INDISPENSABLE OCEAN

ALIGNING OCEAN HEALTH AND HUMAN WELL-BEING

Guidance from the Blue Ribbon Panel to the Global Partnership for Oceans

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The ocean is fundamental to life on earth and inseparable from human well-being. It sustains hundreds of millions of people who depend on it for food and livelihood. But the ocean is in danger. Overfishing, pollution, habitat destruction, ocean warming and acidification – each is threatening this indispensable natural resource.

So we have come together: CEOs of seafood companies and civil society leaders, biologists and economists, policy-makers and entrepreneurs. Collectively we have centuries of experience working with, in, and on the ocean. From different perspectives, we recognize the threat to ocean health and understand the consequences for people.

While there is no "one-size-fits-all" approach to solving the urgent problems facing the ocean, there are solutions. Properly designed, integrated efforts can result in sustainable and shared economic development, poverty reduction, and healthy marine ecosystems.

Launched by the World Bank and supported by more than 140 organizations, the Global Partnership for Oceans is a public-private partnership that was created to help improve ocean health and human well-being. We support and endorse its formation and urge the Partnership to adopt our guiding principles. Our recommendations have been designed to help the Global Partnership for Oceans, or any institution investing in oceans, achieve positive impact and sustainable outcomes.

We stand at a point in history where it is neither too late nor impossible to turn the tide to restore ocean health. A new approach, like the Global Partnership for Oceans, can bring about the transformation required to change our course.

Professor Ove Hoegh-Guldberg
Chair
Blue Ribbon Panel

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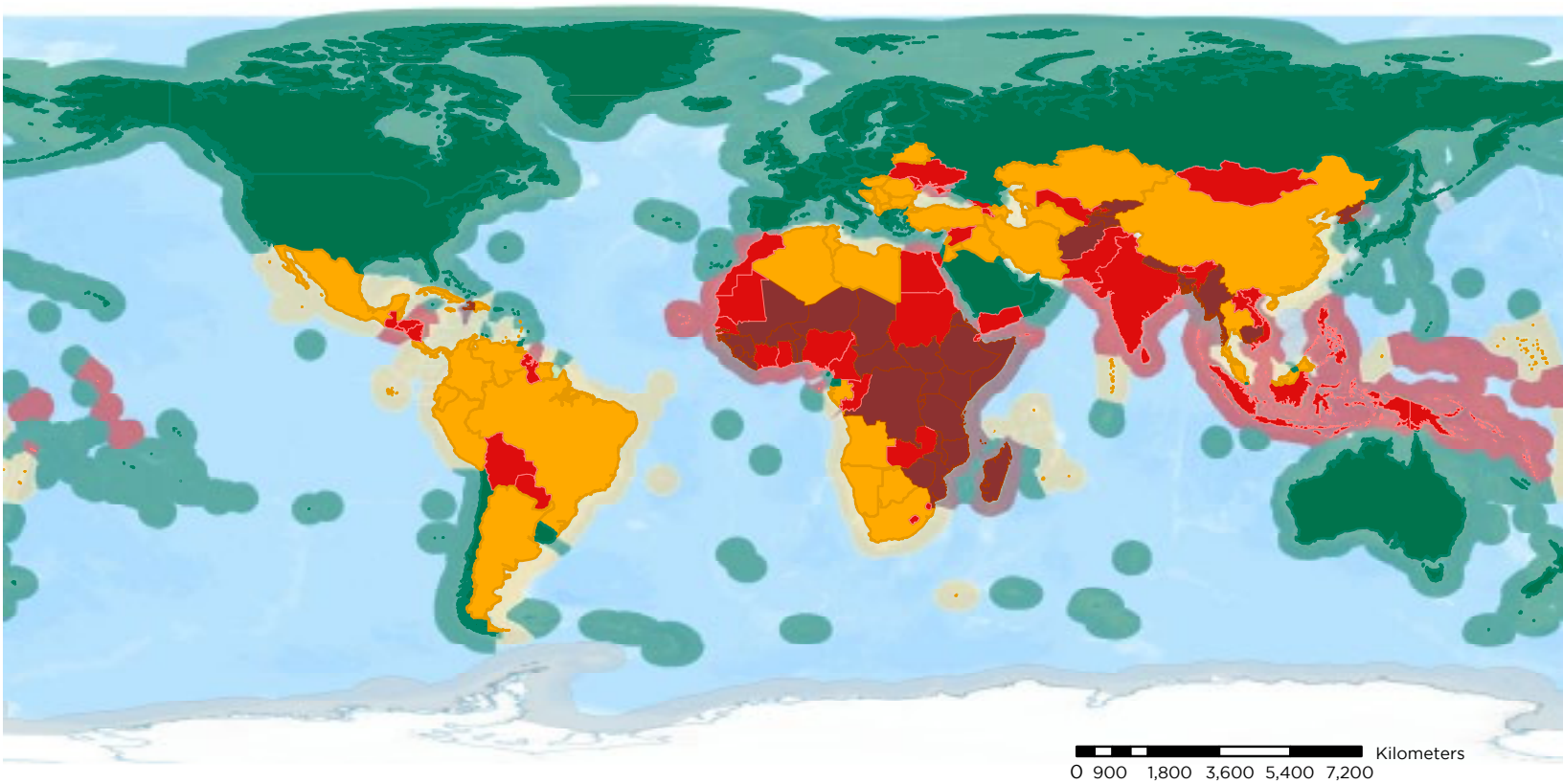
Country Income Level and Exclusive Economic Zones



Exclusive Economic Zones

Income Level

- Low Income
- Lower-Middle Income
- Upper-Middle Income
- High Income
- Not Available

Countries

Income Level

- Low Income
- Lower-Middle Income
- Upper-Middle Income
- High Income

Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster

Map illustrates global distribution of income levels by country and associated Exclusive Economic Zone (EEZ). EEZs are important for country economies. The marine resources derived from them can be fundamental to the livelihoods of people living in coastal communities, particularly in lower- and middle-income countries where people have less resilience compared to higher income counterparts.

