



# building knowledge

by Lee A. Kimball

For centuries the oceans have awed and inspired humanity, fuelling dreams of endless bounty, challenging ingenuity, and raising spectres of demons and guardian spirits. People have always been curious about the marine environment, but their need to understand it advanced slowly with early activities like sailing and fishing. This increased exponentially with the great expansion in human use after the middle of the 20th century, and now relates not just to activities like exploiting the ocean's living and mineral resources and the safety of international shipping, but to growing concern about the accumulating impacts of human activities.

Assuring present and future generations of ocean goods and services depends on productive, healthy, and resilient marine ecosystems. Decision-makers need to take a quantum leap in understanding how these systems interact with human society — that is, in ocean assessment.

Many recent, piecemeal reports chronicle deteriorating ocean resources and conditions, but few explain clearly how this affects human well-being. Some examine how technical and policy responses could ameliorate these trends, or whether policies already adopted have made a difference. This must become integral to ocean assessment so that decision-makers and the public alike fully understand the consequences both of 'business as usual' and of proposed modifications to it.

The discovery of hydrothermal vent communities in 1977, initiated revelations of deep ocean life that have changed perceptions of the ocean floor as a vast wasteland. Earlier this year, DNA analysis of ocean microbes in surface waters revealed millions of new genes. An agreed means is needed rapidly to assess the implications of new findings in relatively unstudied fields both for the health and productivity of the oceans and for the Earth's biological and geochemical cycles.

The international scientific community has been evolving concepts of the relationships between species and with the environment in marine ecosystems for over three decades, but the international political community, at its highest levels, did not formally accept ecosystem approaches to ocean management until 2001. Ocean assessment needs to analyze the full range of pressures on species and environmental relationships that make up a particular ecosystem, including external ones. A global process can help

ensure that cumulative impacts of human activities are taken into account at the appropriate geographic scale. It can foster the more detailed analyses needed by regional decision-makers — covering pollution or debris from land-based and sea-based sources; the status of fish and other marine species and their habitat; invasive species; and the influences of freshwater systems, climate change and ozone depletion on regional marine ecosystems. It can also draw together regional and topical analyses to ensure that connections are made, for example, regarding: species that migrate great distances; long range air pollution; or the effects of changes in oceanic or atmospheric conditions over a large scale. Furthermore, it can help decision-makers anticipate emerging issues by providing a well-integrated picture of present conditions and trends.

Over the last sixty years, regional and global intergovernmental decision-making bodies have been established with responsibility for different sectors affecting the oceans. They have spawned a variety of mechanisms for collecting and assessing data and providing scientific advice. Their specialized mandates, however, mean that decision-makers in each body rarely see a coherent portrayal of the state of the marine environment, nor one that highlights the relative significance of the activities on which they focus within a coherent regional or global picture. A well-designed ocean assessment process, that bears these respective authorities in mind, can present such clear pictures.

Finally, the inevitable shift toward more integrated ecosystem approaches will entail assessments that rely on diverse fields of expertise. In a complex and changing marine world, there will be inevitable uncertainties, new concerns, and controversial issues. Moreover, the pace of acquiring knowledge in increasingly specialized fields will make it difficult to keep scientists, managers, and decision-makers up to date. A global ocean assessment process that fosters communications and networking among specialists can advance common scientific understanding and thus expedite international political agreement.

At the 2002 World Summit on Sustainable Development (WSSD) the international community agreed to "establish by 2004 a regular process under the United Nations for global reporting and assessment of the state of the marine environment, including socio-economic aspects.... building on existing regional assessments." The 2004 target proved unrealistic, but in 2005

the General Assembly launched an “assessment of assessments” (AoA) as a preparatory stage for the ‘regular process’, as it is called.

The AoA consists of (1) an overseeing ad hoc intergovernmental steering group, comprising members from 18 countries and six international organizations; (2) UNEP and the Intergovernmental Oceanographic Commission of UNESCO as lead agencies, to provide secretariat services and coordinate the preparatory initiative, guided by the steering group; and (3) a balanced group of 20 experts, established by the lead agencies and approved by the steering group, to undertake the actual assessment of assessments.

The General Assembly stipulated that the AoA should bring together and review existing assessments in order to identify: thematic and/or geographic gaps in scientific knowledge and data collection, or in assessments; how existing resources could be incorporated into or contribute to a regular process; and scientific uncertainties where further research is needed. A second primary aim is to synthesize and highlight best assessment practices, and a third is to establish how previous assessments have been communicated to policymakers.

The group of experts (GOE) is also to consider the usefulness of, and constraints posed by, organizing assessment components on different scales — and how this could relate to integrated assessments. It is to analyze how existing assessments provide for scientific credibility, policy relevance, legitimacy, and usefulness — and consider the need for capacity-building to support the regular process. It is to bear in mind societal interactions with the marine environment and internationally-agreed goals and targets addressing human development and sustainable ocean use. Together these analyses will form

the basis for the GOE to identify a framework and options to move forward to build the regular process, including potential costs.

The GOE has organized its review of assessments, based on a tentative breakdown into 21 ocean regions. These regional reviews will serve to identify gaps and best practices and the potential contributions of existing activities. Working primarily by email, it met twice in 2007 and plans three more meetings. Its report will be peer reviewed, and governments will have an opportunity in late 2008 to comment on and contribute to the development of the AoA. A final report will be presented to the ad hoc steering group before being submitted to the 64th UN General Assembly in 2009.

The core of the GOE’s work in identifying a framework and options for the regular process will be:

- how to integrate into a coherent and meaningful whole the variety of sectoral and topical data collection and assessment initiatives, at regional and global levels;
- how to identify the most effective practices for conducting and communicating assessments so that decision-makers, managers, users, and publics receive the clear, well-founded, and timely information they need to ensure sustainable ocean use; and
- although institutional support for ocean assessment varies in different regions, how to assure a global framework that can strengthen regional arrangements and networks, facilitate inter-regional connections, and create a global overview that is greater than the sum of its parts. 

