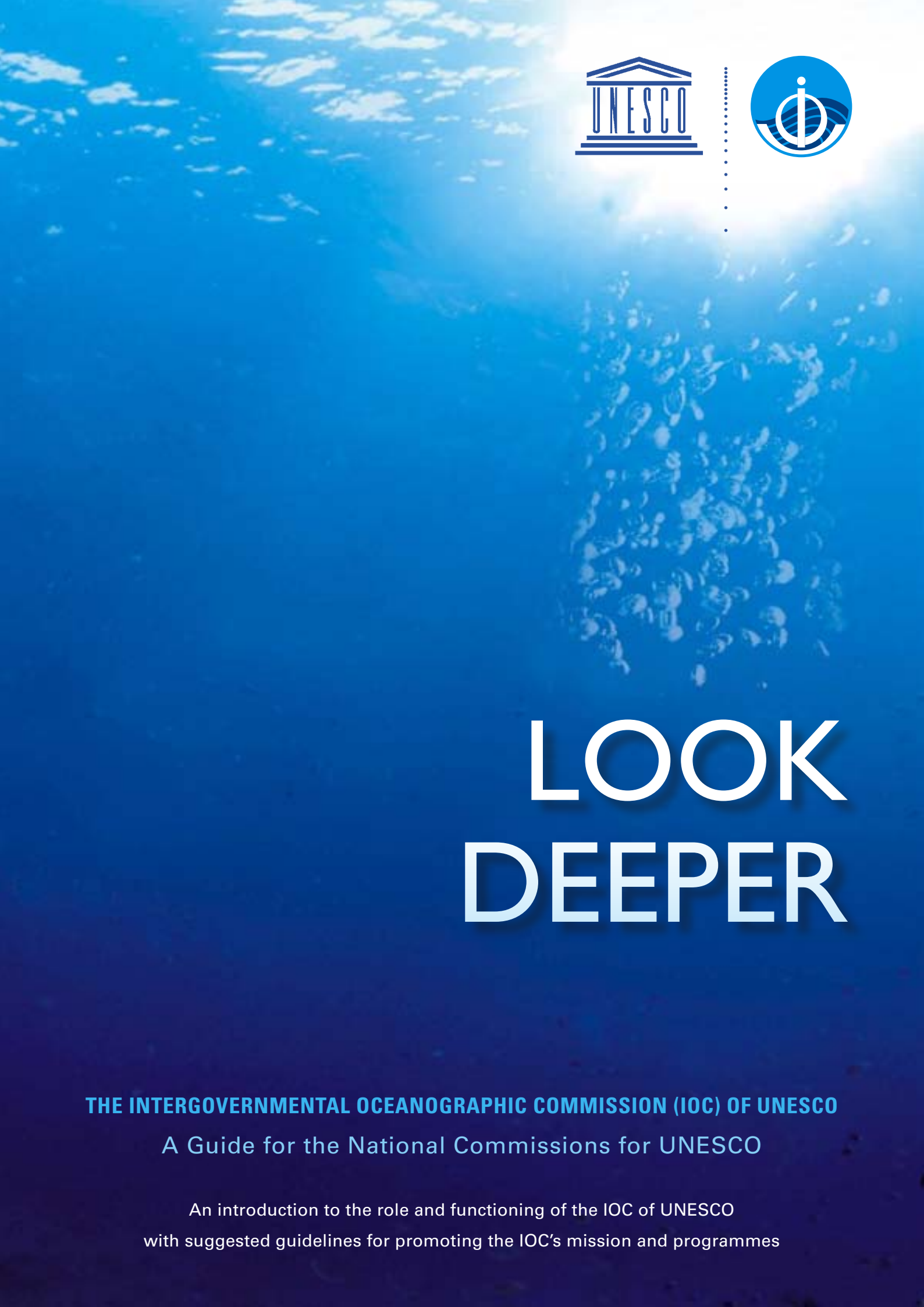


LOOK DEEPER

THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC) OF UNESCO

A Guide for the National Commissions for UNESCO

An introduction to the role and functioning of the IOC of UNESCO
with suggested guidelines for promoting the IOC's mission and programmes

Dear friends of IOC,

The major lesson left behind by the Indian Ocean tsunami of December 2004 is that this disaster left such a large sequel of death and destruction because of a fundamental institutional failure. Although the science and technology exist to warn, prepare for and mitigate the effects of such a catastrophic disaster, none of the necessary programmes and institutions needed were in place in the Indian Ocean region.