ALIGNING OCEAN HEALTH AND HUMAN WELL-BEING

The ocean is a critical part of Earth's life-support system and vital for the well-being of humanity. Once thought to be limitless, the ocean's resources are showing serious signs of deterioration and depletion on a global scale. Adverse changes are accelerating at an unprecedented rate relative to the changes seen over millions of years. [1, 2, 3]

Human activities on land and in the ocean are causing rapid deterioration in the marine environment. The marine environment has been altered through discharge of manufacturing and agricultural pollutants and solid and liquid waste, increased atmospheric carbon dioxide emissions, overfishing, unsustainable coastal development, and increased shipping and mining activities. Since the beginning of the Industrial Revolution, increasing atmospheric CO_2 concentrations have resulted in average sea surface temperatures rising by 0.9°C and ocean acidification by 0.1 pH units (which is equivalent to a 26 percent increase in hydrogen ion concentration). [1, 4, 5] At the same time, oxygen levels in the ocean have been decreasing as a result of ocean warming and other factors such as coastal eutrophication (from changing coastal land-use). [4, 6, 7] As of 2010, there were more than 400 coastal systems, covering an area greater than 245,000 km², considered very low in oxygen (hypoxic). [4] These negative trends threaten the diversity and integrity of the ecosystem and its ability to provide food and livelihoods at many locations. We must reverse these trends to ensure that future generations can benefit from the ocean's beauty and wealth.

As a diverse panel of leaders in industry, government, conservation, and academia, we have come together to lend a collective voice toward building sustainable solutions for the ocean. We recognize that we need to improve the stewardship of the ocean. We have the opportunity and responsibility to rapidly achieve a more sustainable use of resources on land and in the ocean to avoid causing irreversible changes in the environment and society that will jeopardize the long-term viability of communities, industries, governments, and conservation efforts alike. For these reasons, the World Bank announced the Global Partnership for Oceans (GPO) at the World Ocean Summit in Singapore in 2012. The GPO is a global, public-private partnership, with the aim to address three key ocean challenges: (i) increase sustainable seafood and livelihoods from fisheries and aquaculture, (ii) reverse habitat loss, and (iii) reduce pollution. The Blue Ribbon Panel has been tasked with providing high-level strategic advice on principles and criteria to select priorities to improve the sustainable use of our ocean resources, as well as to identify approaches that will stop and reverse the decline in ocean resources. Reversing this decline is, without doubt, an enormous challenge given the scale of the problems and the extent of human influence on the world's ocean.

At the same time, however, this is also a time of great potential and opportunity. Scientific and applied knowledge, capacity, technology, and cross-sectoral engagement have reached a level that enables us to pursue much-needed development in an integrated and sustainable manner. Research and new technologies have greatly expanded our understanding of the ocean, and approaches for sustainable resource management and conservation have been applied with a range of successes and failures. With this knowledge and experience comes new capacity and responsibility to solve ocean-related issues such as marine pollution, habitat degradation, and overfishing, to achieve balanced gains in social, economic, and environmental spheres.

The Blue Ribbon Panel has identified five high-level principles to guide the selection and prioritization of initiatives aimed at aligning ocean health and human well-being: (1) sustainable livelihoods, social equity, and food security; (2) a healthy ocean; (3) effective governance systems; (4) long-term viability and (5) capacity building and innovation. Integrating these principles through multi-dimensional partnerships focused on achieving economic and socio-ecological sustainability is considered to be essential for lasting success. The Panel recognizes that problems and solutions vary across the world's ocean; and consequently, a "one-size-fits-all" approach is unlikely to work.

INTRODUCTION

"The needs of people in developing countries are very important as they live much closer to the poverty line. They're very dependent on the ecosystems that they live in. Unless we can work out how to keep the ecosystems healthy, these people will suffer."

DAVID OBURA, CORDIO EAST AFRICA

EARTH'S INDISPENSABLE OCEAN

A healthy ocean is fundamental to human well-being and an indispensable part of the Earth's life-support system, which sustains the species and the ecosystems upon which we depend. The ocean regulates our climate and, as part of the hydrological cycle, drives weather patterns that determine rainfall, droughts, and floods. [1,7] The ocean has also reduced the impact of human-induced climate change by absorbing 25 percent of the carbon dioxide released by human activities and over 90 percent of the extra heat trapped by rising concentrations of atmospheric greenhouse gases.[1] The ocean also provides food and sustains livelihoods.

The size and growth of the human population is putting unprecedented pressure on natural resources - both on land and in the sea. The ocean may play an increasingly larger role in supplying those resources and will, in this regard, play a critical role in global efforts to reduce poverty and improve livelihoods. Comprehensive global estimates of the economic activity associated with the ocean have only recently been attempted and a published consensus estimate has not yet emerged. The global economic benefits derived from the ocean's goods and services (see Box 1) are, however, undeniably important, especially for coastal states and island nations. The ocean generates hundreds of millions of jobs in biotechnology, energy, fishing, shipping, tourism, and other sectors[11] Most current economic assessments do not yet fully account for the innumerable non-market ecosystem services that can deeply influence well-being, traditions, cultures, faith, and recreation and enjoyment for many millions of people.

