation for the Sustainable Development of the Archipelago of San Andres, Providencia, and Santa Catalina
CORMAGDALENA	Río Grande de la Magdalena Regional Autonomous Corporation
COTECMAR	Science and Technology Corporation for Development of the Ocean and River Naval Industry
CIIFEN	International Research Centre on El Niño
CIOH	Centre for Oceanographic and Hydrographic Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CIURE	Intersectoral Commission for the Rational Use of Energy and Non-Conventional Energy Sources
CPPS	Permanent Commission for the South Pacific
DIMAR	General Maritime Directorate
DNP	National Planning Department
DPAD	Directorate for Disaster Prevention and Response
CREG	Energy and Gas Regulatory Commission
ERFEN	Regional Programme for the Study of the ‘El Niño’ Phenomenon
FENC	Non-Conventional Energy Sources, and Alternative and Renewable Energy
FINAGRO	Fund for the Financing of the Agricultural Sector
ICAM	Integrated Coastal Area Management
ICANH	Colombian Institute of Anthropology and History
IDEAM	Institute of Hydrology, Meteorology, and Environmental Studies

IMO	International Maritime Organization
INCODER	Colombian Institute of Rural Development
INVEMAR	Institute for Marine and Coastal Research "José Benito Vives de Andreis"
IOC	UNESCO Intergovernmental Oceanographic Commission
IOCARIBE	IOC Sub-Commission for the Caribbean and Adjacent Regions
IPSE	Institute for the Investigation and Application of Energy Solutions
LPNOEC	National Ocean and Coastal Regions Policy Guidelines
MARPOL	International Convention for the Prevention of Pollution from Ships
MAVDT	Ministry of the Environment, Housing and Territorial Development
NGOs	Non-governmental Organizations
PMN	National Maritime Policy of Brazil
PMNR	National policy on Marine Resources
PNAOCI	National Environmental Policy for the Sustainable Development of Oceanic Spaces, Coastal Zones and Islands of Colombia
PNGRT	National Tsunami Risk Management Plan
PNICM	National Programme for the Study, Evaluation, Prevention, Reduction and Control of Land and Sea-based Sources of Marine Pollution
PNOEC	National Ocean and Coastal Regions Policy
PNPAD	National Disaster Prevention and Response Plan
SECCO	Executive Secretariat of the Colombian Ocean Commission
SENA	National Training Service
SIAC	Colombian Environmental Information System
SIAM	Marine Environmental Information System
SINA	National Environmental System
SINAP	National System of Protected Areas
SINOC	National System of Ocean and Coastal Information
SNPAD	National System for Disaster Prevention and Response
SPNN	National Natural Parks System
SOLAS/74	International Convention for the Safety of Life at Sea (1974)
TCDC	Technical Cooperation among Developing Countries
UAC	Integral Environmental Land Planning and Management Unit
UAESPNN	National Natural Parks System Special Administrative Unit
WTO	World Trade Organization

IOCTECHNICAL SERIES

No.	Title	Languages
1	Manual on International Oceanographic Data Exchange. 1965	(out of stock)
2	Intergovernmental Oceanographic Commission (Five years of work). 1966	(out of stock)
3	Radio Communication Requirements of Oceanography. 1967	(out of stock)
4	Manual on International Oceanographic Data Exchange - Second revised edition. 1967	(out of stock)
5	Legal Problems Associated with Ocean Data Acquisition Systems (ODAS). 1969	(out of stock)
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15	Bruun Memorial Lectures, 1975 - Co-operative Study of the Kuroshio and Adjacent Regions. 1976	(out of stock)
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29	Catalogue of Tide Gauges in the Pacific. 1985	E only
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