In addition to the need to adopt preventive measures against ocean-generated disasters, countries whose economies and social structures depend on the ocean and coasts must also be able to address local problems in order to achieve sustainable development. It is essential that we help them by stimulating the development of their own scientific and technological capabilities. Providing access to scientific knowledge and engaging them in our programmes that focus on the application of science will protect them from ocean hazards and improve ocean and coastal governance.

As partners in UNESCO, we can work together to further the goals of our organization towards sustainable development by crafting better communication between science, governments and civil society. You, the **National Commissions for UNESCO**, are an important link in IOC's strategy towards ensuring an adequate understanding of the issues and the respective responsibilities of national agencies and individuals dealing with ocean and coastal affairs.

There is no doubt that we can achieve much more with your help. We hope to benefit from your advocacy to implement our programmes in your country more effectively and to build the bridges we need to have with policy makers.

My colleagues here at the IOC join me in warmly inviting you to find out on the following pages how your valued support can assist us in our mission. We encourage you to get in touch with the IOC Focal Point in your country or contact us here directly to discuss how we can start taking action together. Thank you for your time and commitment.

Sincerely,

Assistant Director-General, UNESCO
Executive Secretary, IOC

Patricio Bernal,
Executive
Secretary, IOC
p.bernal@unesco.org

Umit Unluata,
Ocean Sciences, IOC
u.unluata@unesco.org

Keith Alverson,
Operational
Observing Systems, IOC
k.alverson@unesco.org

Peter Pissierssens,
Ocean Services, IOC
p.pissierssens@unesco.org

Ehrlich Desa,
Capacity Building, IOC
e.desa@unesco.org

THREE WAYS IN WHICH THE NATIONAL COMMISSIONS FOR UNESCO CAN ASSIST THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF UNESCO

DEFINING THE ROLE OF OCEAN SCIENCES AND SERVICES IN GOVERNMENT POLICY AND PUBLIC LIFE

1. Communicating the value of ocean sciences and services

Be an advocate for IOC's programmes and policies and use our knowledge to help solve regional, national and global problems by forming a bridge to policy.

- IOC communications materials (website, publications, brochures) are available to assist and support you.
- Distribute IOC's information to all possible institutional partners concerned, such as ministries of science and education, academies of sciences, institutes for scientific research, universities and schools.
- Put a particular problem in context by referring to specific national background information (e.g. regional or environmental concerns; needs for data, products or services; safety and health concerns). Show the difference IOC's programmes can make and mention the impact they have had elsewhere.
- Establish a close working relationship with the media to help promote public awareness and an acceptance and ownership of responsibility by industry.

We regard your interventions with decision-makers, directors of institutes, scientists, technicians, and the public as valuable investments in our communications and public awareness strategy.

2. Increasing the IOC's visibility

Assist us in creating partnerships for future co-operation to bring new skills to complement and magnify our efforts.

- Engage stakeholders by advising them regularly of the various IOC activities that intersect with the profile of their respective institutions, in order to mobilize their financial support and long-term commitment.
- Establish a focal point for information exchange and cooperation in oceanographic sciences and services and open a dialogue to relay information on IOC's programmes and activities.
- Invite partners and policy makers to attend IOC symposia and conferences, global and regional workshops held in your region. Be sure to keep them up to date on IOC's findings in issues and products that are directly useful to them.
- Initiate activities to involve citizens and implement grass roots projects to ensure wide visibility at the local level.
- Show how global issues are linked to local action. Issues at the national level usually always have ramifications at the international level (and vice versa) due to the global nature of the ocean.

3. Increasing the funding base from both the private sector and government agencies.

Long-term committed sponsors are needed who understand that the capacity building process is not short. They must be willing to stay the course and understand the enormity of the task. We urge you to lobby your leaders, public officials and politicians to obtain funding commitments from your governments.

As a result of the IOC's increasing long-term responsibilities in global ocean issues, our funding is increasingly inadequate for the work we have been asked to do. Full forecasting capabilities of observing systems, on which other societal, public and private applications will depend, represent a huge technical requirement due to the very large scale at which data are collected. The financing of permanent ocean services can only happen if new funding arrangements and enhanced Member State commitment to our programmes are forthcoming.

The Intergovernmental Oceanographic Commission (IOC) of UNESCO

OUR MISSION: OUR LIFE-SUSTAINING OCEANS

What does the IOC do?

The IOC of UNESCO is the United Nations' focal point for Ocean Sciences and Ocean Services. We work to establish international cooperation so that major ocean science programmes operating over vast, often global, areas can take place. We have the resources and ability, which individual countries lack, to coordinate such large-scale initiatives and to make the resulting information freely available to all.

Why do we need international cooperation in ocean programmes?

