Intergovernmental Oceanographic Commission

Workshop Report No. 147

IOC/SOA International Training Workshop on the Integration of Marine Sciences into the Process of Integrated Coastal Management (ICM)

Dalian, China,
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TABLE OF CONTENTS

Page

1. BACKGROUND

1.1 RATIONALE

Integrated coastal area management (ICAM) has emerged as the central organizing framework for the management of coastal ocean areas in the major international agreements adopted in the last several years; most prominently, the Law of the Sea Convention of 1982 (entered into force in 1994); and the agreements emanating from and following the United Nations Conference on Environment and Development of 1992 - Agenda 21, particularly Chapter 17; the Convention on Biological Diversity; the Framework Convention on Climate Change; and the Agreement on Protection of the Marine Environment from Land-Based Activities.

A defining aspect of ICM involves integration in the management of oceans and coasts-integration between national and subnational governments, and integration between the sciences and ICM policy and management. While great advances have been made in the conduct of marine sciences and in systematic observations of the coastal and marine environments in the past decades, all too often this information is not incorporated in the formulation and implementation of ICM efforts. In many nations, there exist a variety of obstacles which work to separate the science endeavors from the management efforts, often resulting in ICM policy which is not based on a solid scientific footing.

1.2 PURPOSES OF THE TRAINING WORKSHOP

The aim of the workshop is to provide a forum for a detailed discussion of the role of the marine sciences in integrated coastal management at national, subnational, and regional levels in the context of the WESTPAC region. The workshop will bring together high-level coastal managers and marine scientists (including both natural and social scientists) in the WESTPAC region. It is expected that by the end of the workshop participants will have a better understanding of the following topics:

- international prescriptions on ICM and on the role of science in ICM
- the basic elements of the ICM process
- the specific roles that marine sciences (both natural and social) can play in the key stages of the ICM process (ICM planning, formulation, implementation, and evaluation)
- the availability of international sources of marine science information and their application to ICM
- recent scientific advances in the marine sciences and their application to ICM
- the obstacles that often prevent the necessary integration between the marine sciences and ICM
- the strategies and mechanisms that may be developed to achieve a closer integration between marine sciences and ICM at national, subnational, and regional levels
- specific cases of integration of the marine sciences and ICM: successes achieved and problems encountered
- ways of better rationalizing international marine science data at regional/national levels

2. OPENING

The IOC-SOA International Training Workshop on the Integration of Marine Sciences into the Process of Integrated Coastal Management (ICM) took place in Dalian, People's Republic of China. In his opening address, the Director-General of SOA's Department of International Cooperation, Mr. Yu Yuancheng, opened the workshop and welcomed the participants. He mentioned the salience of development, protection, and management issues in the coastal zone. He addressed China's recent efforts in integrated coastal management. He recognized the importance of marine science as the basis of comprehensive coastal management and stressed the necessity of communication between scientists and managers.

The Representative of the Intergovernmental Oceanographic Commission (IOC), Mr. Haiqing Li, on behalf of Dr. Gunnar Kullenberg, Executive Secretary IOC, expressed his congratulations to the opening of the Workshop and welcomed the participants. He identified the major objective of the Workshop as promoting the interaction between marine scientists and experts in socio-economic aspects, as well as between scientists as a whole and coastal managers and policy-makers. He also recognized the methods through which science can be incorporated into the process of integrated coastal management as another objective of the Workshop. He expressed his hopes that, as the first IOC workshop on science and policy at the regional level, the Workshop would foster the creation of useful recommendations. He recognized Professors Biliana Cicin-Sain and Robert W. Knecht, University of Delaware, USA, for their valuable contributions to the preparation of the Workshop. He thanked SOA, the Dalian Municipal Government, and the Liaoning Provincial Government for their efforts as well as all the Workshop participants.

The Assistant Mayor of the Municipal Government of Dalian, Ms. He Min, expressed her congratulations to the opening of the workshop and welcomed the participants. She informed the participants of the role Dalian has played in the opening of the northeastern part of China to the outside world. She addressed the special meaning of oceans to Dalian. She recognized the importance the Municipal Government of Dalian attaches to the exploitation and utilization of marine resources as well as the protection and treatment of the marine environment.

The Director of the National Marine Environmental Monitoring Center, SOA, Professor Ding Dewen extended his congratulations on the convening of the workshop and welcomed the participants on behalf of the National Marine Environmental Monitoring Center and the Institute of Marine Environmental Protection, SOA, serving as the local host of the Workshop. He expressed his wishes that the workshop enhance the interactions and cooperation between marine scientists and integrated coastal management.

The Director of the Dalian Oceanic Administration, Mr. Zhou Wangzeng, thanked the organizer of the Workshop for the opportunity to give a speech. He discussed integrated marine management in Dalian. He noted that recently, the Dalian municipal government established the Dalian Oceanic Administration and entitled it with the function of integrated marine management for the purpose of sustainable development of the marine economy. He informed the participants that the implementation of integrated marine management in Dalian has been based on the ocean zoning plan and marine development programme. He wished the workshop full success.

Professor Biliana Cicin-Sain, University of Delaware, USA, welcomed the participants on behalf of the co-chairs of the workshop, Professors Su Jilan (China) and Professor Biliana Cicin-Sain (USA). She pointed to the central role that the Intergovernmental Oceanographic Commission of UNESCO was performing in applying knowledge from the natural and social sciences to coastal management in national around the world. Professor Cicin-Sain thanked the Chinese sponsors for all their efforts in the organization of the workshop and for the warm hospitality that they were extending to the workshop participants.

The addresses at the opening of the Workshop are provided in Annex II

3. ADMINISTRATIVE ARRANGEMENTS

3.1 PROGRAMME

The Workshop co-chairs, Drs. Su Jilan and Biliana Cicin-Sain introduced the Workshop programme and explained the rationale behind it. The Workshop aimed at combining the lectures in natural and social sciences and promoting interaction through discussion between scientists, both natural and social, and the coastal managers/policy makers. The Workshop Programme is given in Annex I.

3.2 DOCUMENTATION

The Technical Secretary of the Workshop, Mr. Haiqing Li, from the IOC, presented to the participants the documentation available as a pre-conference workshop packet. He thanked the Center for the Study of Marine Policy, University of Delaware (Professors Biliana Cicin-Sain and Robert W. Knecht, co-directors) for the Center's work in the preparation of the Workshop materials.

3.3 ORGANIZATION

It was proposed to the participants that five days would be devoted to lectures, presentations and related discussions. In the afternoon of the fourth day, the participants, divided into working groups, were requested to develop the sections identified under item six of the agenda, to formulate concrete recommendations for improving the interaction between the natural and social sciences and policy making and implementation of coastal programs. One leader from each group presented a summary of the preliminary conclusions and recommendations that had been formulated. In the afternoon of the fifth day, the Workshop participants would adopt a set of specific recommendation aimed at improving science-policy interactions in integrated coastal management.

4. GENERAL LECTURES

4.1 EMERGING INTERNATIONAL AGREEMENTS RELEVANT TO ICM

Professor Biliana Cicin-Sain, University of Delaware, USA, lectured on emerging international agreements relevant to integrated management of coasts and oceans, particularly since the Earth Summit held in Rio de Janeiro, Brazil, 1992.

4.1.1 The Evolution of Global Prescriptions for Integrated Management of Coastal and Ocean Resources

Professor Cicin-Sain traced the evolution of international governance regimes for oceans and the environment, and emphasized the importance of the Law of the Sea Convention and of UNCED as the major frameworks which provide guidance to nations on the governing of coasts and of ocean areas under national jurisdiction. The UNCED, twenty years after the initial UN Conference on the Human Environment in Stockholm, built on the Law of the Sea (LOS) framework and provided further guidance to nations, particularly in Chapter 17 of Agenda 21, emphasizing central concepts of sustainable development and integrated management.

4.1.2 Earth Summit Implementation: Growth in Capacity in Ocean and Coastal Management

Professor Cicin-Sain reviewed a number of international agreements which embraced the concept of ICM as an appropriate and necessary way of addressing a wide range of issues from climate change to marine pollution: 1) The Framework Convention on Climate Change; 2) The Convention on Biological Diversity; 3) The Program of Action for the Protection of the Marine Environment from Land-based Activities; 4) The Global Conference on Sustainable Development of Small Island Developing States; and 5) The International Coral Reef Initiatives. In addition, she presented the comparison of five major efforts to develop ICM international guidelines: World Bank, World Coast Conference, UNEP, OECD, and IUCN. Finally, she introduced a number of examples of progress since UNCED in the area of capacity building in ocean and coastal management, including UN entities: IOC, UNDOALOS, FAO, UNEP, UNDP, IMO, GESAMP, World Bank, and GEF, and regional and national training efforts: Train-Sea-Coast, the IOI Network, NETTLAP Program, Canada/ASEAN Marine Science Program, MEDCOAST Training Program, etc.

4.1.3 Jakarta Mandate on Marine and Coastal Biological Diversity

Professor Cicin-Sain emphasized the importance of the Jakarta Mandate on Marine and Coastal Biological Diversity, declared at the COP 2 Meeting to the Convention on Biological Diversity, held in Jakarta, Indonesia, 6-17 November 1995. In particular, the Jakarta Mandate, among others, "encourages the use of integrated marine and coastal area management as the most suitable framework for addressing human impacts on marine and coastal biological diversity and for promoting conservation and sustainable use of this biodiversity" (UNEP, *A Call to Action*, II/10.2).