OCEAN HEALTH AND LIVELIHOODS AT RISK

For much of human history, the ocean has been viewed and treated as a limitless resource and a largely cost-free repository for waste. This misconception was enabled, in part, by the ocean's size and remoteness. As a result, ocean baseline conditions were mostly undocumented and have shifted slowly, over long periods of time without being noticed. Such oversights and mistaken beliefs combined with rising resource demand and non-existent or inadequate economic incentives and management tools to cope with such demand, have led to inefficiently regulated or unregulated competition among the various users (individuals, groups, and nations). Currently, users compete for a share in the benefits derived from the ocean with little or no incentive to protect or improve those goods and services for future generations. This has resulted in the excessive use, and in some cases irreversible change, of valuable ocean resources. As a result, ocean communities have been facing increasing risks to their future wealth, livelihoods, and food security.

A paradigm shift is needed in how we use and conserve ocean resources to address current inadequacies. In recent decades, some new policy instruments

Box 1: Ecosystem Services: Goods and services provided by the ocean (adapted from Millennium Ecosystem Assessment [12])

Benefit from the ocean can be defined in the following broad categories in terms of ecosystem services

1. **Provisioning goods and services:** a) renewable resources from ecosystems (for example, pharmaceuticals, fisheries, wave energy) and b) non-renewable resources (for example, minerals, oil, gas).
2. **Regulating services:** processes that maintain the climate, coastal integrity, water quality, and buffers for waste.
3. **Supporting services:** crucial natural processes that maintain ecosystem functions, which support other services, such as primary production, aquaculture localities, nutrient recycling and the provision of habitats.
4. **Other services:** Shipping and transportation for approximately 80 percent of the commodities traded around the world, nonmaterial benefits which support spiritual and religious values, and recreational and community benefits such as coastal and oceanic recreation and tourism.

have been introduced in attempt to reverse the overuse of critical resources. Some solutions have been found to halt and even reverse the decline in ocean resources, but they tend to focus on only a single sector or component of the socio-ecological system. Economic incentives need to be adjusted to reward efforts that create long-term economic prosperity. To stem the ocean's declining health, new and proven innovative solutions need to be scaled up, integrated, and improved to match the vastness and complexity of the ocean, the range of stakeholders, and the ocean's multiple uses.

The fisheries sector provides some successful examples of how negative trends in yield can be curbed or reversed as a result of implementing novel management tools and user rights arrangements. Fish stocks were generally in decline until recent decades, when several countries introduced rights-based fisheries management measures that were aimed at reducing fishing effort, rebuilding fish stocks, and restoring profitability in fishing. Aquaculture, the farming of aquatic organisms, is playing a growing role in the supply of seafood and efforts are underway to develop sustainable practices that minimize water pollution and the degradation of ecosystems. [13] Despite these efforts, the Food and Agriculture Organization of the United Nations (FAO) still estimates that approximately 30 percent of stocks are below the level that would produce long-term sustainable maximum yield. [14] In fact, ineffective management of fish stocks has been demonstrated to result in significant costs to economic revenue. For example, in 2004, the total loss to the world's fisheries from mismanagement was calculated to be approximately $50 billion for that year alone.[15,16] Even with policy instruments that rebuild fish stocks and economic yield for fisheries, long-term socio-ecological sustainability is not guaranteed unless solutions simultaneously improve the well-being of communities and the environment.

Healthy coastal ecosystems and habitats—such as mangroves, coral reefs, sea grass, oyster beds, seamounts, and estuaries—provide critical habitats or nursery grounds for important fish stocks. Some also provide protection from storm surge and wave damage while simultaneously supporting a vibrant tourism industry. The ecosystem services provided by coastal habitats exhibit the features of public goods and services, but limited private incentives exist to enhance, preserve, or restore these benefits. This also applies to other ecosystem services such as the role of the ocean in generating oxygen and mitigating climate change by absorbing carbon dioxide and heat. Intact coral reefs, for example, are essential for sustaining livelihoods for many millions of people, particularly in island states. In 2011, a comprehensive analysis by a consortium of 30 organizations found that 75 percent of the world's coral reefs were already threatened by local and global pressures, and that if these were not reduced this figure would rise to 90 percent by 2030 and affect nearly all reefs by 2050. [17] This would profoundly alter the opportunities available to affected communities and states for supporting livelihoods and local economies.

Increasing atmospheric CO_2 concentrations and associated changes to the climate are projected to exacerbate the influence of direct pressures from fishing, habitat destruction, and pollution in ways that run the risk of being non-linear in nature. Rising ocean temperatures are driving the expansion of marine dead zones, changing the flow of ocean currents and the supply and distribution of nutrients within the ocean. [18, 19, 20] Pollution from land and shipping further worsen these negative impacts on the marine ecosystem. Marine debris has become ubiquitous even in the most remote places in the ocean. These changes are accelerating and if not halted or reversed within the next few decades will have serious and in some cases irreversible ramifications for marine ecosystems and human well-being. A variety of stressors, including conflicting human uses, adversely impact the health of the ocean and lead to a complex web of interrelated and urgent problems. Such complex and global problems can be solved only through novel approaches, partnerships, and solutions that holistically address the socio-ecological system.