In understanding the ocean, we are protecting lives and the life-support system of our entire planet. The ocean is our global responsibility. Its shared waters circulate freely between countries and hemispheres regardless of political boundaries. To ensure its future health, equitable access to information and operational oceanographic services to address regional, national and global problems must be made available to all.

Do some countries benefit more than others?

An essential part of all IOC activities is ensuring that developing countries can participate effectively, and on an equal basis, in marine issues. The intrinsic nature of the IOC's programmes is to increase the capacity and capability of all countries to participate in these advances and bring about socio-economic benefits that contribute to the larger internationally agreed UN Millennium Goal of reducing poverty.

How can the IOC's ocean programmes help my country?

Since its creation in 1960, within its mandate the IOC's programmes have targeted specific issues and developed solutions to challenges in areas such as weather, climate and climate change, ocean health and fisheries, disaster warning and mitigation, capacity building and data availability and exchange.

These are the issues that impact societies and industries in areas including agriculture and aquaculture, resources, energy, shipping and navigation, and tourism, which represent an essential source of livelihood, employment and foreign exchange earnings for many nations.

Exactly how do such programmes operate?

Understanding and forecasting marine conditions require worldwide sustained observations and monitoring of the oceans and coastal areas. To accomplish this, the IOC brings together the international and intergovernmental scientific community to form strategic partnerships in order to exchange 'know how' and 'know why'.

With this information, the IOC assists governments to address their individual and collective ocean and coastal problems. Sound scientific data are the basis for better-informed decisions for the improved management and protection of oceans and coasts. Scientists, policy makers, industry and the general public benefit from the resulting unbiased data and information.

An introduction to familiarize you with just some of our activities appears in this guide. Our programmes are all founded on the ethic that the oceans are a resource in need of our stewardship and are not just simply a commodity. The sustainable management of the marine and coastal environment, its resources, and building the capacities of developing countries rely on our developing and nurturing this ethic together.

MAINTAINING THE PROSPERITY OF OCEANS AND COASTS THROUGH RESPONSIBLE MANAGEMENT

- **By 2025 the UN estimates that three-quarters of the world's population will be living in coastal areas**
- **The coasts are the most productive and resource-rich areas on the planet**
- **More than 25% of the world's energy is produced here**
- **90% of the world's fish is caught here**
- **25% of global primary productivity takes place here**
- **90% of international trade is carried by sea [1]**

What do we want our oceans and coasts to be like for future generations?

Many of our coastal and marine resources today are already in decline. The Intergovernmental Oceanographic Commission of UNESCO's marine science and technology programmes promote sustainable development by organizing international cooperation to build regional, national and global capacity, leading to results that are of direct benefit to society.

Partnership with Experts

Pressing research challenges for the future can only be addressed by an international collaborative approach to realize sustained benefits, including improved and informed governance and enhanced management of the ocean and coasts.

The IOC, as a UN agency, is uniquely positioned to work with governments and other UN specialized agencies dealing with the oceans. Other partners in joint programmes include intergovernmental and non-governmental organizations and community-based organizations. The resulting cooperative arrangements take the form of advisory bodies, bilateral and multilateral coordinating bodies, memoranda of understanding, inter-secretariat bodies, interagency arrangements, co-sponsorship and cooperative programmes.

INTERNATIONAL COOPERATION IN IOC-SUPPORTED PROGRAMMES HAS LED TO:

- **The International Tsunami Warning System** in the Pacific is one of the most successful international programmes ever undertaken and has undoubtedly saved many lives over the past forty years of its existence. IOC is leading an effort to extend the expertise of this system to implement new national tsunami warning centres all around the Indian Ocean by 2006 and ultimately a global warning system in 2007 to protect all regions of the world that are vulnerable to tsunamis.
- **The Global Ocean Observing System (GOOS)** has developed guidance for future action in ocean monitoring, modelling and forecasting, and with national and international partners has coordinated the growth of a sustained ocean observing system. This has led to benefits in improved forecasting of phenomena such as cyclones, monsoons and El Niño, improved understanding of climate variability and change, and improved protection of life on the seas. It will ultimately lead to benefits for every country in the world by providing public services for managing coastal seas and their living resources.
- **ODINAFRICA** – Providing access to up to date oceanographic and data information, the ODINAFRICA project develops products and services that permit 25 African Member States to be able to address key management issues such as coastal erosion, pollution, tourism, protection of ecosystems and the sustainable use of living resources.
- **Harmful Algal Blooms** capacity building by offering Member States training in monitoring the occurrence of potentially harmful algae that can lead to fisheries closures, loss of tourism and public health problems. Adapting to new technologies and building on past successes, 35 workshops and over 500 individual training opportunities have been offered to date.
- **Ecosystem Indicators for Management of Resources** – The IOC develops and promotes the use of globally applicable indicators and techniques to measure the health of marine and coastal ecosystems. In this way, scientists assess and forecast the impact of climate and environmental change, propose coastal management strategies and offer policy recommendations, as well as provide vital information on the functioning and future productivity of commercially important resources, such as fish populations and coral reefs.
- **Climate Change Research** – Bringing together the world's leading experts to assess our current understanding of the role of the ocean in climate change and assessing potential effects, such as sea level rise, in order to call for more research wherever information is presently insufficient to form sound policy decisions.
- **Ocean Carbon Research** – Recognizing the important role that the oceans play in attenuating potential climate change, the IOC promotes and coordinates international research, assessments and systematic observation of the role of the oceans as a carbon sink.