4.2 INTEGRATED COASTAL MANAGEMENT: DEFINITIONS AND BASIC CONCEPTS

Professor Robert W. Knecht, University of Delaware, USA, lectured on fundamental definitions and basic concepts of integrated coastal management. Quoting from the book entitled *Integrated Coastal and Ocean Management: Concepts and Practices*, Biliana-Cicin-Sain and Robert W. Knecht (with the assistance of Dosoo Jang and Gregory W. Fisk), Washington D.C., Island Press, 1998, Professor Knecht described the definition of ICM as "a continuous and dynamic process in which decisions are taken for the sustainable use, development, and protection of coastal/marine areas and resources".

4.2.1 The Need for Integrated Coastal and Ocean Management

Professor Knecht explained the major reasons why an ICM approach is needed for managing oceans and coasts in two fold: the effects that ocean and coastal uses, as well as activities further upland, can have on ocean and coastal environments, and the effects that ocean and coastal users can have on each other. He exemplified a number of models of coastal/ocean uses and their interactions, bringing up specific case studies.

4.2.2 Definitions of Integrated Coastal Management and Fundamental Concepts

This session aimed at defining fundamental concepts of ICM, management principles of managing oceans and coasts, and typical stages in the development of an ICM program. Professor Knecht focused on catalysts triggering the need for ICM, definition of integration in developing coastal management program, major stakeholders in ICM.

4.3 COASTAL MARINE SCIENCE RESEARCH AND TECHNIQUES: HOW THEY CAN BE APPLIED TO COASTAL MANAGEMENT PROBLEMS--NATURAL SCIENCE PERSPECTIVES

In this session, natural scientists such as oceanographers, marine geologists, and marine environmental engineers discussed their research and new technical advances in coastal/marine science and presented natural science perspective on how to apply marine-related technical advances to solve typical coastal problems.

4.3.1 Coastal Oceanography and Dynamics, and Systematic Coastal Ocean Observation

Professor Su Jilan, 2nd Institute of Oceanography, SOA, China, lectured on coastal oceanography and dynamics. He covered world ocean and coastal oceanographic phenomena and emphasized the uniqueness of the oceanic physical environment. He presented in further detail deep and shallow water wave systems, the nature of tides and tsunami, and circulation of ocean currents. He raised some issues in coastal management, focusing on coastal ocean observing system.

4.3.2 Coastal Ecological Systems and Biological Processes

Prof. Ong Jin Eong, Centre for Marine and Coastal Studies, Universiti Sains, Malaysia, gave a lecture on the topic, citing examples of his ecological monitoring activities in Malaysia., and emphasized on the importance of the ecological systems in the integrated coastal management.

4.3.3 Coastal Geological Processes and Land-Ocean Interaction (Sea-Level rise and Its Impact on the Coastal Zone; Result of the Bordeaux Conference)

Professor Ying Wang, Nanjing University, China, lectured on coastal geological processes, focusing on regional geological structures on the original coastal features, and the effects on the coastal dynamic processes, and present tectonic movement and its influences, especially discussing the China coasts as an example. Another focus was on land-ocean interaction, including the river

systems, sand dune coasts, and sediment supplies to the continental shelf. Finally, he emphasized the present rise in sea-level and its effects, as well as human impact on coastal zones.

4.3.4 Coastal Marine Pollution Research and Monitoring

Dr. Raj Murthy, National Water Research Institute, Canada, lectured on coastal circulation, such as coastal climatology of currents, thermal structure, climate aspects, stratification, and related coastal physical processes. He also addressed coastal dispersion including structure of oceanic turbulence, measurement of dispersion processes, and oceanic diffusion laws. Finally, he covered coastal transport modeling on pollutant transport and dispersion, marine outfall dispersion, and integration of hydrodynamic and pollution transport models.

He presented an overview of some fundamental turbulent diffusion processes largely inferred from large scale field experiments in the oceanic and aquatic environments. He expanded his lecture on the experimental case study of the Great Lakes. He introduced the strong longshore currents along the coastal zones of the Great Lakes. Unlike river currents, coastal currents in a lake do not necessarily flow in one direction but often move back and forth along the shore in typical periods of 5 -10 days. He emphasized the importance of local wind as governing the behavior of costal currents. Seasonally, during the winter homogenous conditions, currents are completely determined by the wind forcing, while during summer stratified conditions, thermal stratification also play a key role.

4.3.5 Data Assimilation and Coastal Modeling

Professor Tetsuo Yanagi, Ehime University, Japan, presented the case study of Dokai Bay, Japan, from field observations and numerical experiments. One interesting point was that an ecological numerical model had been developed for coastal zone management in Dokai Bay, which has become "the Sea of Death" due to the serious pollution. In order to prevent excessive nitrogen and phosphorus from being discharged into coastal waters, it was necessary to forecast quantitatively how much of the nitrogen and phosphorous should be cut to avoid the occurrence of red tides and oxygen-deficiency. In this context, the numerical ecosystem models could be used for water quality assessment and the investigation of oxygen-deficiency.

Professor Yanagi lectured on seasonal variation of circulations in the East China and the Yellow Sea, investigated by use of a robust diagnostic numerical model. He introduced discoveries that counter-clockwise circulations are developed at the upper and middle layers and a clock-wise circulation at the lower layer in the current part of the Yellow Sea in summer. One the other hand, a clockwise circulation is developed from the surface to the bottom in the Yellow Sea and a counter-clockwise one in the northern part of the East China Sea in winter.

4.3.6 Coastal Remote Sensing

Dr. Weigen Huang, 2nd Institute of Oceanography, SOA, introduced remote sensing technique and its application to integrated coastal management. He emphasized that this modern technique can be used for coastal marine pollution monitoring such areas referred to as oil slicks and red tides. Other applications are sea ice monitoring and forecasting, studies of suspended matter transport, and

observation of river pumps, and coastal oceanography.

4.4 MAJOR INTERNATIONAL MARINE SCIENCE PROGRAMMES AND THE APPLICABILITY OF THEIR RESULTS TO ICM

4.4.1 IOC Programme

Mr. Haiqing Li gave a brief introduction of IOC, its origin, structure, member states, and its general objectives as the sole body within the UN system dedicated to marine scientific research. Also, he made a brief introduction of IOC/WESTPAC Sub-Commission for the Western Pacific. More substantively, he introduced the IOC programmes on ocean science and ocean service, with emphasis on those programs and projects which contribute directly to the Integrated Coastal Area Management, particularly, the programs and projects in the WESTPAC region given their direct connections to the WESTPAC countries. Mr. Yihang Jiang then supplemented the introduction to the IOC with focus on specific IOC/WESTPAC projects which might potentially contribute to the coastal management.

Prof. Duxin Hu, Institute of Oceanology of the Chinese Academy of Sciences, and Prof.Tang Qisheng, Yellow Sea Fisheries Research Institute of the Ministry of Agriculture, gave presentations on IOC co-sponsored programmes such as LOICZ and JGOFS, as well as GLOBEC and LME respectively, all of which are the most important existing research programmes related to land/sea interaction and coastal ecological systems.

4.4.2. UN Train-Sea-Coast Programme

Professor Biliana Cicin-Sain, on behalf of Ms. Stella Vallejo, Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, UN, introduced the UN Train-Sea-Coast Programme. She covered reasons of the establishment, objectives of the programme, and related projects, and operational matters.

She discussed the main features of the Train-Sea-Coast Programme by comparing traditional approaches to human resources development (HRD) and the Train-X approach. The Train-X approach to HRD is based on the creation of intercountry cooperative training and HRD networks of training and educational centers that agree to join the global network and share the training development task. In this respect, the key element of the Train-Sea-Coast Programme is a decentralized, cooperative training network strategy to be the most timely and effective tool for achieving the goals of the human resource capacity-building.

4.4.3 UNEP and CCOP Programmes

The representative of UNEP, Dr. Habib N. El-HABR, gave an introduction to the UNEP Regional Seas Programme in the southeast Asia (COBSEA) and northeast Asia (NOWPAP) and demonstrated the usefulness of these programmes to the integrated coastal mananagement. The representative of CCOP, Dr. Bert Van Der Valk, introduced the " COASTPLAN", a newly initiated CCOP project with a view to applying geoscience to the integrated coastal area management.

4.5 COASTAL MARINE SCIENCE RESEARCH AND TECHNIQUES: HOW THEY CAN BE APPLIED TO COASTAL MANAGEMENT PROBLEMS--SOCIAL SCIENCE PERSPECTIVES

This session focused on contributions from social sciences in addressing coastal problems and making policy decisions in order to solve complex coastal problems related to natural, social, economic, and environmental interactions.

4.5.1 Coastal Marine Resource Economics in the Context of ICM

Professor Nik Mustapha R. Abdullah, University Pertanian Malaysia, Malaysia, lectured on economics in coastal marine resources in the context of integrated coastal management. He introduced characteristics of coastal zone resources as a multiple-use resource, particularly, focusing on the role of economics in the coastal marine resource use and planning, economic valuation, and then how to bridge from valuation to policy formulation. He covered the Southeast Asian Area as an example. The more theoretical presentations follow as below:

- Economic Valuation: Available Methods
- Measuring Net Economic Benefits of Marine Recreational Fisheries in Malaysia
- Estimating the Benefits of Beach Recreation: An Application of the Contingent Valuation Method
- Fisheries Management Paradigms and Malaysian Fisheries
- Small-Scale Coastal Fisheries and Co-Management

4.5.2 The Role of Coastal Communities in Integrated Coastal Zone Management

The lecture of Professor Chia Lin Sien, National University of Singapore, Singapore, focused on socio-economic perspectives of integrated coastal management including coastal issues such as coastal population, patterns of settlement, preferences and behaviors of organized coastal interests (e.g. fishermen), administrative, fiscal and legal capacity in formulating and implementing ICM and inter-agency relations in ICM. He emphasized the need to bridge widening gap between traditional strategies for resource use and modern sectoral development pressures. He added as a case study an institutional mechanism for marine area management of the Municipal Government of Xiamen, China, using the following related material:

- "An Institutional Mechanism for Marine Area Management: Efforts of the Municipal Government of Xiamen, China," by Chen Quoqiang and Chua Thia Eng.