GLOBAL PARTNERSHIP FOR OCEANS

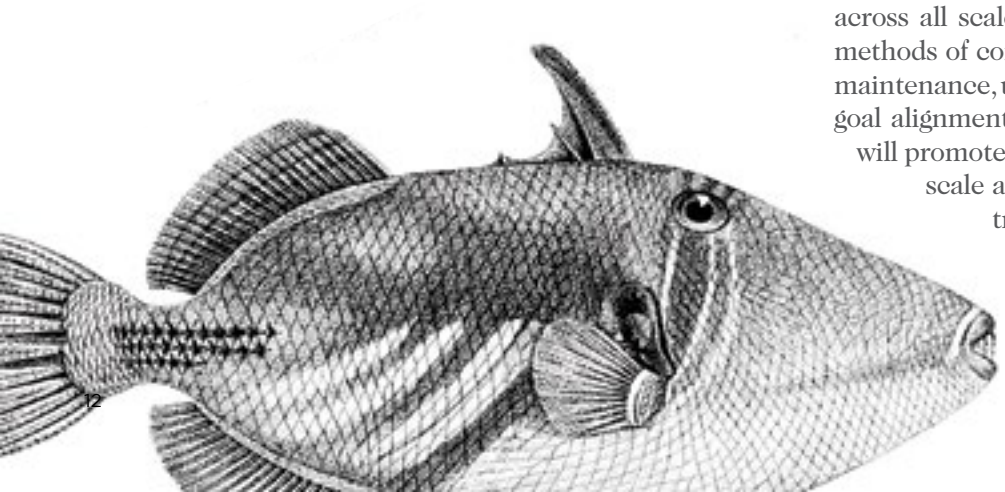
Restoring the health of the world's ocean is a global challenge that can and must be solved. Leaders in business, government, and civil society increasingly recognize this, and are building mechanisms and capacity for making this happen. Increasingly, inadequate policies, lack of political will, and institutional weaknesses are being overcome through new partnerships, coalitions, and investments that have a high likelihood of helping reverse the decline of the ocean. Central to the success of these innovative strategies are global partnerships and networks that will enable the international community to tackle the problems at scale. Coordinated and integrated action is vital to the future success of these partnership arrangements to increase investment and maintain a healthy ocean that continues to support sustainable economic growth, improve livelihoods, and reduce poverty.

Announced by the World Bank President at The Economist's 1st World Oceans Summit, the Global Partnership for Oceans (GPO) was officially launched at the Rio+20 Conference on Sustainable Development in June 2012. With broad support from the partnership, including high-level policy makers such as UN Secretary General Ban Ki-moon, the World Bank embarked on a comprehensive design and development phase to ensure future success of GPO programs and investments. As part of the design process, the Blue Ribbon Panel (i.e. 'The Panel') of experts was created to provide independent, objective advice to the GPO. Partners of the GPO nominated and helped select the members of The Panel. Comprising leaders from sixteen countries and representing government, the private sector, non-profit organizations, academia, and multi-lateral institutions, The Panel's membership reflects the diversity of the partners that will be required to design and drive innovative solutions. The Panel was asked to develop the foundational principles and criteria for prioritizing GPO investments and ocean investment in general, considering ecological, economic, and community sustainability.

BLUE RIBBON PANEL'S VISION

The range, complexity, and extent of threats to ocean resources are very significant. Consequently, The Panel believes that potential solutions can and must be scaled to drive meaningful change. To create ocean solutions that are sustainable over the long term, we must recognize that the well-being of communities, viability of economies, and sustainability of ecosystems are intricately linked. Solutions need to (i) consider all components of the socio-ecological and economic systems, (ii) be integrated across all sectors and (iii) be viewed as beneficial to stakeholders. It is important that these solutions address not only overfishing, pollution, and habitat destruction but also the issues of poverty alleviation and support for communities that are most vulnerable and reliant on marine resources for their food security, livelihoods, and well-being. Approaches that are sectoral and do not take into account social, political, and ecological interrelationships can only deliver incremental and fragmented solutions insufficient to meet the web of challenges confronting ocean health. Properly designed, integrated efforts can result in sustainable and shared economic development, poverty reduction, and healthy marine ecosystems.

We have an opportunity to catalyze new partnerships across all scales and sectors that focus on innovative methods of common good development, management, maintenance, utilization, information management, and goal alignment. The Panel envisions partnerships that will promote dynamic goals developed at the relevant scale and solutions through empowerment and transparent, accountable mechanisms that allow for informed judgments to be made at the relevant level, from local to global.



The Panel recognizes that there are substantive challenges associated with this vision, including the need to understand the values and limits of each stakeholder, and how to align local government objectives with global goals. Ultimately, these engagements must deliver acceptable economic benefits to those making the investments and to the local people and communities. In order to be effective, partnerships such as the GPO will need to explore how to provide appropriate incentives to partners, inspire industry innovation and inclusion, encourage scientific research and effective implementation of findings, incorporate traditional knowledge and experience, and effectively employ tools and methods associated with the new information age.

STRATEGY FOR THE GLOBAL PARTNERSHIP FOR OCEANS

"I always like to think that the interventions that we make should improve the social and economic wellbeing of people. That really is going to be the test: whether or not at the end of this whole process it does lead to some good social and economic outcomes."