[1] *NOAA NOS Trends and Future Challenges for U.S. National Ocean and Coastal Policy Workshop Proceedings, 1999*

BUILDING INTERNATIONAL COOPERATION

How what we do affects you

The IOC of UNESCO working on key ocean and coastal management issues

These fishermen, just off the coast of Guinea, West Africa, have hauled in something unusual in their net along with the day's catch. Quite by chance they have, in fact, retrieved a sophisticated oceanographic instrument that surfaced after spending two years under water off the Cape Verde Islands more a thousand miles to the northwest.

This float is just one of thousands of ocean instruments presently operating throughout the world's oceans, periodically relaying information via satellites back to data centres. Measuring a multitude of ocean state variables including temperature, salinity, currents, pressure, and oxygen content, instruments such as these form a part of the global ocean observing system that allows researchers to assess the state of the ocean and to build models to determine marine and coastal health, make long-range weather forecasts and predict climate variations and change.

By studying how the oceans influence our climate, our economy, our quality of life, and our safety and security, we tailor products and services designed to help coastal communities address their specific regional problems.

These fishermen don't know that the float they are holding has been transmitting data that will ultimately help to protect their families, homes, and livelihoods. We now invite you to find out more about just some of the ways the Intergovernmental Oceanographic Commission of UNESCO and its partners can help people near you too.

OCEAN OBSERVATION AND MONITORING

Some ten million inhabitants of Istanbul, Turkey, live around one of the world's busiest and most treacherous shipping lanes, the Bosphorus Straights, used by tankers transporting oil to world markets. The shipping industry depends on sea state data detailing tides, waves and currents to navigate safely through narrow and shallow shipping lanes, as well as on the high seas. In the event of an accident, information about and predictions of ocean currents are essential in helping government agencies develop an effective response.

These data are also critical for numerous other marine related industries including oil and gas producers, the sound management of ports and harbours, marine weather forecasting, fisheries, and coastal shoreline protection and development.

Until now, a lack of data from the sea's surface and below has hampered efforts to develop models and other tools to help forecast and manage the oceans. The gathering of data and the development of models and tools that meet the needs of marine resource users, governments and scientists requires a global, coordinated, interdisciplinary observing and monitoring system.

Such a system has been developed with broad input from ocean scientists and stakeholders - the **Global Ocean Observing System (GOOS**). It is implemented by national and regional partners, and in part under the auspices of the Joint IOC-World Meteorological Organization Technical Commission for Oceanography and Marine Meteorology (JCOMM). GOOS includes observations using many types of instruments and platforms: surface and profiling floats, ship-based instruments and surveys, moored platforms, and satellite observations of the sea surface. These are constantly reporting in real-time on the state of the ocean, and the dissemination of these data allows their use in a large variety of forecast models and other tools.

GOOS is an ambitious programme founded on intergovernmental co-operation, coordinated with other observing systems in other agencies and organizations to support operational ocean services worldwide. It will form the basis for continuous long-term forecasts of weather and sea conditions, eventually extending our prediction capabilities from days and weeks into seasons and beyond, ultimately enhancing our understanding of climate change.

These data, translated into practical information products and forecasts, will benefit all nations equally. The resulting technology will be accessible to all stakeholders on a low cost basis and assistance provided to help developing countries acquire and deploy the necessary devices in selected sites.

Website: http://ioc.unesco.org/iocweb/oceanMonitoring.php

DATA AND INFORMATION MANAGEMENT

Studying the devastating losses of crops in 1997 in the Central American and Caribbean regions, an oceanographer examines a computer model of the most important factors influencing sea surface temperatures at that time. Understanding the interactions between air and water is critical to understanding climate. El Niño, a warm ocean current, brings floods to the Eastern Pacific and droughts to the West and creates catastrophic effects on a host of human activities, including health, agriculture, fisheries, and forestry.

Collecting oceanographic data, however, is extremely expensive and time-consuming. Fortunately, today's oceanographers don't necessarily need to go to sea: instead, they can just turn on their computers and download new data and satellite images to run models that show changing ocean conditions and produce updated forecasts.

