

PARTNERSHIP DIALOGUES CONCEPT PAPERS: MANAGING, PROTECTING, CONSERVING AND RESTORING MARINE AND COASTAL ECOSYSTEMS

Managing Ocean Health: Approaches for Implementing Dynamic Ocean Management Systems

Erich J Pacheco, Johanna F Polsenberg
Conservation International
2011 Crystal Drive, Arlington, VA 22202

Marine and coastal ecosystems are in need of modern management approaches that shift away from single-sector indicator based platforms towards integrated frameworks that can account for the connectivity and interactions between the ecological, social, and economic elements of the ocean. Likewise, effective protection, conservation, and restoration of ocean resources must consider cumulative anthropogenic and ecological pressures negatively affecting ocean health as well as the collective governance responses aimed at counteracting specific and general threats.

The U.N General Assembly's intergovernmental consultations on a "Call for Action" for the United Nations Conference to Support the Implementation of Sustainable Development Goal 14 (SDG14) outlines the rationale, principles, and potential mechanisms to achieve this Goal. However, the majority of countries worldwide are not adequately prepared to readily act on these issues, and for many the magnitude of the challenge may seem daunting and unsurmountable. Here, we propose several demonstrated approaches to increase countries readiness for uptake of SDG14 Target 14.2 "By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration to achieve healthy and productive oceans."

a) Status and trends

Traditional ocean and coastal management has been primarily a sector-based, top-down endeavor: governments set policies and regulations for individual sectors, which the various stakeholders (both civil society and private sector) are compelled to follow. However, over the past few decades this approach has proven ineffective at managing the complex socio-ecological relationships of ocean and coastal systems. The uncoordinated development of individual sectors often leads to unsustainable production and conflict among the competing interests of various stakeholders. It is, thus, imperative to establish systems of participatory and integrated ocean management to identify the sustainable mix of outputs that would allow countries to achieve healthy and productive oceans. Unfortunately, while the governments and ocean stakeholders of most countries recognize the growing need for integrated ocean management, the majority lack the technical and management capacity to readily do so.

A solution to this issue is the adoption of existing science-to-policy framework tools, such as the Ocean Health Index (OHI), which offer countries an organized and systematized approach for integrating all ocean elements (social, ecological, economic, and physical) into a single framework, allowing decision-makers to understand the interactions between all these elements, while involving stakeholders in planning, target setting, data gathering and analysis, and determining management priorities. This process of institutionalizing ocean health into management provides a tailorable and repeatable framework for measuring coupled socio-ecological systems in different context, as it adapts to local environmental needs and characteristics, cultural priorities, capacities, and information availability and quality. Using 10 widely held human-ocean goals, the OHI combines various indicators and information to determine the status of a given goal, relative to stakeholder set targets. This is combined with pressure indicators (the threats that negatively affect a goal's status), resilience indicators

(which counteract pressures), and a five-year trend data, to determine the sustainable delivery of a goal on a scale from 0 to 100, where 100 indicates that the target has been achieved.

Using SMART criteria (Specific, Measurable, Ambitious, Realistic, and Time-bound), a wide array of stakeholders (civil society, private sector, academic/scientific institutions, public sector, indigenous groups) can help establish management guidelines, and be actively involved in the planning and implementation of ocean health assessments. This participatory approach allows stakeholders to determine which marine aspects are more or less important in a given context and to identify local measurements that can capture changes in the systems and the effectiveness of their associated management efforts. By matching the scales of assessment with the scales of decision-making, integrated ocean health assessments offer a systematized mechanism for comparing productivity and performance across regions, and for tracking the performance of a region throughout time. As a result, this allows for adaptive management approaches that continuously help identify geographic and thematic priorities, local knowledge and data gaps, and cost-effective management interventions. Moreover, open-science tools, such as the OHI Toolbox, use open-sourced software to empower users to produce transparent, reproducible, and easily communicated scientific assessments, making it easier to translate scientific findings into management and policy decisions.