5. GROUP DISCUSSIONS, COMPARISONS AND ANALYSIS

5.1 THE CONTRIBUTION OF MARINE SCIENCE AND TECHNOLOGY TO THE ICM PROCESS: NATIONAL, SUBNATIONAL, AND REGIONAL PERSPECTIVES

5.1.1 National Level

Dr. Ji Hyun Lee, the Korea Maritime Institute, presented the Korean example of applying science in integrated coastal management. She addressed first coastal management issues in Korea, then Korean marine policy development relevant to ICM, the role of science in this ICM development, and the role of ICM pilot demonstration for scaling up to national implementation of ICM. In particular, she mentioned policy issues and management framework for Chinhae Bay in Korea. She addressed the goal of this pilot project aiming to develop ICM model which could be implemented in the Korea coastal governance system, and to identify area-specific solutions for the sustainable development of coastal resources, using the following related material:

- "Policy Issues and Management Framework of Chinhae Bay, Republic of Korea," by Ji Hyun Lee

5.1.2 Subnational Level

Dr. Huming Yu, UNDP/Regional Programme for the Prevention and Management of Marine Pollution in the East Asian Seas, presented the basic framework of science application in coastal zone management. He illustrated the case study of Xiamen, China, which made an effort to integrate science into policy processes, using the following related material:

- "Science and Policy at the Local Level: Xiamen, China," by Huming Yu.

5.1.3 Regional Level

Professor Aprilani Soegiarto, Indonesian Institute of Sciences, Indonesia, presented Southeast Asian regional perspectives of marine science application in coastal environmental management. In recent years, increasing population and rapid economic development in the coastal zone have caused severe degradation of the marine environment. He addressed that many relevant coastal problems were due to the lack of data and information as a base for sound utilization and proper management of the coastal zone. In order to alleviate these problems, he emphasized that a regional cooperation on research and integrated coastal management has been developed in the Southeast Asian region, using the following related material:

- "Regional Perspectives of Marine Science Contribution to Coastal Environmental Management--A Case Study from the Southeast Asian Region," by Aprilani Soegiarto.

6. IMPROVING THE CONNECTION BETWEEN SCIENCE AND POLICY IN ICM AT NATIONAL, REGIONAL, AND SUBNATIONAL LEVELS

6.1 STRATEGIES FOR BRINGING SCIENCE INTO THE ICM PROCESS

This session reviewed the decision making processes in ICM to ascertain key points where scientific analysis could be especially useful in ICM decision-making. Then, the session reviewed

obstacles in bringing science and policy together in ICM processes, and opened a general discussion of successful strategies for connecting science and policy in ICM decisions.

6.1.1 The ICM Decision Process

Professor Robert W. Knecht, University of Delaware, USA, talked about setting the stage for understanding ICM and developing a political will to undertake ICM. An adequate level of political will is needed for decision-makers at the executive and legislative levels to take the administrative or legal action to commit the resources necessary to undertake a new initiative such as ICM. In this respect, institutional considerations are important because institutions are the main actors in coastal management processes, as well as taking into account the importance of the legal and financial arrangements. He used the following related materials:

- "Setting the Stage for ICM," by Biliana Cicin-Sain and Robert W. Knecht
- "Intergovernmental, Institutional, Legal, and Financial Considerations," by Biliana Cicin-Sain and Robert W. Knecht

6.1.2 Some Strategies for Connecting Science and Policy in ICM Decisions

Professor Biliana Cicin-Sain, University of Delaware, USA, presented on the importance of a solid scientific basis for ICM. However, major scientific uncertainties exist in understanding the behavior of both physical and social systems making up the costal zone. She emphasized that one of important challenges of ICM was the design of a decision-making system that could function in the presence of gaps in information and understanding. She covered a wide variety of useful coastal management methodologies, technologies, and analytical tools such as mapping and GIS system, remote sensing, rapid appraisal techniques, EIA, benefit-cost studies, risk assessment, valuation of resources, and habitat assessment techniques. In addition, she explained some cultural differences between natural and social scientists, and lectured on how to deal with complexities in the coastal decision-making processes. Finally, she introduced the GESAMP report on the contributions of science to ICM, using the following related materials:

- "Informing the ICM Process: Building the Science and Information Base," by Biliana Cicin-Sain and Robert W. Knecht.
- "Challenges to Effective Use of Science in Making and Implementing Coastal Policy," by Biliana Cicin-Sain and Robert W. Knecht.
- "The Contributions of Science to Integrated Coastal Management," by GESAMP.

6.1.3 Analysis and Planning for ICM: A Case Study of Pollution Discharge

Mr. Daniel J. Basta, National Oceanic and Atmospheric Administration, USA, presented on a case study of pollution discharge implemented in the context of ICM. He reviewed the overall case study of ICM in practice, and then shared lessons learned from the implementation. Especially, he emphasized the development of ICM CD-ROM and its importance as a tool to disseminate the information and data for ICM.

7. RECOMMENDATIONS

Through 3 sub-groups focusing their discussion on the problems at the global, regional, national and sub-national/local levels, the Workshop adopted a series of recommendations to improve science/policy interaction.

7. 1 CONCERNING THE GLOBAL LEVEL

(I) IOC should help ensure that coordination takes place among the organizations concerned with the implementation of the Convention on Biological Diversity, the Framework Convention on Climate Change, Chapter 17 of Agenda 21, the International Coral Reef Initiative, and the Global Programme of Action dealing with land-based sources of marine pollution in order to insure consistency in the implementation of the ICM mandates included within these agreements.

(ii) A clearinghouse mechanism on ICM activities, building on the IOC information system on ICM and including scientific information useful to ICM, should be established. The use of the Internet should be considered. This mechanism should also encourage networking among entities engaged in ICM design and implementation. Review and critiques of various ICM models should be considered as an activity of such a clearinghouse.

(iii) IOC, other interested organizations, and national governments should encourage donors to adopt a common approach toward ICM and to coordinate their programs on ICM at national and local levels. Likewise, international organizations, particularly UN specialized agencies, should take concerted actions in ICM implementation. Since ICSPRO has been recognized as an appropriate mechanism to insure that this coordination takes place, IOC should take the initiative in this regard.

(iv) Capacity building in ICM should be encouraged, including the development of ICM guidelines and the organization of specialized workshops and training courses. Centers of excellence that offer cross-training in natural and social sciences relevant to ICM should be encouraged.

7.2 CONCERNING THE REGIONAL LEVEL

(I) IOC/WESTPAC should become the initial test area for encouraging coordinated actions related to ICM among the different international organizations in the region. Memoranda of Understanding (MOU) between Secretariats of international organizations and agreements should be encouraged to facilitate coordination of the implementation actions in ICM in the region. The Gulf of Thailand Study and the Mega City Symposium (Sea Megalopolis, in Shanghai 1998) could be used as opportunities in this connection.

(ii) IOC/WESTPAC should cooperate closely with other major regional entities (e.g.

ASEAN, UNEP Regional Seas Programme, IMO/GEF/UNDP Project, CCOP, etc.) to ensure that appropriate scientific regional-level data are collected and interpreted to aid in ICM regional decision-making. In this connection, IOC/WESTPAC should encourage regional and national associations of scientists to reach consensus on important ICM issues in their region.

(iii) Regional coordination mechanisms should be established to help ensure that the various ICM activities of multilateral and bilateral donors promote integrated ICM programmes.

(iv) IOC should perfect a training course on the science/policy interface in ICM to be held in various regions of the IOC, including continued efforts in the WESTPAC region.

7.3 CONCERNING THE NATIONAL LEVEL

(i) Interested non-governmental organizations (NGOs), policy officials of interested governments, and the scientific community should design and implement public awareness programmes on the need for ICM to ensure the prominence and, after implementation, the permanence of ICM in coastal nations.

(ii) Given limited management resources, the national agency concerned with ICM should ensure that scientifically sound syntheses and assessments necessary to set national priorities among ICM problems in coastal areas and regions are made.

(iii) National science agencies should encourage relevant case studies to develop guidelines and techniques for multi-disciplinary assessment and decision-making.

(iv) National agencies concerned with ICM should develop and implement ICM training programmes involving the appropriate use of scientific information for senior policy officials, CZM practitioners, and the scientific community.

(v) National science agencies and other funding sources should encourage the development of innovative, active and visible incentive systems to increase collaboration between the scientific community and policy-makers.

7.4. CONCERNING THE SUB-NATIONAL/LOCAL COMMUNITY LEVEL

(I) National governments, international organizations, and others should assist in building capacity for ICM at the local level:

- conducting training workshops for provincial and local government officials to help them implement ICM;
- adapting training courses and materials for local use;
- involving local communities at all levels of ICM including planning and implementation, monitoring, and evaluation;

- recognizing local expertise and traditional knowledge about resource use and management.

(ii) The local community level should be a full and active participant in the ICM process. Toward that end, the local institutional frame work for intersectoral management and related community organization for ICM should be strengthened. All coastal stakeholders should be involved in the ICM process including business enterprises in order to create alternative employment, income opportunities, and other economic benefits for local communities. Funding mechanisms should be created at the local level to enable integrated coastal management to be sustained over the long term.

(iii) Scientists should present their scientific findings in an understandable form to local government officials, community leaders, and the people. Similarly, coastal management authorities and other agencies should generate ICM materials, including scientific information, in the local vernacular, for wide and more effective distribution. The mass media should be encouraged to promote awareness of scientific findings relevant to local decision-making and to promote public awareness and education concerning ICM.

