UNESCO

Intergovernmental Oceanographic Commission of UNESCO

IOC ICAM

Integrated Coastal Area Management Programme

SUSTAINING COASTAL SOCIETIES AND ECOSYSTEMS

Is coastal management effective?

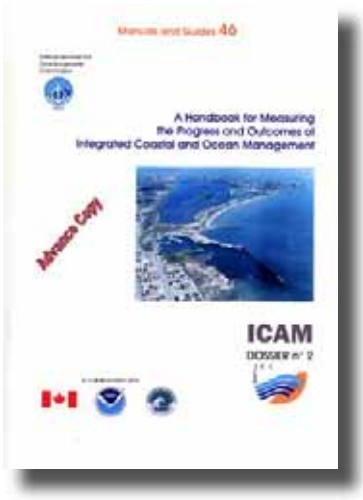
Department of Fisheries and Oceans, Canada

U.S. National Oceanic and Atmospheric Administration

Gerard J. Mangone Center for Marine Policy, University of Delaware

A handbook for assessing coastal management

As a main project output, a Handbook for Measuring the Progress and Outcomes of Integrated Coastal and Ocean Management has been prepared. The handbook provides a series of tools for developing, selecting, and applying indicators to measure, evaluate, and report on the progress and outcomes of integrated coastal and ocean management initiatives.



The handbook is intended as a method and a series of guidelines that could assist different types of customers: coastal managers and decision makers at the national and sub-national levels in the design, implementation, and assessment of ICOM initiatives, practitioners and experts engaged in evaluation research and evaluations, and donor agencies supporting coastal and marine management projects and programs. The handbook contains suggestions on how to prioritize ICOM issues, define measurable objectives for ICOM programs and projects, and identify meaningful indicators to monitor the implementation and results of such programs and projects.

The structure of the handbook is built around three main types of indicators — governance performance (15 key indicators), ecological (9 indicators), and socioeconomic (12 indicators) — and includes an introduction to ICOM, suggestions on how to optimize relationships among these dimensions, and elements for further research on indicators. In order to validate and receive feedbacks from potential users, the Handbook is being tested in existing ICOM programmes and projects around the world. As a result, the handbook will be accompanied by a companion collection of case studies, providing examples of development and application of indicators through validation and testing of the approach.

Each indicator is seen in relation to typical ICOM goals and objectives and is documented through an "indicator sheet" with the following information:

- Nature of indicator (e.g. definition; unit of measurement)
- Relevance (e.g. purpose; international conventions, agreements, and targets)
- Methodological description (e.g. measurement approaches; limitations; status of methodology)
- Assessment of data (e.g. data sources; collection methods; data analysis; reporting scale)
- Additional information (e.g. organizations and programs; key references and web links)

The need of indicators for coastal management

Several international instruments, such as Agenda 21, the Plan of Implementation of the World Summit on Sustainable Development (WSSD), the Convention on Biological Diversity, the Global Programme of Action for the Protection of the Marine Environment from Land-Based Sources (GPA) and the FAO Code of Conduct for Responsible Fishing, call for a cross-sectoral/integrated approach to the management of coastal areas.

To this perspective, indicators appear as a new tool offered to the coastal area managers to:

- Assess the state of the coastal and marine environments and monitor changes;
- Assess trends in socio-economic pressures and conditions in coastal areas;
- Determine specific integrated management goals;
- Appraise the effectiveness of Integrated Coastal and Ocean Management (ICOM) efforts in addressing these issues and the progress of the selected management strategy.

Over 700 efforts in ICOM are reported having been initiated in more than 140 countries since the 1960s. Yet, probably only half of such efforts have reached the implementation phase and there is a need to improve the monitoring and evaluation practice. The use of adequate indicators could help improving this practice by providing a tool to follow-up on the initiatives.

The use of indicators for ICOM is still in its beginning: while environmental indicators have been conceived to monitor the state of the coastal and marine environment, very limited use has been done of socioeconomic indicators so far and the use of governance indicators have often been limited to the reporting of processes.

In response to the above, a Pilot Program was established in 2003 under the auspice of IOC of UNESCO, and in collaboration with the Department of Fisheries and Oceans – DFO (Canada), the National Oceanic and Atmospheric Administration - NOAA (United States), and the Gerard J. Mangone Center for Marine Policy (University of Delaware) to promote the development and use of ICOM indicators. The IOC ICOM Indicator Initiative intends to promote a more outcome-oriented approach to the selection and application of indicators to measure the progress and effectiveness of ICOM interventions.