The IOC's **International Oceanographic Data and Information Exchange (IODE)** is a global network of 65 national ocean data centres supplying worldwide access to millions of real-time and archived ocean measurements and observations.

Science progresses through scientists using and adding to each other's expertise. Science lives through publishing research findings. The full participation of scientists around the globe in research therefore requires access to scientific publications. The IOC's IODE assists their participation through developing and/or promoting new technologies related to information management, dissemination and exchange, as well as through supporting access for developing countries to scientific publications.

IODE offers training, equipment and operational support, and provides full and open sharing of a wide range of data sets, free of charge, for the benefit of all countries, including those which would otherwise be financially or technologically unable to access available data, or which may lack the expertise to interpret and/or apply the knowledge.

The economic benefit of obtaining data by exchange, as opposed to collecting it individually, is huge. Thanks to this decentralized model, scientists can participate more actively in the data management chain, and can access data and information more easily. IODE provides valuable oceanographic data and information services to governments, industry, scientists and the general public alike.

Climate risks can be assessed. Already, computer models of the El Niño cycle have been constructed that can forecast its expected magnitude within a year's cycle, enabling affected regions to be better prepared and reduce losses.

Website: http://www.iode.org

FISHERIES AND ECOSYSTEMS

More than half of Ghana's 20 million people live near the coast and rely heavily on fishing just to get enough to eat. Now subsidized European fleets off the West African coast are competing for the same fish causing Ghana to face even worse poverty and social unrest.

An estimated 25 to 30 percent of the world's major fish stocks are overexploited. Not only are the numbers of fish shrinking, but also the variety of species. On a global scale, just 64 large marine ecosystems produce 95 percent of the world's annual marine fishery biomass yields.

To protect our resources for future generations, effective management strategies need to be developed, derived from a sound understanding of the biological, chemical and physical processes of the global oceans. The IOC's programmes advocate marine management practices based on an ecosystem approach that recognizes the interdependence of species and the need to understand how humankind's activities affect and impact the oceans and coasts.

The IOC, in partnership with its advisory partners, is working on improving the long-term sustainability of commercially important fish stocks, as well as ways of detecting relevant changes in the world's large marine ecosystems, such as ocean pollution and coastal habitat alteration. Studies of 33 of the 64 large marine ecosystems have already been conducted and a strategy developed to provide science-based information for their monitoring, assessment, and management.

Scientific and technical assistance is being provided to developing countries committed to advancing this action programme. Through a series of symposia, conferences and workshops, a total of 58 coastal countries in Africa, Asia, Latin America and Eastern Europe to date have reached national and international agreements to proceed with the planning and implementation of projects aimed at the monitoring and assessment of large marine ecosystems.

Website: http://ioc.unesco.org/iocweb/ecosystems.php

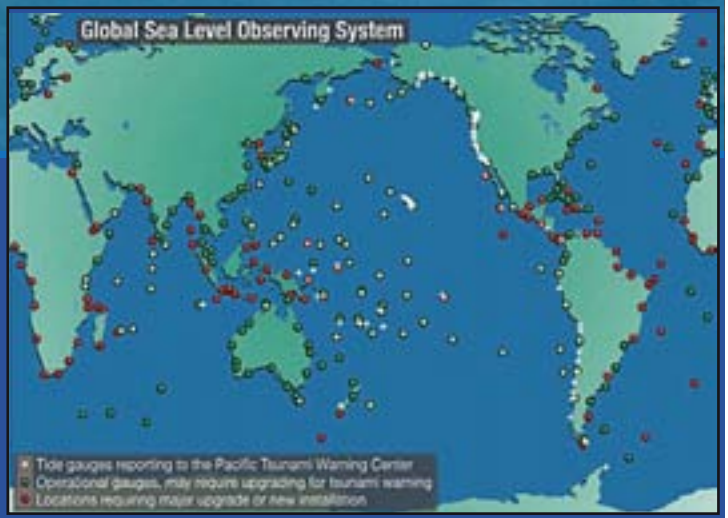
MARINE ENVIRONMENTAL PROTECTION

'Everyone must be aware (that) without intact coral reefs, we will not be able to restore fish stocks fully,' warns the United Nations Environment Programme. Reefs support large stocks of fish and generate food, income, and tourist revenues, while also protecting fragile shorelines against storms and rising sea levels. They could also hold the key to new medicines and industrial products.

Coral reefs are found in more than a hundred countries and nearly two-thirds are now officially endangered. Poverty, population growth and lack of alternative livelihoods keep people dependent on already depleted reef resources. Endangered reefs will certainly continue to degrade unless human impact is carefully managed. Sound and holistic coastal management strategies take into account the needs of poor coastal populations who depend on reefs for their livelihoods.