(iv) International organizations such as IOC, national coastal agencies, and donors should promote awareness among scientists of problems in coastal areas with the goal of improving scientific involvement in ICM decision-making.

8. CLOSING OF THE WORKSHOP

The co-chairs thanked the lectures and participants for their active and enthusiastic contribution to the production of fruitful outcomes of the Workshop and declared the closing of the Workshop.

ANNEX I

WORKSHOP SCHEDULE

MONDAY, 19 MAY 1997

PART I. INTRODUCTION TO THE WORKSHOP

0900-1000
- Workshop Aims and Objectives
- Introduction of Instructions and Participants
- Working Modalities

Co-chairs: Dr. Su Jilan (China) and Dr. Biliana Cicin-Sain (USA)
Technical Secretary: Haiqing Li (IOC/UNESCO)

PART II. GENERAL LECTURES

1000-1200 1. Emerging International Agreements Relevant to ICM

This section will focus on recent developments at the international level which have made ICM the central organizing framework for the management of oceans and coasts. The discussion will review the prescriptions on ICM found in various international agreements and discuss other international efforts to define and operationalize the ICM concept.

- UNCED and Agenda 21, particularly Chapter 17;
- UN Convention on the Law of the Sea with particular reference to ICM;
- Convention on Biological Diversity (1992);
- Framework Convention on Climate Change (FCCC) (1992);
- Agreement on Land-Based Sources of Marine Pollution; and
- Other relevant international efforts

Lecturer:
Professor Biliana Cicin-Sain, University of Delaware, IOC Consultant on ICM

1200-1330 LUNCH

1330-1530 2. Integrated Coastal Management: Definitions and Basic Concepts

This section focuses on the concept of ICM; provides definitions; discusses ICM principles and management tools; discusses alternative institutional arrangements for ICM.

- Definition of ICM;
- Basic objectives of ICM;
- The ICM process;
- Central aspects of ICM;
- ICM principles;
- Institutional aspects of ICM; and
- ICM management tools

Lecturer:
Professor Robert W. Knecht, University of Delaware, IOC Consultant on ICM

1530-1545 COFFEE BREAK

3. Coastal Marine Science Research and Techniques: How They Can Be Applied to Coastal Management Problems--Natural Science Perspectives

Several sections will discuss research and new technical advances in coastal marine science and illustrate specifically how these can be applied to typical problems in coastal management such as coastal pollution control, sea level rise, protection of fisheries habitat, coastal erosion prevention, marine disaster prevention/mitigation, aquaculture siting, etc.

1545-1745 3a. Coastal Oceanography and Dynamics, and Systematic Coastal Ocean Observation

Lecturer:
Dr. Su Jilan, Director, Second Institute of Oceanography, SOA. Former Chairman of IOC Sub-commission for Western Pacific

1830- WELCOMING RECEPTION AND DINNER

TUESDAY, 20 MAY 1997

0900-1030 3b. Coastal Ecological Systems and Biological Processes

Lecturer:
Professor Ong Jin Eong, Centre for Marine and Coastal Studies, Universiti Sains, Malaysia

1030-1200 3c. Coastal Geological Processes and Land-Ocean Interaction (Sea-level Rise and Its Impact on the Coastal Zone; Result of the Bordeaux Conference)

Lecturer:
Professor Ying Wang, Director, State Pilot Lab of Coastal and Island Development, Nanjing University, China

1200-1330 LUNCH

1330-1745 3d. Coastal Marine Pollution Research and Monitoring

Lecturers:
Dr. Raj Murthy, Canada/India (organizer of IOC course on marine pollution MAMCOMP)

Dr. Pornthip Puncharoon, Environmental Research & Training Centre, Department of Environmental Quality Promotion, also Project Leader for IOC/WESTPAC Mussel Watch Project

1830- DINNER

WEDNESDAY, 21 MAY 1997

0900-1030 3e. Data Assimilation and Coastal Modeling

Lecturer:
Professor Tetsuo Yanagi, Department of Coastal Engineering, Ehime University, Japan

1030-1200 3f. Coastal Remote Sensing

Lecturer:
Dr. Weigen Huang, Director, Remote Sensing Lab, 2nd Institute of Oceanography, SOA, China

1200-1330 LUNCH

1330-1530 4. Major International Marine Science Programmes and the Applicability of their Results to ICM

This session will discuss a wide range of international marine science programs and illustrate the applicability of their results to ICM, including discussion of sources of information and data, and how, where, and at what cost nations can benefit from existing sources of international marine science information.

Lecturers:
4a. IOC Programme: Haiqing Li and Yihang Jiang, IOC
4b. LOICZ and JGOFS: Professor Dun-xin Hu, Academia Sinica
4c. GLOBEC and LME: Professor Qi-sheng Tang, Yellow Sea Fisheries Research Institute, China
4d. UN Train-Sea-Coast Programme: Professor Biliana Cicin-Sain, University of Delaware, USA
4e. UNEP/EAS Project: Mr. Habib N. EL-HABR, RCU/EAS, UNEP

1530-1730 5. Coastal Marine Science Research and Techniques: How They Can Be Applied to Coastal Management Problems--Social Science Perspectives

This session will focus on contributions from the social sciences (political science, economics, anthropology, geography, sociology, planning, law) in addressing ICM management problems and illustrate specifically how these can be applied to typical problems in coastal management such as coastal pollution control, sea level rise, protection of fisheries habitat, coastal erosion prevention, marine disaster prevention/mitigation, aquaculture siting, etc., as well as to the overall organization of an integrated coastal management system.

- Research on coastal populations, patterns of settlement;
- Research on preferences and behaviors of organized coastal interests (e.g., fishermen);
- Research on alternative policy courses of action to be pursued through ICM;
- Research on administrative, fiscal and legal capacity in formulating and implementing ICM; and
- Research on inter-agency relations in ICM

Lecturers:
Dr. Nik Mustapha R. Abdullah, Department of Natural Resources Economics and Management, University of Pertanian Malaysia Member of GESAMP

Professor Chia Lin Sien, Department of Geography, National University of Singapore

Additional Discussion:
Professor Biliana Cicin-Sain, University of Delaware, Dr. Huming Yu, IMO, and Professor Robert W. Knecht, University of Delaware

1830 DINNER

THURSDAY, 22 MAY 1997

PART III. GROUP DISCUSSIONS, COMPARISONS AND ANALYSIS

0900-1200 6. The Contribution of Marine Sciences and Technology to the ICM Process: National, Subnational, and Regional Perspectives

This session will review a series of case studies analyzing efforts to rationalize science and policy at various levels: at a national level, at a subnational or local level, and at a regional (supranational) level.

Following the case study presentations, an overall discussion will take place and participants will be asked to summarize the results of the discussions and to make recommendations.

Discussion Leaders:
Professor Biliana Cicin-Sain, University of Delaware, USA and Dr. Su Jilan, SOA, China

6a. National level:
Ji Hyun Lee, KMI, Republic of Korea, "Science in the Application of ICM in Korea"

6b. Subnational level:
Dr. Huming Yu, UNDP/IMO/DENR, "Science and Policy at the Local Level: Xiamen, China"

6c. Regional level:
Professor Aprilani Soegiarto, Vice-Chair of Indonesian Institute of Marine Science, "Regional Perspectives of Marine Science Contributions to ICM--A Case Study of the South East Asian Region"

1200-1900 FIELD TRIP

FRIDAY, 23 MAY 1997

PART IV. IMPROVING THE CONNECTION BETWEEN SCIENCE AND POLICY IN ICM AT NATIONAL, REGIONAL, AND SUBNATIONAL LEVELS

0900-1200 7. Strategies for Bringing Science into the ICM Process

This session will first review decision-making processes in ICM to ascertain key

points when scientific analysis can be especially useful in ICM decision-making. Next, obstacles in bringing science and policy together in ICM will be reviewed and different means of bringing scientists and ICM decision-makers together will be discussed. Finally, a general discussion of successful strategies for connecting science and policy in ICM decisions will take place.

Discussion Co-leaders:
Professor Robert W. Knecht, University of Delaware, USA
Professor Ong Jin Eong, Centre for Marine and Coastal Studies, Universiti Sains Malaysia

Lectures:
7a. "The ICM Decision Process,"
Professor Robert W. Knecht
7b. "Some Strategies for Connecting Science and Policy in ICM Decisions,"
Professor Biliana Cicin-Sain
7c. "Some Experiences in Bringing Science and Policy Together in ICM,"
Professor Ong Jin Eong
7d. "Analysis and Planning for ICM: A Case Study of Pollution Discharge,"
Daniel J. Basta, Chief, Strategic Environmental Assessment, ORCA, NOAA

1200-1330 LUNCH

1330-1700 8. Workshop Discussions of Successful Strategies for Bringing Science and Policy Together in ICM

Participants will be organized into discussion groups to discuss successful strategies for bringing science and policy together in ICM. Participants will develop specific recommendations for improving the connection between science and policy at the regional level (WESTPAC region), at national levels, and at subnational levels.

1830- BANQUET

SATURDAY, 24 MAY 1997

PART V. WORKSHOP CONCLUSION AND RECOMMENDATIONS

0900-1200 This session will review the recommendations for improving the connection between science and policy in ICM developed by participants regarding regional, national, and subnational efforts in ICM.