TRANSFORM AQORAU, CHIEF EXECUTIVE OFFICER OF THE PARTIES TO THE NAURU AGREEMENT OFFICE

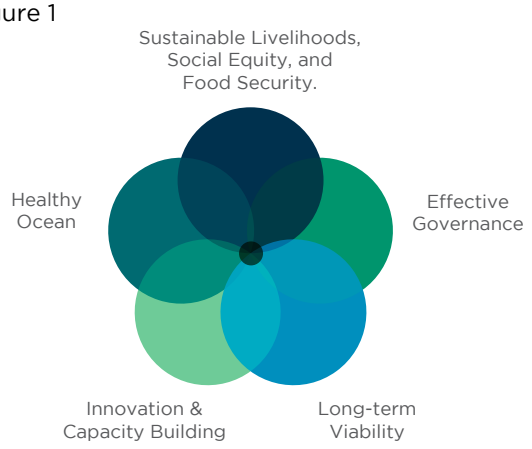
Given the large number of potential partnerships and investments, it is critical that the GPO establish and follow a clear set of principles and criteria for making strategic investments in ocean related projects and a consistent approach for measuring progress. Potential initiatives that may be presented to the GPO for support will inevitably stem from economies and governance systems that vary greatly in capacity. The Panel recognizes that requirements for information and capacity will need to be applied in a flexible and practical manner. The Panel also stresses the importance for the GPO to address relevant drivers of ocean degradation in its operations.

The five principles and associated criteria discussed below will allow the GPO to evaluate the need and readiness for change within these key dimensions and ensure that initiatives are flexible and match the complexity of human-ocean interactions.

GUIDING PRINCIPLES

Five principles – (1) sustainable livelihoods, social equity, and food security; (2) healthy ocean and sustainable use of marine and coastal resources; (3) effective governance systems; (4) long-term viability; and (5) capacity building and innovation– must be addressed as part of each effort undertaken by the GPO (Figure 1), or for any programs wishing to achieve the same vision. Strategic investment decisions should be based on the best available scientific evidence, ongoing evaluation of the goals, progress and outcomes, and application of adaptive approaches for implementation.

Figure 1



Principle 1: Sustainable Livelihoods, Social Equity, and Food Security. This principle emphasizes the importance of marine ecosystems in delivering essential goods and services that underpin millions of livelihoods, social equity, and food security. Central to this principle is the need to align the use of resources to optimize the well-being of people today and in perpetuity. Further, efforts need to reduce conflicts over resources by using an integrated ecosystem management approach that considers economic, environmental, and social aspects. Key objectives for investments include incentivizing socio-ecologically sustainable use of ocean resources.

Principle 2: Healthy Ocean and Sustainable Use of Marine and Coastal Resources. Investments should contribute to the maintenance, restoration, and enhancement of marine and coastal ecosystems. Central to this theme is the recognition that people are an essential part of the global ecosystem and that efforts to enhance ecosystem health must align with the goals of all stakeholders involved in the socio-ecological system. Particular emphasis should be given to fragile or vulnerable ecosystems, as well as areas of high value in terms of biodiversity, productivity, and functionality such as key spawning and nursery areas.

Principle 3: Effective Governance Systems. Inherent to this principle are initiatives that produce change in management practices to enable a rapid shift toward the sustainable use of marine and coastal resources. Investments should seek opportunities to mainstream integrated, sustainable management of marine resources into national budgets and plans. The goal is to support (or design) effective innovative governance systems that provide incentives to private and public sector leaders at all levels to engage and support a healthy ocean and community well-being.

Principle 4: Long-term Viability. Consistent with this principle are investments that are economically viable, socio-ecologically sustainable and promote positive, self-sustaining outcomes, especially when transitional funding or other GPO assistance ends. Successful management frameworks, designed to restore depleted resources, will require long-term investment horizons and consistent monitoring. Ideally, they will build on and scale-up existing efforts and incorporate

pre-existing skills, networks, and organizations locally as well as globally. In pursuing this principle, efforts need to consider market and social forces and instruments that valuate and cause internalization of all environmental goods and services costs and should promote optimal development, management, and utilization of public goods.

Principle 5: Capacity Building and Innovation. In accordance with this principle, investments should seek to scale-up and integrate proven solutions and develop novel ideas and strategies in order to produce the required transformative outcomes. Investments will aim to build on local knowledge and develop innovative solutions, human resource capacity, educational tools and operating strategies, as well as new finance and policy vehicles. Using assessments of risks and opportunities, initiatives should seek to make strategic investments, while at the same time incorporating lessons learned from failures and successes as solutions are refined.

CRITERIA FOR SETTING PRIORITIES

Based on the five principles, The Panel has established criteria to guide the prioritization of GPO investments. These criteria are provided to help identify key opportunities, projects, and partnerships. The criteria listed here are intended to assist in the selection and prioritization of GPO investments. All investments should be evaluated against these criteria, although many projects may not fully satisfy all the criteria listed. For further discussion on how these criteria might be used to select among thematic or geographic areas, see subsequent sections.

PRINCIPLE 1:
Sustainable Livelihoods, Social Equity, and Food Security

Outcome:
Economically viable, sustainable, and diversified livelihood opportunities

Selection Criteria:

The degree to which the investment:

1) Addresses problems of poverty, social inequity, gender equity and opportunities, food affordability and access, and nutrition, especially in ocean-dependent communities
2) Demonstrates the potential to improve human health, stabilize households, consider fair trade principles, and generate local employment and socioeconomic prosperity for communities that rely on ocean resources
3) Strengthens governance, and consequently expands opportunities among broad populations and communities
4) Develops or supports market-based mechanisms, or other incentive structures that are consistent with (or build on) local culture and knowledge that benefit the people and communities of the target region
5) Encourages strong and sustainable partnerships among people, communities, governments, and businesses.