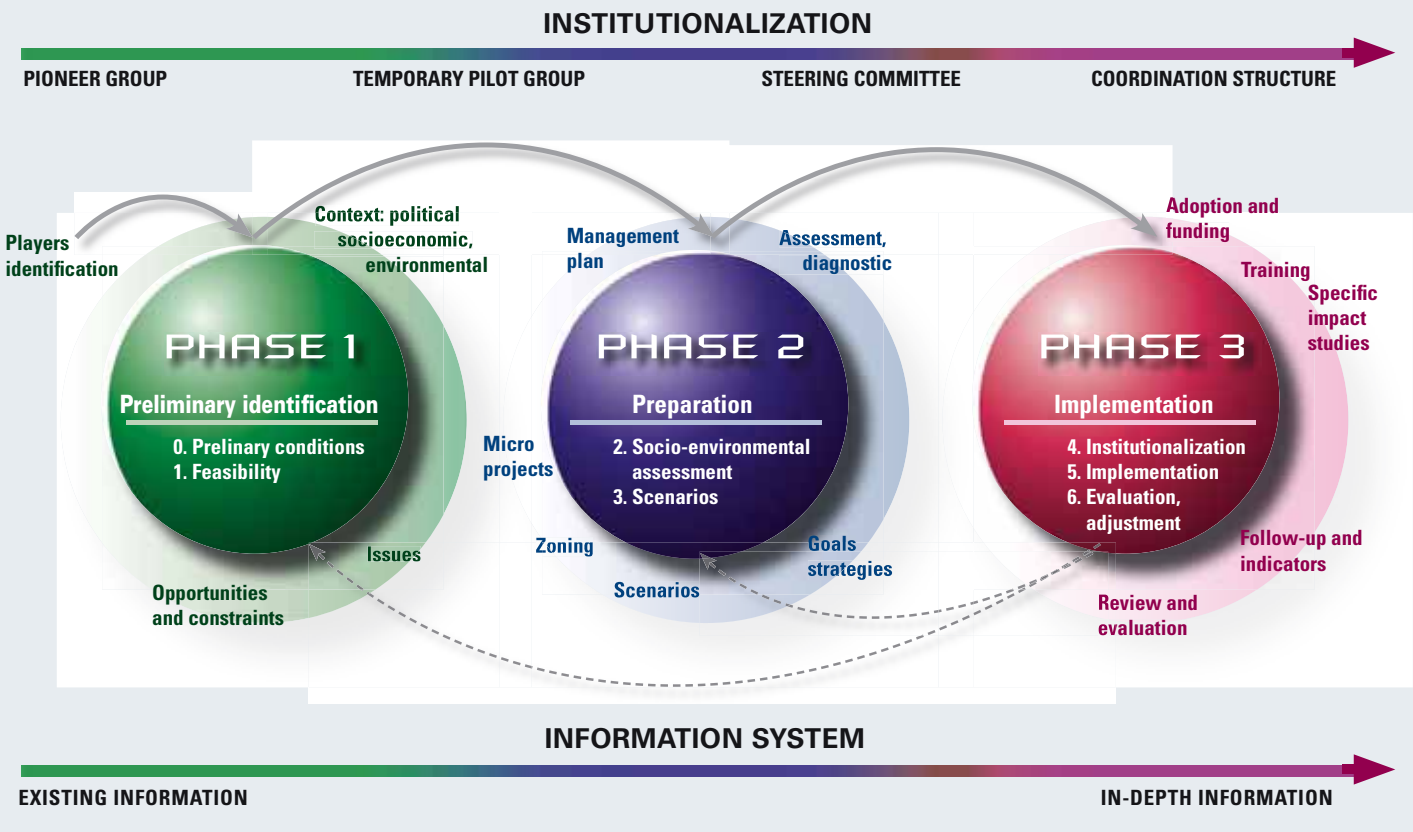
Menu of indicators for coastal management