- FORMAL CLOSING OF THE WORKSHOP -

ANNEX II

SPEECHES

A. THE DIRECTOR-GENERAL OF THE DEPARTMENT OF INTERNATIONAL COOPERATION OF THE STATE OCEANIC ADMINISTRATION, CHINA

by Mr. Yu Yuancheng

Distinguished guests,
ladies and gentlemen:

Today begins the International Training Workshop on the Integration of Marine Sciences into the Process of Integrated Coastal Management cosponsored by the Intergovernmental Oceanographic Commission and the State Oceanic Administration. On behalf of SOA, I would like to offer our congratulations on the opening of the workshop and extend our warm welcome to our friends from Canada, Indonesia, Japan, the Republic of Korea, Malaysia, the Philippines, Singapore, Russia, Thailand, the United States, Vietnam, and the representatives from IOC, IMO and UNEP, as well as all the Chinese experts present here. I would also like to especially welcome the presence at today's opening ceremony of the leaders from Dalian Municipal Government, the Marine Fisheries Department of Liaoning Province and the National Marine Environment Monitoring Center and express my sincere thanks for their strong support.

The coastal zone is where the land and the sea meet, a special geographic area characterized by the high density of population, abundance of natural resources and dynamic activities of production. It is closely related to the development of the national economy. Consequently, the development, protection and management of the coastal zone have become one of the hottest issues in the world today.

China has always attached importance to the development, utilization, and protection of the coastal zone. Since the beginning of the 1990's, the development of the marine economy has been viewed as a new element of economic growth. Up to the present, China has completed a comprehensive survey and planning of its coastal zones and islands, worked out and implemented the national plans of functional division of its sea waters and marine development, and formulated and carried out the regulations on the management of sea area utilization. In the course of realizing integrated coastal zone management, we are gaining an increasingly deeper understanding of the importance of marine sciences as the basis of comprehensive coastal management. And therefore, it is our great pleasure to co-sponsor this training workshop with IOC. The workshop is expected to promote the exchanges and communications between marine scientists and the marine management and get marine sciences more actively involved in the processes of integrated marine management, Now that we have both scientists and management personnel in this workshop, it is my belief that you will have extensive exchanges and learn a great deal from each other in these few days.

Ladies and gentlemen, I hereby give my best wishes for the success of this workshop and hope you will have a great time in this beautiful coastal city of Dalian!

Thank you.

B. THE REPRESENTATIVE OF THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION OF UNESCO

by Mr. Haiqing Li

Mr. Chairman, Professor Su Jilan,
Mr. Yu Yuancheng, Director-General of the Department of International Cooperation, SOA,
Ms. He Min, Assistant Mayor, Dalian Municipality,
Professor Biliana Cicin-Sain, Co-Chair of the Dalian Workshop,
Mr. Yang Baorui, Deputy Director-General, Department of Oceans and Fisheries, Laoning Provincial Government,
Mr. Zhou Wanzeng, Director, Dalian Oceanic Administration,
Professor Ding Dewen, Director, National Marine Environmental Monitoring Centre, SOA,
Dear participants,
Ladies and gentlemen,

First of all, please allow me to express, on behalf of the Intergovernmental Oceanographic Commission.(IOC) of UNESCO, and particularly Dr, Gunnar Kullenberg, the Executive Secretary IOC, my most sincere congratulations to the opening of the IOC-SOA International Training Workshop on the Integration of Marine Sciences into the Process of the Integrated Coastal Management. I would like to most warmly welcome all the participants attending this Workshop.

As you know, the integrated coastal management has been recognized by the Agenda 21, Chapter 17, as an important and useful tool for sustainable development in the coastal areas. However, what is the role of science and scientists in the process of ICM is an important issue that needs to be addressed in order to ensure that ICM programme, both global, regional and national, be scientifically based and developed. Therefore, one major objective of this Workshop is to promote the interaction between marine scientists and experts in socio-economic aspects, as well as between scientists as a whole and coastal managers and policy-makers.

Another main objective is to identify, through deliberations of the Workshop, how science, particularly marine sciences, can be incorporated into the process of integrated coastal management. These objectives are very pertinent to the interest and mandate of the IOC as the sole body within UN system dedicated to marine science and systematic ocean observation, and the application of marine sciences to socio-economic development. As the first IOC workshop on science/policy at the regional level, I hope the meeting could come up with some good recommendations providing guidance on how marine science and marine scientists could well contribute to the integrated coastal management, both at national, regional and global levels.

I should like to avail myself of this opportunity to express my most sincere appreciation to Professors Biliana Cicin-Sain and Robert Knecht, University of Delaware for their most valuable contributions to the preparation of the Workshop. I should also like to thank the State Oceanic Administration of China, for its generous support in terms of both financial and human resources. My appreciation also goes to the Dalian Municipal Government and Liaoning Provincial Government for the importance they attach to the Workshop. Last but not least, I should like to thank all the participants for coming to the Workshop, and I look forward to working closely with you for the next few days to come.

Finally, I wish the Workshop full success.

C. THE ASSISTANT MAYOR OF THE MUNICIPALLY GOVERNMENT OF DALIAN

by Ms. He Min

Distinguished Mr. Yu Yuancheng, Director-General of the Department of International Cooperation, SOA,
Distinguished Mr. Haiqing Li, Representative from IOC, UNESCO,
Distinguished Co-chairs for the Workshop,
Distinguished participants,
Ladies and gentlemen,

First of all, I would like to express our warm congratulations on the opening of the International Training Workshop on the Integration of Marine Sciences into the Process of Integrated Coastal Area Management in Dalian and express warm welcome to everyone.

Dalian is located in the south tip of Liaodong peninsula, with the Yellow Sea to its east and the Bohai Sea to its west. Its land area covers more than 12,000 square kilometers. The sea area within the baseline is twice the size of land area.

Dalian has its unique favorable advantages in terms of geographical location and natural resource, it is not very cold in winter and very hot in summer. Dalian is a beautiful coastal city which is comparatively well developed in transportation, telecommunication and economy as well as civilization. It has a variety of industries. Since opening to the outside world, the People's Government of Dalian has led its 5.3 million Dalian people to build the City into one of the most opened cities in the north-eastern part of China. It has become a window and been in a lead in opening to the outside world in the north-eastern part of China.

Oceans are of special importance to Dalian. The Municipal Government of Dalian attaches great importance to the exploitation and utilization of marine resources and protection and treatment of marine environment. We are resolved to promote our marine cause among which one of the main task is integrated marine management. Rational management and utilization of the oceans will not only benefit ourselves but also our future generations.

The opening of this training workshop in Dalian will promote the development of the marine cause of our City. On behalf of the Municipal Government of Dalian, I wish a full success of the workshop and wish you all a pleasant stay in Dalian.

Thank you.

D. THE DIRECTOR OF THE NATIONAL MARINE ENVIRONMENTAL MONITORING CENTER OF THE STATE OCEANIC ADMINISTRATION

by Professor Ding Dewen

Distinguished Co-chairs,
Distinguished Mr. Yu Yuancheng,
Distinguished Li Haiqing,
Distinguished Participants,

On the convening of IOC/SOA International Training Workshop on the Integration of Marine Sciences into the Process of Integrated Coastal Area Management in Dalian, please allow me, on behalf of National Marine Environmental Monitoring Center and Institute of Marine Environmental Protection, SOA, to extend my warm congratulations on the convening of this training workshop and warm welcome to participants from Canada, Japan, Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand, Vietnam, the United States, IOC, UNEP and IMO.

I am very pleased that our National Marine Environmental Monitoring Center is collaborating with SOA and IOC in organizing the workshop. The workshop will certainly have great effects on the promotion of integrated coastal management and enable marine sciences provide better service for integrated coastal management and sustainable development of social economics in the coastal area. I believe that this workshop can realize its expected purpose. I wish this workshop will enhance interaction and co-operation between marine scientists and integrated coastal management and I have even more a hope that you will put forward good suggestions regarding the contribution of marine sciences to the integrated coastal management.

Thank you.

E. THE REPRESENTATIVE OF THE DALIAN OCEANIC ADMINISTRATION

by Mr. Zhou Wanzeng

Distinguished Mr. Yu Yuancheng, Director-General of
the Department of International Cooperation, SOA,
Distinguished Mr. Haiqing Li, Representative from IOC, UNESCO
Distinguished Co-chairs for the Workshop,

Distinguished participants,
Ladies and gentlemen,

First of all, on behalf of the Dalian Oceanic Administration, I would like to extend my sincere and warm welcome to all participants.

I also would like to give my thanks to the organizer of this Workshop for providing me the chance of giving a speech at the opening ceremony. Taking the advantage of this opportunity, I would make a brief introduction on the integrated marine management in Dalian.

In recent years, Dalian Municipal Government, based on the principle of sector management of ocean-related industries, established the Dalian Oceanic Administration entitled with the function of integrated marine management for the purpose of sustainable development of marine economy. 7 coastal districts and counties also established offices of marine affairs. Our marine supervisory team, ocean development service, ocean-related enterpriser' association are also under preparation. In the near future, Dalian is likely to establish a complete integrated marine management network including law enforcement, supervision and social service.

The implementation of integrated marine management in Dalian has been based on the ocean zoning plan and marine development programme, focusing on the implementation of the permission regime for the use of sea area and user-pay regime, enhancing the awareness of the ocean and the law enforcement and supervision thus contributing to vitalization of marine industry and the development of marine economy. For this a leading group for ocean zoning plan and marine development programme has been set up by the municipal government of Dalian. The decision for implementation of the work has been taken and has been implemented in Dalian. At the present, the integrated marine management work of Dalian has been entering a comparatively complete substantial stage.

Ladies and gentlemen,

The opening of this training workshop in Dalian will bring new theory and practice experiences into Dalian Municipal Oceanic Administration which is a beginner of integrated coastal area management. I wish a full success of the training workshop and wish you all a good time in Dalian.

Thank you.