PRINCIPLE 2:
Healthy Ocean and Sustainable Use of Marine and Coastal Resources

Outcome: Increases or maintains sustainable ecosystems and ecosystem services

Selection Criteria:

The degree to which the investment supports an area where:

1) People are highly dependent on the ecosystem services provided by marine or coastal habitats
2) Threats (or potential future threats) to the ecosystem can be remedied or mitigated
3) Natural capital offers benefits that extend beyond the project area (such as key recruitment areas, concentration of biodiversity or major connectivity pathways)
4) Competition over threatened or 'at risk' resources between communities or sectors can be reduced or eliminated
5) The state of knowledge and governance are such that they favor the establishment of well-designed, ecosystem-based resource management structures or managed networks of habitat protection to sustain productivity.

PRINCIPLE 3:
Effective Governance Systems

Outcome: Strengthened or novel institutions, broader expertise and governance structures, and expanded local capacity for leading, adapting, and persisting in the face of change

Selection Criteria:

The degree to which the investment supports an area with:

1) The presence of, or potential for, strong ownership and leadership on a community, national, or regional scale
2) Strong governance enabling conditions (such as community engagement, effective private/public partnerships, enabling regulatory and legislative environment, and law enforcement, etc.)
3) Capacity to enable long-term improvements in the institutional and socio-economic environment
4) Strategies for multi-use planning that engage multiple stakeholders (both public and private) across critical sectors (such as fisheries, tourism, shipping, oil and gas, etc.)
5) The presence of management mechanisms at all levels encompassing local, national, regional and global cooperation
6) Engaged local communities, or that can build on local or regional governance structures.

PRINCIPLE 4:
Long-Term Viability

Outcome:
Investment in solutions that result in a measurable and sustainable impact

Selection Criteria:

The degree to which the investment:

1) Describes a viable approach for sustaining impact beyond the initial GPO investment (through risk analysis and the identification of actions and tactics to mitigate potential risks)
2) Includes an analysis to evaluate the return on investment, net present value, benefits and costs, and economic, social, and political risks
3) Addresses major obstacles to sustainable ocean economies
4) Has the potential to create assets that can be invested in or securitized
5) Develops or introduces innovative financial tools and structures that support investments in maintaining or improving the health of the ocean, related ocean services, and ocean-based economies
6) Includes dynamic design elements that build resilience to future conditions such as climate change, population growth, technology evolution, and geo-political changes
7) Is replicable or has the potential to be self-sustaining from demonstration projects so that other communities or institutions can adopt it without GPO funding.

PRINCIPLE 5:
Capacity Building and Innovation

Outcome: Proven and innovative approaches that are scalable, transferable, and have measurable benefits for communities, investors, and other stakeholders

Selection Criteria:

The degree to which the investment:

1) Builds or draws upon established knowledge, scientific evidence, and government support while prioritizing systematic, long-term knowledge transfer and leadership development
2) Addresses major knowledge gaps and introduces management, process and/or technological innovation
3) Supports human capacity building in resource management, ocean-related industries, and research
4) Leverages and encourages the use or development of innovative research and technologies that build capacity for sustainable resource management
5) Builds capacity to assess, monitor, and project environmental and socio-economic conditions (using, where appropriate, novel or existing information technologies, platforms, and analytics) to guide strategic decision-making and allow behavior modification or reinforcement.

APPROACHES TO MEASURING PROGRESS

"The ocean is probably the most important part of the Earth, although we don't live there."

JOHAN WILLIAMS, MINISTRY OF FISHERIES AND COASTAL AFFAIRS NORWAY

ASSESSING THE BASELINE AND READINESS FOR TRANSFORMATIONAL CHANGE

A thematic or geographic area is identified as a priority for investment if the potential funding recipient successfully outlines how the investment will contribute to measurable progress as part of the five principles outlined above. Given that not all potential partners have the capacity and opportunity to satisfy all criteria under each principle, meeting the criteria should have a degree of flexibility. In addition, and central to the GPO objective, is the premise that the initial investment catalyzes transformational change such that further improvements will result from built capacities, become self-sustaining and not remain dependent on continued financial or economic assistance.

Once a thematic or geographic area has been identified, a project team, combining local and global expertise as warranted, will assess the needs and baseline conditions and the potential for transformational change. During the project design phase, the team will ensure that goals are focused and implementation plans are developed consistent with on-the-ground conditions, policies, and markets. The design phase must yield actionable, attainable, and measurable project goals in conjunction with associated performance measures that track progress and results. The team should therefore also be required to develop tools for ongoing review of and feedback regarding socio-ecological conditions and impacts on involved parties. Pipeline and existing investments (e.g., from government, non-governmental-organizations, private sector) in an area should also be clearly identified, such that GPO investments are not duplicative, and, where possible, build on or complement existing investments.

KNOWLEDGE GAPS AND LIMITS IN CAPACITY

For the GPO to optimally contribute to a country or region, it is important to first identify knowledge gaps that might be relevant to any given investment. It is also important to determine the human and technical capacity of the various partners to contribute. These knowledge gaps and limits in capacity can be broadly categorized as follows:

1. Natural assets, ecosystem services valuation, and the bio-geophysical properties of the ocean, including the type and abundance of marine life (e.g. commercial fish stocks, biodiversity, coral cover, critical habitats), the surface and subsurface conditions of the seafloor, the constitution of the water column, and the effect of climate change/ global change on regional ecosystems and ocean habitats.

2. Socio-economic conditions including human and technical capacity, economic structure, and the financial resources of individuals, communities, the private sector, and governments.

3. The processes, fluxes, and interactions among the various components of the natural environment and the socio-economic system; and understanding of the causal links between one component or particular location with other system components and locations.