The **Global Coral Reef Monitoring Network (GCRMN)** assesses the status and trends in reefs and how people use and value their resources. Through this programme, the IOC conducts training courses in South Asia,

Tide gauges contributing to the Global Sea Level Observing System (GLOSS). Extensive upgrading of components of gauges in the Indian Ocean to real-time data delivery is simultaneously contributing to the development of a regional tsunami warning system while providing information for coastal zone and port management, *in situ* calibration of satellite altimeters and global change research.



© *Nature.* Alverson K. (2005). Watching over the World's Oceans. *Nature* 434, 19–20.

East Africa, Southeast Asia and the Caribbean that promote a livelihoods focus in coastal management.

As a result of actively promoting alternative livelihoods in sustainable fisheries and aquaculture, many reefs in remote or well-protected areas that were virtually destroyed from the devastating coral bleaching effect of the 1998 El Niño weather phenomenon are now starting to show signs of recovery.[2]

Working with partners and agencies, the IOC implements global strategies to revert the current decline of coral reefs through capacity building, targeted research and observations, and works towards achieving the goal established by the World Summit on Sustainable Development for equitable and sustainable use of the world's coral reef resources.

Website: http://ioc.unesco.org/iocweb/environmentalProtection.php

COASTAL AREA MANAGEMENT

Coastal waters are the most productive and biodiverse areas of the seas, densely populated and at frequent risk of natural disasters, pollution and harmful algal blooms, such as 'red tides'. The number of stakeholders competing for different important commercial and recreational uses of the same coastal space often creates conflicts, with direct and indirect effects on human health, food supplies, and recreation.

Such is the case of 'dead zones' or oxygen depleted areas. Human activities on land add excess nutrients to coastal areas, killing fish and other living systems. There are nearly 150 such zones worldwide, throughout the seas of Europe and off the coasts of Australia, Brazil, China, Japan, New Zealand and the USA.

Dead zones threaten economies and contribute to the collapse of associated industries like fisheries and tourism. Scientists, governments, industry, and society must share technological advances and collaborate on decision-making in order to manage resources and achieve an area where environmental health, quality of life and economic benefit are balanced. Such a model approach is known as **Integrated Coastal Area Management (ICAM).**

Hundreds of new and longstanding initiatives towards the recovery and sustained health of coastal resources and their associated communities are taking place all over the world. However, without an evaluation process, it would be impossible to track their implementation, measure and predict their progress, or gain and share information from lessons learned. To this end, the IOC and its partners have launched an international project that specializes in promoting the development and use of ICAM indicators and building the capacity of coastal communities by offering training courses, educational tools and materials, a website and support in evaluation techniques.

The dead zone on the northwestern shelf of the Black Sea, so prominent during the 1980s, was finally absent for the first time in 1996. With carefully set goals and management, it is possible for the health of our coasts to recover. Assessing and predicting regional patterns in coastal management issues provide the essential information needed by governments to draw up action plans that protect marine living resources and related costly investments.

Website: http://ioc.unesco.org/iocweb/coastalManagement.php

[2] *Status of Coral Reefs of the World 2004*

DISASTER MITIGATION

Hurricane Dennis swept through Cuba in July 2005 and left the island in a volatile state of political unrest. Just a month later, Hurricane Katrina, one of the strongest storms to strike the coast of the United States during the last 100 years, left over 1,000 dead, destroyed homes and businesses, displaced hundreds of thousands of Gulf Shore residents and caused widespread civil disorder and chaos. The Gulf of Mexico's oil and natural gas production was reduced by 95 percent as refineries closed and rigs and platforms were sunk or set adrift. As a result of the storm's impact, crude oil experienced the biggest one-day price jump ever on world markets.

Natural disasters, like the Indian Ocean tsunami that tragically took the lives of an estimated 226,000 people in 2004, or human-induced disasters, such as oil spills and harmful algal bloom outbreaks cannot yet be prevented. However, effective early warning systems, combined with better preparedness in the form of communication networks and awareness-raising programmes can save lives and limit damage.

Disaster mitigation is one of the IOC's main priorities. Our activities involve promoting the use of science and technology for better preparedness through forecasting and planning, and also prevention when possible.

The IOC currently coordinates the only tsunami warning system anywhere in the world, providing continuous support to the **International Tsunami Information Center** and the **Tsunami Warning System in the Pacific**, which monitor, predict and issue rapid warnings and mitigation plans when tsunamis occur. Through the concerted action of its Member States, the IOC is using the experience of this system in the Pacific to create new national tsunami warning centres in the Indian Ocean and other tsunami warning and mitigation systems for the Caribbean Sea, the Mediterranean Sea and the northeastern Atlantic Ocean.