	Goal	Objective	Code	Indicator
GOVERNANCE PERFORMANCE INDICATORS	Ensuring adequate institutional, policy and legal arrangements	Ensuring the coordination and coherence of administrative actors and policies	G.1	Coordinating mechanism
		Supporting integrated management through adequate legislation and regulations	G.2	Legislation
		Assessing the environmental impacts of policies, plans, programs, and projects	G.3	Environmental assessment
		Resolving conflicts over coastal space and resources	G.4	Conflict resolution mechanism
	Ensuring the quality and effectiveness of management processes	Managing the coastline through integrated plans	G.5	Integrated management plans
		Implementing and enforcing ICOM plans and activities	G.6	Active management
		Routinely monitoring, evaluating, and adjusting ICOM efforts	G.7	Monitoring and evaluation
		Supporting ICOM through sustained administrative structures	G.8	Human, technical, and financial resources
	Improving information, knowledge, and awareness	Ensuring that management decisions are better informed by science	G.9	Inputs from scientific research
		Ensuring sustained support from engaged stakeholders	G.10	Stakeholder participation
		Ensuring NGO and community involvement	G.11	NGO and community activity
		Ensuring adequate levels or higher education and professional preparation for ICOM	G.12	Education and training
	Ensuring the sustainability of management efforts	Enabling and supporting ICOM through technology, including environmentally friendly technology	G.13	Technology
		Incorporating economic instruments into coastal management policies	G.14	Economic instruments
		Mainstreaming coastal and ocean management into sustainable development	G.15	Sustainable development strategy
ECOLOGICAL INDICATORS	Maintaining ecosystem health	Maintaining ecosystem structure	E.1	Diversity
			E.2	Distribution
			E.3	Abundance
		Maintaining ecosystem function	E.4	Production and reproduction
			E.5	Trophic interactions
			E.6	Mortality
		Maintaining physical and chemical properties of ecosystem	E.7	Species health
			E.8	Water quality
			E.9	Habitat quality
SOCIOECONOMIC INDICATORS	A healthy and productive economy	Maximizing economic development	S.1	Total economic value
			S.2	Direct investment
		Increase employment	S.3	Total employment
		Foster economic diversification	S.4	Sectoral diversification
	A healthy and productive environment	Sustainably manage exploitation and use	S.5	Management plans
		Minimise habitat destruction and alteration	S.6	Habitat alteration
		Reduce the volume of introduction of all types of pollutants	S.7	Pollutants and introductions
	Public health and safety	Protect human life and public and private property	S.8	Disease and illness
	Social cohesion	Maintain equitable population dynamics	S.10	Resident and seasonal population
			S.11	Marine attachment
			S.12	Public access

A process for identifying ecosystem indicators

The choice of indicators for the test — including governance, ecological, and socioeconomic — will be based on the phases of the ICOM initiative.

The focus of the test will be on indicators related to specific preparatory activities (e.g., diagnostics, scenarios, goal setting, zoning, demonstration projects, etc.) or implementation activities (e.g., institutionalization, funding leverage, impact studies, review and evaluation, etc.), taking into account, however, that in practice the development of ICOM may not necessarily occur in the sequential way suggested. The indicators will be measured with different levels of specificity, depending on the information available. Some of the indicators will be relevant, and will have to be measured, at different phases and steps.



Phases and steps of the ICOM process

Projects participating in the testing phase of the Indicator Initiative

The IOC Handbook is being validated and tested in a number of ICOM programs and projects around the world.

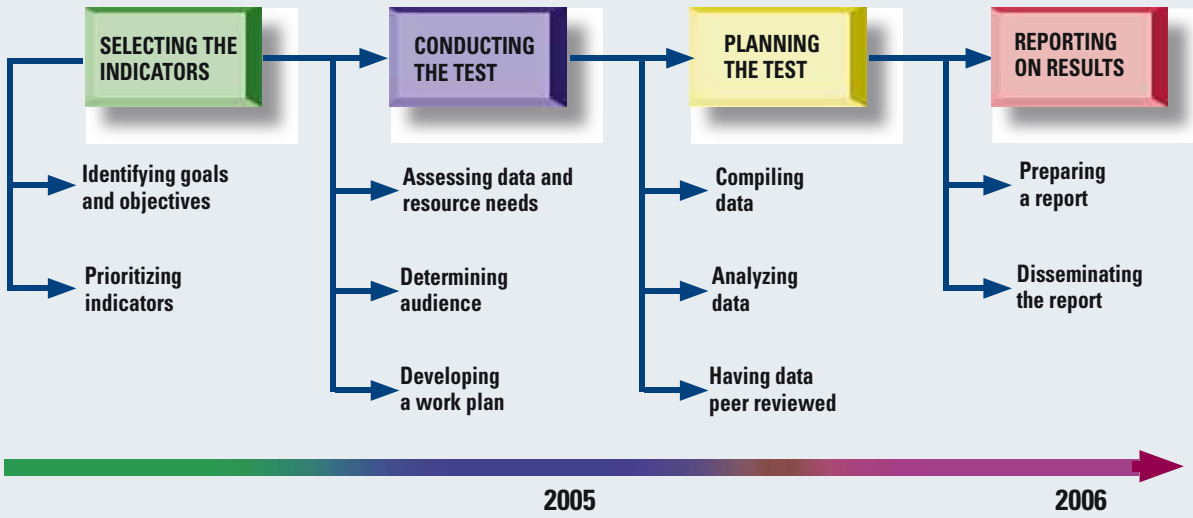
Organizations collaborating in the first phase of the project (2005-2006):

- Canada, Department of Fisheries and Oceans, Ottawa and Dartmouth
- Chile, National Commission on the Use of the Coastal Fringe, Undersecretary of the Navy, Santiago
- China, Xiamen Municipal Government
- France, Ifremer, La Seyne sur Mer
- Germany, Baltic Sea Research Institute, Rostock
- Tanzania, National Environmental Management Council, Dar es Salaam