4. Governance, including legislative systems, use rights arrangements, political processes, international processes, and decision-making structures.

5. Approaches to deploying and tailoring solutions within a region, convening partners, building strong stewardship and management, communicating challenges and approaches, and getting buy-in from all stakeholders.

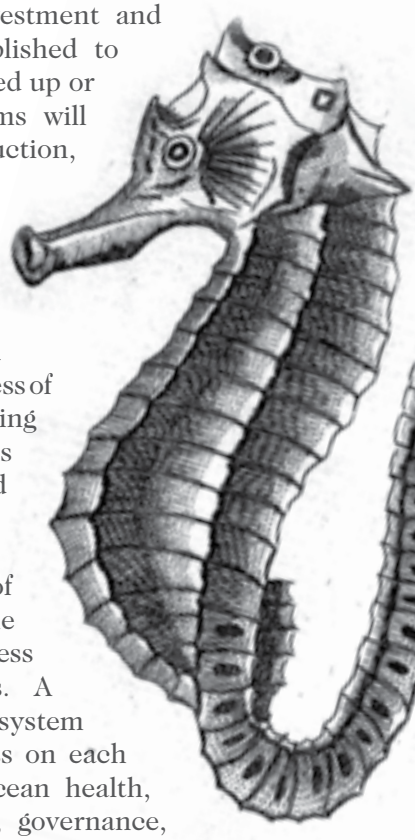
6. Approaches to scaling or adapting these solutions so that they may be applied in diverse countries and regions.

7. The actual value (or approximation thereof) of ocean resources–both for market and non-market needs.

When possible, knowledge gaps are filled by project team participants with the required capabilities or information. Otherwise, knowledge gaps need to be explicitly acknowledged when designing and building effective solutions and partnerships.

ASSESSING PROGRESS: ARE INVESTMENTS MEETING THEIR MULTIPLE GOALS?

For each of the GPO principles and criteria, initial conditions will vary widely. The purpose of GPO investments must be to shift projects and all components of the socio-ecological system toward improved conditions. This requires a framework for measuring progress and impact, including baseline and impact monitoring—to inform GPO partners and projects whether the investments and approaches are meeting the intended goals. If possible, causal links between the investment and the impact need to be established to ensure approaches can be scaled up or adjusted. Measurement systems will vary by sector, e.g., food production, waste reduction, harvests, fishery stock assessment, pollution reduction, habitat impacts, educational learning indicators, or high-quality maps and spatial databases. Calculating the success of a single project may require using multiple measurement systems and involve both qualitative and quantitative measures. Ideally, these measurements should be augmented by a common set of metrics and/or system outcome models to measure progress across all GPO investments. A multi-dimensional indicator system that evaluates relative progress on each of the five GPO principles–ocean health, livelihoods and food security, governance, long-term viability, and innovation and capacity–needs to be designed as an integral part of the measurement process.



DEVELOPING SOLUTIONS

"We are near an ecological and a societal tipping point in terms of the oceans literally being in crisis - so this is a critical time for us to be coming together to talk about solutions that will really make a difference, really result in action and outcomes."

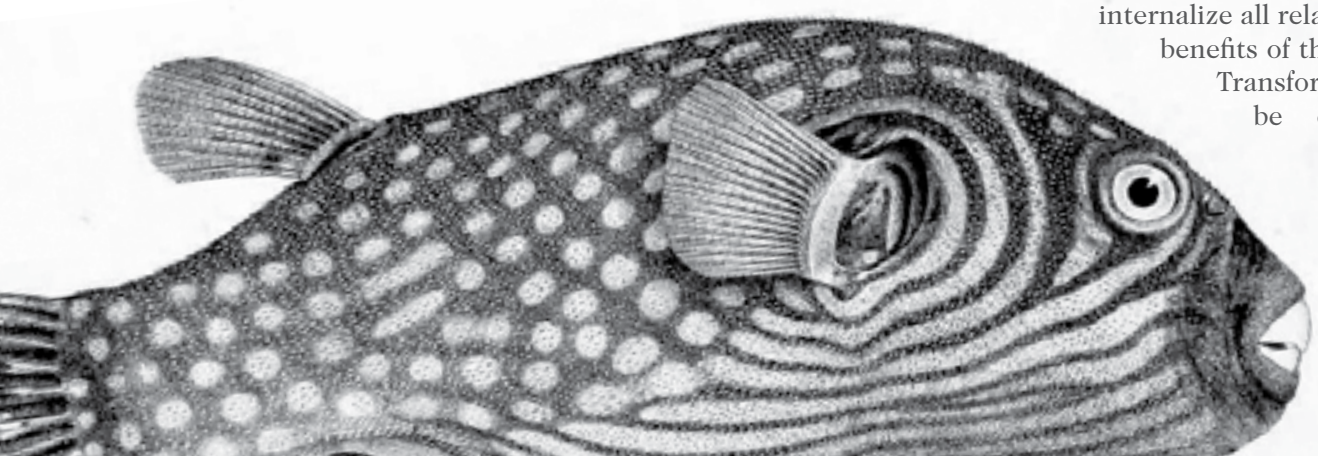
DAWN J. WRIGHT CHIEF SCIENTIST, ESRI AND PROFESSOR OF GEOGRAPHY AND OCEANOGRAPHY, OREGON STATE UNIVERSITY, UNITED STATES