By knowing in advance if a disaster is going to affect a region, coastal communities can better protect lives and property, and prepare for possible economic and ecological impacts. Through applied research, products and services, the IOC is coordinating operational warning systems that will assist governments to protect the fragile economies of developing nations and help coastal communities forecast the location, intensity and likely impact of future disasters.

Website: http://ioc.unesco.org/iocweb/disasterMitigation.php

CLIMATE CHANGE

Tuvalu, an island in the Pacific Ocean, is seeking a new home for its entire 11,000 population. As global sea level continues to rise, families dump old trucks and machinery along the beaches in a futile attempt to keep the waves at bay. Tuvalu's roads and soils are being swept into the sea, and its food production and drinking water have already been affected by saltwater intrusion.

Rising sea level is the most visible sign of climate change affecting human health and welfare today. But scientists also warn of a kaleidoscope of other potential climate catastrophes for our near future – large-scale changes in rainfall and flooding, increased temperatures and desertification, increased frequency and intensity of storms, shifts in ecosystems and natural resource abundance, changes in vector-borne diseases. In the coming decades, millions of people coping with population growth, industrial development, and intense competition

In a truly international effort of collaboration, the Intergovernmental Oceanographic Commission of UNESCO is leading the coordination to rapidly apply the expertise of its existing tsunami warning system in the Pacific to create a global tsunami warning system. The world was made aware how urgent this need is following December 2004's tragic Indian Ocean tsunami, which claimed the lives of an estimated 226,000 people.

The next catastrophic tsunami may occur wherever there is a coastline. In response the IOC is engaged in extending the same monitoring technology to other zones at risk so that appropriate warning systems are available in all regions of the world.

for cropland and dwindling natural resources may also be forced to become climate refugees.

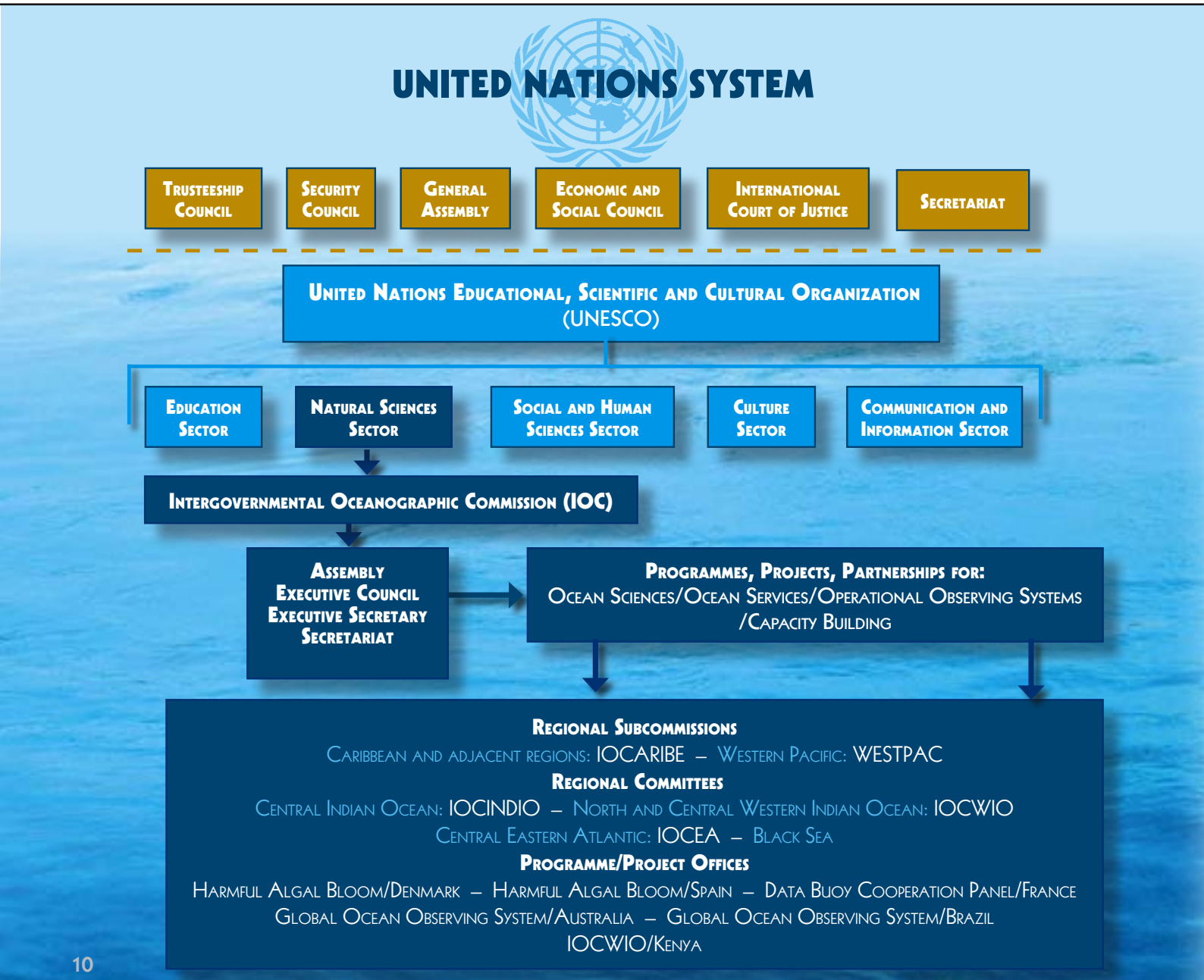
Mitigating climate impacts and protecting natural resources requires the ability to determine the present state of these processes and resources of the land-ocean-atmosphere system and to predict how they will behave in the future under changed conditions. Unfortunately, there still exists a high degree of uncertainty about the cause and effect processes driving climate change and how these processes will behave in the future. This uncertainty has paralyzed much of the global decision-making and actions required to avoid the most serious of climate impacts and assist the most vulnerable populations to adapt.