ANNEX III

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ANNEX IV

LIST OF ACRONYMS AND ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
CCOP	Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas
COBSEA	Coordinating Body on the Seas of East Asia
CORIN	Coastal Resources Institute (Prince of Songkla University, Thailand)
CZM	Coastal Zone Management
EAS-UNEP	East Asia Sea of the UNEP
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization of the UN
FCCC	Framework Convention on Climate Change
GEF	Global Environment Facility
GESAMP	Group of Experts on the Scientific Aspects of Marine Environmental Protection
GIS	Geographical Information System
GLOBEC	Global Ocean Ecosystem Dynamics
GOOS	Global Ocean Observing System
ICM	Integrated Coastal Management
ICAM	Integrated Coastal Area Management
ICSPRO	Intersecretariat Committee on Scientific Programmes Related to Oceanography
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IOI	International Ocean Institute
IUCN	The World Conservation Union
JGOFS	Joint Global Ocean Flux Study
LME	Large Marine Ecosystems
LOICZ	Land-Ocean Interaction in the Coastal Zone
LOS	Law of the Sea
MEDCOAST	Mediterranean Coastal Environment
MOU	Memorandum of Understanding
NETTLAP	National Environmental Training Program at the Tertiary Level (University) in the Asia-Pacific Region
NOAA	National Oceanic and Atmospheric Administration (United States)
NOWPAP	Northeast Pacific Action Plan
OECD	Organization for Economic Cooperation and Development
ORCA	Office of Ocean Resources, Conservation and Assessment, NOAA (United States)
SOA	State Oceanic Administration (China)
UNCED	United Nations Conference on Environment and Development
UNDOALOS	United Nations Division for Ocean Affairs and Law of the Sea
UNDP	United Nations Development Programme
UNEP	United nations Environment Programme
WESTPAC	Western Pacific

IOC Workshop Reports

The Scientific Workshops of the Intergovernmental Oceanographic Commission are sometimes jointly sponsored with other intergovermental or non-governmental bodies. In most cases, IOC assumes responsibility for printing, and copies may be requested from:

Intergovernmental Oceanographic Commission - UNESCO
1, rue Miollis, 75732 Paris Cedex 15, France

No.	Title	Languages
1	CCOP-IOC, 1974, Metallogenesis, Hydrocarbons and Tectonic Patterns in Eastern Asia (Report of the IDOE Workshop on); Bangkok, Thailand, 24-29 September 1973 UNDP (CCOP), 138 pp.	E (out of stock)
2	CICAR Ichthyoplankton Workshop, Mexico City, 16-27 July 1974 (UNESCO Technical Paper in Marine Sciences, No. 20).	E (out of stock) S (out of stock)
3	Report of the IOC/GFCM/ICSEM International Workshop on Marine Pollution in the Mediterranean; Monte Carlo, 9-14 September 1974.	E, F E (out of stock)
4	Report of the Workshop on the Phenomenon known as 'El Niño'; Guayaquil, Ecuador, 4-12 December 1974.	E (out of stock) S (out of stock)
5	IDOE International Workshop on Marine Geology and Geophysics of the Caribbean Region and its Resources; Kingston, Jamaica, 17-22 February 1975.	E (out of stock) S
6	Report of the CCOP/SOPAC-IOC IDOE International Workshop on Geology, Mineral Resources and Geophysics of the South Pacific; Suva, Fiji, 1-6 September 1975.	E
7	Report of the Scientific Workshop to Initiate Planning for a Co-operative Investigation in the North and Central Western Indian Ocean, organized within the IDOE under the sponsorship of IOC/FAO (IOFC)/UNESCO/EAC; Nairobi, Kenya, 25 March-2 April 1976.	E, F, S, R
8	Joint IOC/FAO (IPFC)/UNEP International Workshop on Marine Pollution in East Asian Waters; Penang, 7-13 April 1976.	E (out of stock)
9	IOC/CMG/SCOR Second International Workshop on Marine Geoscience; Mauritius, 9-13 August 1976.	E, F, S, R
10	IOC/WMO Second Workshop on Marine Pollution (Petroleum) Monitoring; Monaco, 14-18 June 1976.	E, F E (out of stock) R
11	Report of the IOC/FAO/UNEP International Workshop on Marine Pollution in the Caribbean and Adjacent Regions; Port of Spain, Trinidad, 13-17 December 1976.	E, S (out of stock)
11 Suppl.	Collected contributions of invited lecturers and authors to the IOC/FAO/UNEP International Workshop on Marine Pollution in the Caribbean and Adjacent Regions; Port of Spain, Trinidad, 13-17 December 1976.	E (out of stock), S
12	Report of the IOCARIBE Interdisciplinary Workshop on Scientific Programmes in Support of Fisheries Projects; Fort-de-France, Martinique, 28 November-2 December 1977.	E, F, S
13	Report of the IOCARIBE Workshop on Environmental Geology of the Caribbean Coastal Area; Port of Spain, Trinidad, 16-18 January 1978.	E, S
14	IOC/FAO/WHO/UNEP International Workshop on Marine Poliution in the Gulf of Guinea and Adjacent Areas; Abidjan, Côte d'Ivoire, 2-9 May 1978.	E, F
15	CPPS/FAO/IOC/UNEP International Workshop on Marine Pollution in the South-East Pacific; Santiago de Chile, 6-10 November 1978.	E (out of stock)
16	Workshop on the Western Pacific, Tokyo, 19-20 February 1979.	E, F, R
17	Joint IOC/WMO Workshop on Oceanographic Products and the IGOSS Data Processing and Services System (IDPSS); Moscow, 9-11 April 1979.	E
17 Suppl.	Papers submitted to the Joint IOC/WMO Seminar on Oceanographic Products and the IGOSS Data Processing and Services System; Moscow, 2-6 April 1979.	E
18	IOC/UNESCO Workshop on Syllabus for Training Marine Technicians; Miami, U.S.A., 22-26 May 1978 (UNESCO reports in marine sciences, No. 4 published by the Division of Marine Sciences, UNESCO).	E (out of stock), F, S (out of stock), R
19	IOC Workshop on Marine Science Syllabus for Secondary Schools; Llantwit Major, Wales, U.K., 5-9 June 1978 (UNESCO reports in marine sciences, No. 5, published by the Division of Marine Sciences, UNESCO).	E (out of stock), E, S, R, Ar
20	Second CCOP-IOC Workshop on IDOE Studies of East Asia Tectonics and Resources; Bandung, Indonesia, 17-21 October 1978.	E
21	Second IDOE Symposium on Turbulence in the Ocean; Liège, Belgium, 7-18 May 1979.	E, F, S, R
22	Third IOC/WMO Workshop on Marine Pollution Monitoring; New Delhi, 11-15 February 1980.	E, F, S, R
23	WESTPAC Workshop on the Marine Geology and Geophysics of the North-West Pacific; Tokyo, 27-31 March 1980.	E, R
24	WESTPAC Workshop on Coastal Transport of Pollutants; Tokyo, Japan, 27-31 March 1980.	E (out of stock)
25	Workshop on the Intercalibration of Sampling Procedures of the IOC/ WMO UNEP Pilot Project on Monitoring Background Levels of Selected Pollutants in Open-Ocean Waters; Bermuda, 11-26 January 1980.	E (superseded by IOC Technical Series No. 22)
26	IOC Workshop on Coastal Area Management in the Caribbean Region; Mexico City, 24 September-5 October 1979.	E, S
27	CCOP/SOPAC-IOC Second International Workshop on Geology, Mineral Resources and Geophysics of the South Pacific; Nouméa, New Caledonia, 9-15 October 1980.	E
28	FAO/IOC Workshop on the effects of environmental variation on the survival of larval pelagic fishes. Lima, 20 April-5 May 1980.	E
29	WESTPAC Workshop on Marine Biological Methodology; Tokyo, 9-14 February 1981.	E
30	International Workshop on Marine Pollution in the South-West Atlantic; Montevideo, 10-14 November 1980.	E (out of stock) S
31	Third International Workshop on Marine Geoscience; Heidelberg, 19-24 July 1982.	E, F, S
32	UNU/IOC/UNESCO Workshop on International Co-operation in the Development of Marine Science and the Transfer of Technology in the context of the New Ocean Regime; Paris, France, 27 September-1 October 1982.	E, F, S
32 Suppl.	Papers submitted to the UNU/IOC/UNESCO Workshop on International Co-operation in the Development of Marine Science and the Transfer of Technology in the Context of the New Ocean Regime;.Paris, France, 27 September-1 October 1982.	E
33	Workshop on the IREP Component of the IOC Programme on Ocean Science in Relation to Living Resources (OSLR); Halifax, 26-30 September 1963.	E
34	IOC Workshop on Regional Co-operation in Marine Science in the Central Eastern Atlantic (Western Africa); Tenerife, 12-17 December 1963.	E, F, S
35	CCOP/SOPAC-IOC-UNU Workshop on Basic Geo-scientific Marine Research Required for Assessment of Minerals and Hydrocarbons in the South Pacific; Suva, Fiji, 3-7 October 1983.	E
36	IOC/FAO Workshop on the Improved Uses of Research Vessels; Lisbon, Portugal, 28 May-2 June 1984.	E
36 Suppl.	Papers submitted to the IOC/FAO Workshop on the Improved Uses of Research Vessels; Lisbon, Portugal, 28 May-2 June 1984.	E
37	IOC/UNESCO Workshop on Regional Co-operation in Marine Science in the Central Indian Ocean and Adjacent Seas and Gulfs; Colombo, 8-13 July 1985.	E
38	IOC/ROPME/UNEP Symposium on Fate and Fluxes of Oil Pollutants in the Kuwait Action Plan Region; Basrah, Iraq, 8-12 January 1984.	E
39	CCOP (SOPAC)-IOC-IFREMER-ORSTOM Workshop on the Uses of Submersibles and Remotely Operated Vehicles in the South Pacific; Suva, Fiji, 24-29 September 1985.	E
40	IOC Workshop on the Technical Aspects of Tsunami Analysis, Prediction and Communications; Sidney, B.C., Canada, 29-31 July 1985.	E
40 Suppl.	First International Tsunami Workshop on Tsunami Analysis, Prediction and Communications, *Submitted Papers;* Sidney, B.C., Canada, 29 July - 1 August 1985.	E
41	First Workshop of Participants in the Joint FAO/IOC/WHO/IAEA/UNEP Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region (WACAF/2); Dakar, Senegal, 28 October-1 November 1985.	E
43	IOC Workshop on the Results of MEDALPEX and Future Oceanographic Programmes in the Western Mediterranean; Venice, Italy, 23-25 October 1985.	E
44	IOC-FAO Workshop on Recruitment in Tropical Coastal Demersal Communities; Ciudad del Carmen, Campeche, Mexico, 21-25 April 1986.	E (out of stock) S
44 Suppl.	IOC-FAO Workshop on Recruitment in Tropical Coastal Demersal Communities, *Submitted Papers;* Ciudad del Carmen, Campeche, Mexico, 21-25 April 1986.	E
45	IOCARIBE Workshop on Physical Oceanography and Climate; Cartagena, Colombia, 19-22 August 1986.	E
46	Reunión de Trabajo para Desarrollo del Programa "Ciencia Oceánica en Relación a los Recursos No Vivos en la Región del Atlántico Sud-occidental"; Porto Alegre, Brazil, 7-11 de abril de 1986.	S
47	IOC Symposium on Marine Science in the Western Pacific: The Indo-Pacific Convergence; Townsville, 1-6 December 1966.	E
48	IOCARIBE Mini-Symposium for the Regional Development of the IOC-UN (OETB) Programme on 'Ocean Science in Relation to Non-Living Resources (OSNLR)'; Havana, Cuba, 4-7 December 1986.	E, S
49	AGU-IOC-WMO-CPPS Chapman Conference: An International Symposium on 'El Niño'; Guayaquil, Ecuador, 27-31 October 1986.	E
50	CCALR-IOC Scientific Seminar on Antarctic Ocean Variability and its Influence on Marine Living Resources, particularly Krill (organized in collaboration with SCAR and SCOR); Paris, France, 2-6 June 1987.	E
51	CCOP/SOPAC-IOC Workshop on Coastal Processes in the South Pacific Island Nations; Lae, Papua-New Guinea, 1-8 October 1987.	E