These approaches also help countries align ocean governance across all scales of management, particularly aligning local efforts with global initiatives, such as SDG14. Ocean health assessments also help inform more effective ocean policies and regulations as well as management strategies and plans.

b) Challenges and opportunities

Even though oceans are among the largest contributors to many national and local economies, most public sector agencies lack dedicated funding mechanisms for ocean and coastal management. Likewise, there is often uncoordinated ocean development across government agencies operating in different sectors, leading to knowledge and data gaps, poor information sharing, and redundancy in management efforts. Lastly, there is limited technical capacity in most countries, particularly developing ones, for implementing open-science approaches to ocean management.

These challenges, however, present opportunities for putting in place national ocean health indicator and target systems that not only make the countries ready for SDG Target 14.2, but also support the development of local economies, human well-being, and ecological functioning. The lack of funding presents an opportunity for impact investment, where the private sector and for-profit entrepreneurs partner with public agencies in public-private partnerships (PPP) to leverage private capital with public policies for tackling problems such as overfishing, habitat loss due to coastal development, pollution, and poor infrastructure. And, building capacity for implementing open-science methods allows countries to systematize data gathering and analysis, making it easier to continuously monitor ocean health and the effectiveness of management interventions, leading to a continuous reallocation of funding to the most cost-effective interventions aimed at improving ocean health.

c) Existing partnerships

Ocean Health Index systems have been developed and adopted in 30 countries worldwide, in all inhabited continents. The ecosystem-based tailoring of these systems has resulted in the development of several methods and approaches for measuring the health of ocean components under differing conditions (e.g. low data, temporal and spatial information gaps, tropical vs. temperate systems, etc.), all of which contributes to the global knowledge base for managing oceans. Using open-source tools, such as Github and R-Studio also makes it easier for technical experts to collaborate with stakeholders, while fostering the development of a global community of practice.

Over the past five years, Conservation International and the University of California Santa Barbara's National Center for Ecological Analysis and Synthesis (NCEAS), the managing

partners of OHI, have established partnerships with many national and subnational ocean agencies, such as:

- The Colombian Oceans Commission (CCO)
- The Chinese State Oceanic Administration (CSOA)
- Israel's National Biodiversity Assessment Program (HAMARAAG)
- Ecuador's Technical Secretariat of the Sea (SETEMAR)
- The U.S. National Oceanic and Atmospheric Administration (NOAA)
- The Indonesian Ministry of Oceans and Fisheries
- The Stockholm Resilience Centre
- Peru's Multisectorial Commission for the Environmental Management of the Marine Domain (COMUMA)
- Mexico's Department of the Environment and Natural Resources
- South Korea's Maritime Institute
- The Western Indian Ocean Commission
- The Caribbean Large Marine Ecosystem Programme
- Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)
- The Permanent Commission of the Pacific Southeast (CPPS)

These partnerships have proven essential for the continuous refinement of the tools and methods for implementing ocean health assessments and using findings to help inform decision-making. Additionally, existing partner countries and regional agencies not only are leaders in the field, but can also offer experience, guidance, and advice to countries wishing to adopt these systems for managing their ocean resources in a more sustainable and cost-effective manner.

d) Possible areas for new partnerships

Since ocean management is naturally a transboundary endeavor, the scope of new partnerships should focus not only on scientific approaches and tools, but on coordinating and aligning management efforts across all management scales: subnational (local), national, regional (transboundary), and global. These management partnerships must consider the need to balance standardizing indicator frameworks, while allowing countries to set their own targets and prioritize interventions according to cultural and social priorities.

e) Guiding questions for the dialogue

- What global institutional arrangements are needed to mobilize adequate financial resources to eliminate barriers of entry to institutionalize ocean health management systems at multiple scales?
- What are the most cost-effective information sources that can offer adequate precision to help inform sustainable ocean management decision-making?
- What are effective mechanisms to obtain political buy-in to shift away from traditional ocean management towards integrated ocean health management? What are the institutional arrangements needed?
- How does ocean health management fit into existing ocean and coastal resource management institutional arrangements?