Reducing uncertainty in climate change and elucidating the ocean's role in global climate is one of the foundations upon which the IOC was built. As co-sponsor of the World Climate Research Programme, the IOC brings together scientists to develop the fundamental scientific understanding of the climate system and processes needed to determine to what extent climate can be predicted and the extent of human influence on climate.

One of the major causes of uncertainty is simply the lack of high-quality global data required to monitor and understand climate behaviour. Under the auspices of the UN Framework Convention on Climate Change and as part of the Global Climate Observing System, the IOC plays a lead role in working with scientists and their governments to develop a global system of ocean observations for climate research. This network, estimated to be approximately 55 percent complete, includes ships, surface and profiling floats, tide gauges, moored time series stations, and satellites to observe the global oceans.

Ultimately, by developing a global observing system for climate and fostering climate research, the IOC and its partners will provide decision-makers with the sound, unbiased scientific data and advice required to reduce the negative impacts of climate change and to protect the ocean and its resources.

Website: http://ioc.unesco.org/iocweb/climateChange.php



THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC) OF UNESCO

AT A GLANCE

- The IOC is the UN focal point for Ocean Sciences and Ocean Services.
- The United Nations Convention on the Law of the Sea (UNCLOS) recognizes the IOC as a competent organization in the field of marine scientific research.
- The IOC was established in 1960 as a flagship programme of UNESCO for coordinating ocean scientific research and developing ocean services worldwide.
- The IOC is a partner in UNESCO's unifying theme of sustainable development.
- One hundred and thirty-two countries are currently members of the IOC.
- The IOC is functionally autonomous within UNESCO and has its own Statutes, Assembly, Executive Council and elections.
- IOC's headquarters are at UNESCO, Paris, France.
  Current Chairman: Prof. David T. Pugh.
  Current Executive Secretary:
  Dr Patricio A. Bernal.
- The IOC addresses the differing needs of specific countries and regions by forming Regional Subcommissions, Project Offices and Committees, which are created with the approval of the Assembly and according to the requests and commitments of the regions.
- Together with national and non-governmental initiatives, IOC's programmes and operating costs are financed through income from UNESCO as part of its regular programme allocation and by voluntary contributions of IOC Member States and partner organizations.
- The IOC fosters regional collaboration in marine sciences and management of resources, and in so doing participates in the UNESCO and UN mandate of conflict prevention.

The Intergovernmental Oceanographic Commission (IOC) of UNESCO promotes international cooperation and coordinates programmes in research, services and capacity building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and the decision-making processes of its Member States.

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC)
United Nations Educational, Scientific and Cultural Organization (UNESCO)
1, rue Miollis,
75732 Paris Cedex 15,
France
Tel: +33 1 45 68 39 83
Fax: +33 1 45 68 58 12
Website: http://ioc.unesco.org

IOC/BROCHURE/2005/1

Photo credits
Page 3 UN/DPI Photo
Pages 4, 8, 9 and 11 Photos by Agustinus Wibowo, *Indonesia* (www.avgustin.net)
Page 6 Left: Courtesy of the University of Rhode Island; Centre: Photo by Burt Phillips; Right: National Oceanic and Atmospheric Administration