No.	Title	Languages
52	SCOR-IOC-UNESCO Symposium on Vertical Motion in the Equatorial Upper Ocean and its Effects upon Living Resources and the Atmosphere; Paris, France, 6-10 May 1985.	E
53	IOC Workshop on the Biological Effects of Pollutants; Oslo, 11-29 August 1986.	E
54	Workshop on Sea-Level Measurements in Hostile Conditions; Bidston, UK, 28-31 March 1988	E
55	IBCCA Workshop on Data Sources and Compilation, Boulder, Colorado, 18-19 July 1988.	E
56	IOC-FAO Workshop on Recruitment of Penaeid Prawns in the Indo-West Pacific Region (PREP); Cleveland, Australia, 24-30 July 1988.	E
57	IOC Workshop on International Co-operation in the Study of Red Tides and Ocean Blooms; Takamatsu, Japan, 16-17 November 1987.	E
58	International Workshop on the Technical Aspects of the Tsunami Warning System; Novosibirsk, USSR, 4-5 August 1989.	E
58 Suppl.	Second International Workshop on the Technical Aspects of Tsunami Warning Systems, Tsunami Analysis, Preparedness, Observation and Instrumentation. *Submitted Papers*; Novosibirsk, USSR, 4-5 August 1989.	E
59	IOC-UNEP Regional Workshop to Review Priorities for Marine Pollution Monitoring Research, Control and Abatement in the Wider Caribbean; San José, Costa Rica, 24-30 August 1989.	E, F, S
60	IOC Workshop to Define IOCARIBE-TRODERP proposals; Caracas, Venezuela, 12-16 September 1989.	E
61	Second IOC Workshop on the Biological Effects of Pollutants; Bermuda, 10 September-2 October 1988.	E
62	Second Workshop of Participants in the Joint FAO-IOC-WHO-IAEA-UNEP Project on Monitoring of Pollution in the Marine Environment of the West and Central African Region; Accra, Ghana, 13-17 June 1988.	E
63	IOC/WESTPAC Workshop on Co-operative Study of the Continental Shelf Circulation in the Western Pacific; Bangkok, Thailand, 31 October-3 November 1989.	E
64	Second IOC-FAO Workshop on Recruitment of Penaeid Prawns in the Indo-West Pacific Region (PREP); Phuket, Thailand, 25-31 September 1989.	E
65	Second IOC Workshop on Sardine/Anchovy Recruitment Project (SARP) int he Southwest Atlantic; Montevideo, Uruguay, 21-23 August 1989.	E
66	IOC *ad hoc* Expert Consultation on Sardine/Anchovy Recruitment Programme; La Jolla, California, U.S.A., 1989.	E
67	Interdisciplinary Seminar on Research Problems in the IOCARIBE Region; Caracas, Venezuela, 28 November-1 December 1989.	E (out of stock)
68	International Workshop on Marine Acoustics; Beijing, China, 26-30 March 1990.	E
69	IOC-SCAR Workshop on Sea-Level Measurements in the Antarctica; Leningrad, USSR, 28-31 May 1990.	E
69 Suppl.	IOC-SCAR Workshop on Sea-Level Measurements in the Antarctica; *Submitted Papers*; Leningrad, USSR, 28-31 May 1990.	E
70	IOC-SAREC-UNEP-FAO-IAEA-WHO Workshop on Regional Aspects of Marine Pollution; Mauritius, 29 October - 9 November 1990.	E
71	IOC-FAO Workshop on the Identification of Penaeid Prawn Larvae and Postlarvae; Cleveland, Australia, 23-28 September 1990.	E
72	IOC/WESTPAC Scientific Steering Group Meeting on Co-Operative Study of the Continental Shelf Circulation in the Western Pacific; Kuala Lumpur; Malaysia, 9-11 October 1990.	E
73	Expert Consultation for the IOC Programme on Coastal Ocean Advanced Science and Technology Study; Liège, Belgium, 11-13 May 1991.	E
74	IOC-UNEP Review Meeting on Oceanographic Processes of Transport and Distribution of Pollutants in the Sea; Zagreb, Yugoslavia, 15-18 May 1989.	E
75	IOC-SCOR Workshop on Global Ocean Ecosystem Dynamics; Solomons, Maryland, U.S.A., 29 April-2 May 1991.	E
76	IOC/WESTPAC Scientific Symposium on Marine Science and Management of Marine Areas of the Western Pacific; Penang, Malaysia, 2-6 December 1991.	E
77	IOC-SAREC-KMFRI Regional Workshop on Causes and Consequences of Sea-Level Changes on the Western Indian Ocean Coasts and Islands; Mombasa, Kenya, 24-28 June 1991.	E
78	IOC-CEC-ICES-WMO-ICSU Ocean Climate Data Workshop Goddard Space Flight Center; Greenbelt, Maryland, U.S.A., 18-21 February 1992.	E
79	IOC/WESTPAC Workshop on River Inputs of Nutrients to the Marine Environment in the WESTPAC Region; Penang, Malaysia, 26-29 November 1991.	E
80	IOC-SCOR Workshop on Programme Development for Harmful Algae Blooms; Newport, U.S.A., 2-3 November 1991.	E
81	Joint IAPSO-IOC Workshop on Sea Level Measurements and Quality Control; Paris, France, 12-13 October 1992.	E
82	BORDOMER 92: International Convention on Rational Use of Coastal Zones. A Preparatory Meeting for the Organization of an International Conference on Coastal Change; Bordeaux, France, 30 September-2 October 1992.	E
83	IOC Workshop on Donor Collaboration in the Development of Marine Scientific Research Capabilities in the Western Indian Ocean Region; Brussels, Belgium, 12-13 October 1992.	E
84	Workshop on Atlantic Ocean Climate Variability; Moscow, Russian Federation, 13-17 July 1992.	E
85	IOC Workshop on Coastal Oceanography in Relation to Integrated Coastal Zone Management; Kona, Hawaii, 1-5 June 1992.	E
86	International Workshop on the Black Sea; Varna, Bulgaria 30 September - 4 October 1991.	E
87	Taller de trabajo sobre efectos biológicos del fenómeno «El Niño» en ecosistemas costeros del Pacífico Sudeste; Santa Cruz, Galápagos, Ecuador, 5-14 de octubre de 1989.	S only (Summary in E, F, S)
88	IOC-CEC-ICSU-ICES Regional Workshop for Member States of Eastern and Northern Europe (GODAR Project); Obninsk, Russia, 17-20 May 1993.	E
89	IOC-ICSEM Workshop on Ocean Sciences in Non-Living Resources; Perpignan, France, 15-20 October 1990.	E
90	IOC Seminar on Integrated Coastal Management; New Orleans, U.S.A., 17-18 July 1993.	E
91	Hydroblack'91 CTD Intercalibration Workshop; Woods Hole, U.S.A., 1-10 December 1991.	E
92	Réunion de travail IOCEA-OSNLR sur le Projet « Budgets sédimentaires le long de la côte occidentale d'Afrique » Abidjan, Côte d'Ivoire, 26-28 juin 1991.	F
93	IOC-UNEP Workshop on Impacts of Sea-Level Rise due to Global Warming. Dhaka, Bangladesh, 16-19 November 1992.	E
94	BMTC-IOC-POLARMAR International Workshop on Training Requirements in the Field of Eutrophication in Semi-Enclosed Seas and Harmful Algal Blooms, Bremerhaven, Germany, 29 September - 3 October 1992.	E
95	SAREC-IOC Workshop on Donor Collaboration in the Development of Marine Scientific Research Capabilities in the Western Indian Ocean Region; Brussels, Belgium, 23-25 November 1993.	E
96	IOC-UNEP-WMO-SAREC Planning Workshop on an Integrated Approach to Coastal Erosion, Sea Level Changes and their Impacts; Zanzibar, United Republic of Tanzania, 17-21 January 1994.	E
96 Suppl. 1	IOC-UNEP-WMO-SAREC Planning Workshop on an Integrated Approach to Coastal Erosion, Sea Level Changes and their Impacts; *Submitted Papers* 1. Coastal Erosion; Zanzibar, United Republic of Tanzania 17-21 January 1994.	E
96 Suppl. 2	IOC-UNEP-WMO-SAREC Planning Workshop on an Integrated Approach to Coastal Erosion, Sea Level Changes and their Impacts; *Submitted Papers* 2. Sea Level; Zanzibar, United Republic of Tanzania 17-21 January 1994.	E
97	IOC Workshop on Small Island Oceanography in Relation to Sustainable Economic Development and Coastal Area Management of Small Island Development States; Fort-de-France, Martinique, 8-10 November, 1993.	E
98	CoMSBlack '92A Physical and Chemical Intercalibration Workshop; Erdemli, Turkey, 15-29 January 1993.	E
99	IOC-SAREC Field Study Exercise on Nutrients in Tropical Marine Waters; Mombasa, Kenya, 5-15 April 1994.	E
100	IOC-SOA-NOAA Regional Workshop for Member States of the Western Pacific - GODAR-II (Global Oceanographic Data Archeology and Rescue Project); Tianjin, China, 8-11 March 1994.	E
101	IOC Regional Science Planning Workshop on Harmful Algal Blooms; Montevideo, Uruguay, 15-17 June 1994.	E
102	First IOC Workshop on Coastal Ocean Advanced Science and Technology Study (COASTS); Liège, Belgium, 5-9 May 1994.	E
103	IOC Workshop on GIS Applications in the Coastal Zone Management of Small Island Developing States; Barbados, 20-22 April 1994.	E
104	Workshop on Integrated Coastal Management; Dartmouth, Canada, 19-20 September 1994.	E
105	BORDOMER 95: Conference on Coastal Change; Bordeaux, France, 6-10 February 1995.	E
105 Suppl.	Conference on Coastal Change: Proceedings; Bordeaux, France, 6-10 February 1995	E
106	IOC/WESTPAC Workshop on the Paleographic Map; Bali, Indonesia, 20-21 October 1994.	E
107	IOC-ICSU-NIO-NOAA Regional Workshop for Member States of the Indian Ocean - GODAR-III; Dona Paula, Goa, India, 6-9 December 1994.	E
108	UNESCO-IHP-IOC-IAEA Workshop on Sea-Level Rise and the Multidisciplinary Studies of Environmental Processes in the Caspian Sea Region; Paris, France, 9-12 May 1995.	E
108 Suppl.	UNESCO-IHP-IOC-IAEA Workshop on Sea-Level Rise and the Multidisciplinary Studies of Environmental Processes in the Caspian Sea Region; *Submitted Papers*; Paris, France, 9-12 May 1995.	E
109	First IOC-UNEP CEPPOL Symposium; San José, Costa Rica, 14-15 April 1993.	E
110	IOC-ICSU-CEC Regional Workshop for Member States of the Mediterranean - GODAR-IV (Global Oceanographic Data Archeology and Rescue Project) Foundation for International Studies, University of Malta, Valletta, Malta, 25-28 April 1995.	E