Applying the indicators

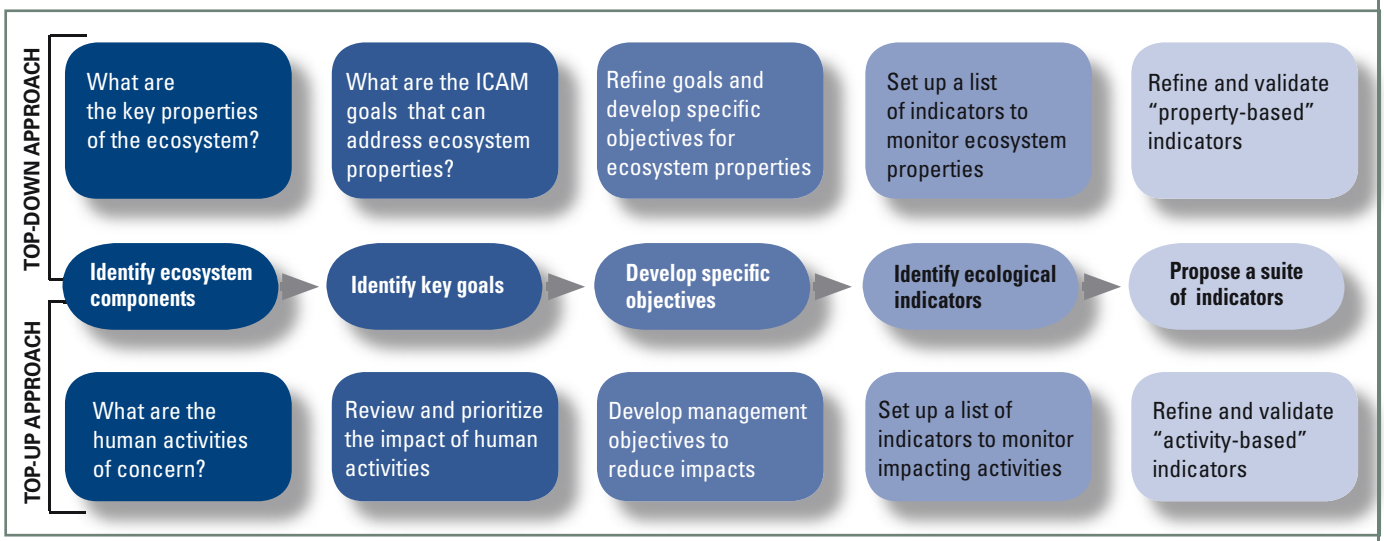
The field-testing of the handbook is being conducted across four main stages — selection of the indicators, planning of the test, conduct of the test, and reporting of results. The test phase is expected to end in January 2006.

For each stage, the Handbook provide guidance on the steps to be undertaken, checklists to verify progress across those steps, as well as worksheets and examples to assist with the completion of tasks.



The selection and application of indicators will reflect ecosystem-based management, as the management of human activities in oceans and coastal areas must take into consideration the core aspects of ecosystem health.

The concept of marine ecosystem health is based upon conserving the properties of ecosystems (i.e., structural and functional properties) which should be maintained over time and should not be compromised by human activities.



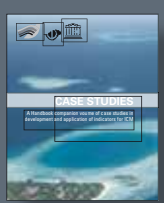
A step-by-step process for selecting ecosystem-based indicators

Indicator tools for coastal management

The handbook intends to be useful to different kinds of users and is conceived as part of an IOC toolkit on ICOM indicators that include:

The Reference Guide on the Use of Indicators for Integrated Coastal Management, already published in 2003 as IOC Manuals and Guides 45

A special issue of the Ocean & Coastal Management Journal (Volume 46, Issues 3-4) on "The Role of Indicators in Integrated Coastal Management"), published in 2003



A Handbook companion volume of case studies in development and application of indicators for ICOM (to be prepared as the testing and refinement component of the exercise)

A regularly updated web site with results from the project, publications, a clearinghouse of projects, and links

A possible pilot decision-support tool in the form of the "dashboard of sustainability", developed by the Joint Research Centre of the European Commission, derived from one of the case studies

A training module to be delivered on site (e.g., through IOC regional offices) and online at the request of countries, to be developed in 2006

The indicator project can be conceived as an open-ended initiative, susceptible to broad participation also through interfacing with global and regional observation and monitoring programs and to initiatives of regional or more sectoral scope (e.g., marine protected areas, coastal tourism, or integrated coastal area and river basin management). In this regard, the opportunity to ensure wider dissemination of the products through different languages will be considered.

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