No.	Title	Languages
111	Chapman Conference on the Circulation of the Intra-Americas Sea; La Parguera, Puerto Rico, 22-26 January 1995.	E
112	IOC-IAEA-UNEP Group of Experts on Standards and Reference Materials (GESREM) Workshop; Miami, U.S.A., 7-8 December 1993.	E
113	IOC Regional Workshop on Marine Debris and Waste Management in the Gulf of Guinea; Lagos, Nigeria, 14-16 December 1994.	E
114	International Workshop on Integrated Coastal Zone Management (ICZM) Karachi, Pakistan; 10-14 October 1994.	E
115	IOC/GLOSS-IAPSO Workshop on Sea Level Variability and Southern Ocean Dynamics; Bordeaux, France, 31 January 1995.	E
116	IOC/WESTPAC International Scientific Symposium on Sustainability of Marine Environment: Review of the WESTPAC Programme, with Particular Reference to ICAM Bali, Indonesia, 22-26 November 1994.	E
117	Joint IOC-CIDA-Sida (SAREC) Workshop on the Benefits of Improved Relationships between International Development Agencies, the IOC and other Multilateral Intergovernmental Organizations in the Delivery of Ocean, Marine Affairs and Fisheries Programmes; Sidney B.C., Canada, 26-28 September 1995.	E
118	IOC-UNEP-NOAA-Sea Grant Fourth Caribbean Marine Debris Workshop; La Romana, Santo Domingo, 21-24 August 1995.	E
119	IOC Workshop on Ocean Colour Data Requirements and Utilization; Sydney B.C., Canada, 21-22 September 1995.	E
120	International Training Workshop on Integrated Coastal Management; Tampa, Florida, U.S.A., 15-17 July 1995.	E
121	Atelier régional sur la gestion intégrée des zones littorales (ICAM); Conakry, Guinée, 12-22 décembre 1995.	F
122	IOC-EU-BSH-NOAA-(WDC-A) International Workshop on Oceanographic Biological and Chemical Data Management Hamburg, Germany, 20-23 May 1996.	E
123	Second IOC Regional Science Planning Workshop on Harmful Algal Blooms in South America; Mar del Plata, Argentina, 30 October - 1 November 1995.	E, S
124	GLOBEC-IOC-SAHFOS-MBA Workshop on the Analysis of Time Series with Particular Reference to the Continuous Plankton Recorder Survey; Plymouth, U.K., 4-7 May 1993.	E
125	Atelier sous-régional de la COI sur les ressources marines vivantes du Golfe de Guinée ; Cotonou, Bénin, 1-4 juillet 1996.	F
126	IOC-UNEP-PERSGA-ACOPS-IUCN Workshop on Oceanographic Input to Integrated Coastal Zone Management in the Red Sea and Gulf of Aden Jeddah, Saudi Arabia, 8 October 1995.	E
127	IOC Regional Workshop for Member States of the Caribbean and South America GODAR-V (Global Oceanographic Data Archeology and Rescue Project); Cartagena de Indias, Colombia, 8-11 October 1996.	E only
128	Atelier IOC-Banque Mondiale-Sida/SAREC-ONE sur la Gestion Intégrée des Zones Côtières ; Nosy Bé, Madagascar, 14-18 octobre 1996.	E, F
129	Gas and Fluids in Marine Sediments, Amsterdam, the Netherlands; 27-29 January 1997.	E
130	Atelier régional de la COI sur l'océanographie côtière et la gestion de la zone côtière ; Moroni, RFI des Comores, 16-19 décembre 1996.	F
131	GOOS Coastal Module Planning Workshop; Miami, USA, 24-28 February 1997.	E
132	Third IOC-FANSA Workshop; Punta-Arenas, Chile, 28-30 July 1997	S/E
133	Joint IOC-CIESM Training Workshop on Sea-level Observations and Analysis for the Countries of the Mediterranean and Black Seas; Birkenhead, U.K., 16-27 June 1997.	E
134	IOC/WESTPAC-CCOP Workshop on Paleogeographic Mapping (Holocene Optimum); Shanghai, China, 27-29 May 1997.	E
135	Regional Workshop on Integrated Coastal Zone Management; Chabahar, Iran; February 1996.	E
136	IOC Regional Workshop for Member States of Western Africa (GODAR-VI); Accra, Ghana, 22-25 April 1997.	E
137	GOOS Planning Workshop for Living Marine Resources, Dartmouth, USA; 1-5 March 1996.	E
138	Gestión de Sistemas Oceanográficos del Pacífico Oriental; Concepción, Chile, 9-16 de abril de 1996.	S
139	Sistemas Oceanográficos del Atlántico Sudoccidental, Taller, TEMA; Furg, Rio Grande, Brasil, 3-11 de noviembre de 1997.	S
140	IOC Workshop on GOOS Capacity Building for the Mediterranean Region; Valletta, Malta, 26-29 November 1997.	E
141	IOC/WESTPAC Workshop on Co-operative Study in the Gulf of Thailand: A Science Plan; Bangkok, Thailand, 25-28 February 1997.	E
142	Pelagic Biogeography ICoPB II. Proceedings of the 2nd International Conference. Final Report of SCOR/IOC Working Group 93; Noordwijkerhout, The Netherlands, 9-14 July 1995.	E
143	Geosphere-biosphere coupling: Carbonate Mud Mounds and Cold Water Reefs; Gent, Belgium, 7-11 February 1998.	E
144	IOC-SOPAC Workshop Report on Pacific Regional Global Ocean Observing Systems; Suva, Fiji, 13-17 February 1998.	E
145	IOC-Black Sea Regional Committee Workshop: 'Black Sea Fluxes' Istanbul, Turkey, 10-12 June 1997	E
146	Living Marine Resources Panel Meeting, Paris, France, 23-25 March 1998	E
147	IOC-SOA International Training Workshop on the Intregration of Marine Sciences into the Process of Integrated Coastal Management, Dalian, China, 19-24 May 1997	E