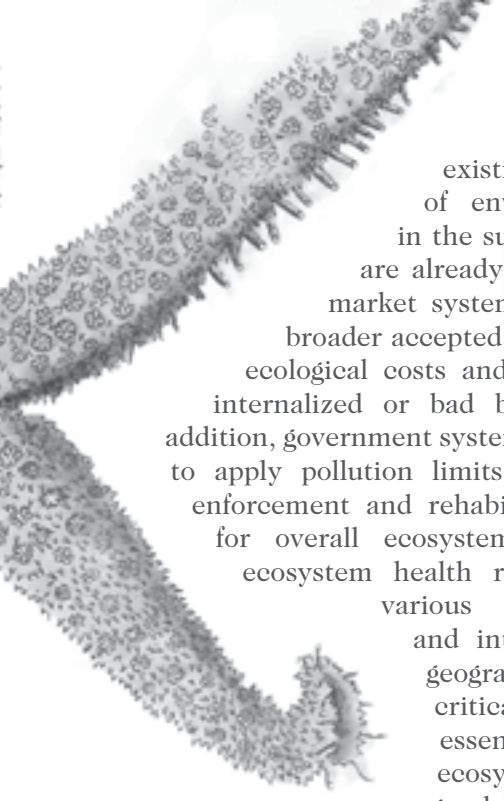
Given the diversity of issues facing the ocean and ocean-dependent communities, the approaches most likely to work vary significantly from place to place. The Blue Ribbon Panel members conclude there is no "one-size-fits-all" approach to solving the urgent problems faced by the world's ocean. To ensure equitable benefits, long-term sustainable economic growth, and a healthy ocean, we must develop dynamic solutions that integrate site-sensitive approaches tailored to particular socio-ecological systems. Individuals, communities, and industries that benefit from goods and services must jointly determine how to manage and share ocean resources within governance frameworks that are equitable and fair to all stakeholders. Hence, new partnerships across private and public sectors offer significant potential to provide innovative win-win solutions with the ultimate goal to create lasting solutions for maintaining viable ecosystems and healthy economies and advancing human well-being.

A multitude of solutions has been developed and deployed worldwide from which the GPO can draw lessons—both in the resulting range of positive outcomes and limitations of past approaches. It is beyond the scope and capacity of this Panel to summarize the vast worldwide experience of decades of research and management experiences. Instead, the Panel emphasizes some key aspects that underlie successful approaches, including careful allocation of rights and responsibilities, thoughtful design of management practices, the efficiency of markets and appropriate incentives, and public-private partnerships.

The ocean is an important source of food and livelihoods. For example, fisheries and aquaculture may play an increasing role in providing protein to a growing world population and in poverty reduction. There are significant opportunities to increase revenue through better fisheries practices, such as reduction of by-catch and waste. Many approaches have been developed to reduce the threat of overfishing and rebuild fish stocks. Improvement in fisheries management can come from improved information and governance systems and a range of different user rights structures—such as community fishing rights, harvesting quotas, and territorial use rights, so long as they are designed to fit the goals and needs of the community in which they are implemented. In addition to improvements in wild fisheries, improved methods, practices and technology in aquaculture can contribute to increased production of sustainable seafood. Both fisheries and aquaculture success fundamentally depend on ecosystem function that supports seafood production. Improved fisheries management in both wild and aquaculture fisheries can result in economic gains for many of the major fisheries. However, to ensure that greater economic gains are balanced with social and environmental concerns, the five principles listed above need to be incorporated into management reforms.

It remains a challenge to develop approaches that can address marine pollution and protect ecosystems services such as coastal integrity, provision of habitat, or nutrient cycling. Pollution in general is a result of failure by polluters to internalize all related costs and benefits of their activities. Transformations can be expected in





existing markets where users of environmental resources in the supply chain of products are already being regulated. New market systems can be designed as broader accepted platforms where socio-ecological costs and benefits are properly internalized or bad behavior penalized. In addition, government systems can be strengthened to apply pollution limits, allocate the cost of enforcement and rehabilitation, and set goals for overall ecosystem health. Maintaining ecosystem health requires balancing the various stakeholders' goals and interests in a particular geographic area; identifying critical habitat at risk or essential to supporting ecosystem services and goods (e.g. nursery/spawning grounds); and preventing further degradation through various area-based management tools such as marine managed and protected areas.

New information feedback systems must be developed that cause internalization of environmental and social costs so that service and good providers can respond to economic incentives generated or penalties imposed by market participant behavior (for example, market response to 'blue indices' reflecting water quality). In the case where this is not efficient, accurate and transparent information systems can effectively be created or implemented to protect global public goods (e.g., sensitive systems such as certain coral reefs). There is a critical requirement for local, regional or global communities to assemble funding and other resources to compensate for and mitigate these failures, and assure protection of the public good.

In general, effective solutions will require a range of stakeholders from the public and private sectors to share responsibilities and rights in using and protecting ocean resources. For example, the public sector may provide the physical market place, facilitate community engagement, ensure transparency, inspect goods for safety, detect violations, provide enforcement and compliance, and prosecute violations. The private sector can execute the trade and exchange of goods, while open access to information can create the pricing structure and incentives that inform the market system.

DESIGN OF HOLISTIC SOLUTIONS THROUGH PUBLIC-PRIVATE PARTNERSHIPS

Approaches to ocean resource development, management, maintenance, and utilization must be structured and implemented to guarantee that communities, economies, and ecosystems thrive. In the past, flaws in the design of instruments such as public-private partnerships, design of user-rights allocation, and management structures have led to a vast array of problems around the world. Many of the shortcomings result from insufficient integration across the sectors and inconsideration of all elements of the socio-ecological system. The GPO has significant potential to catalyze the creation, or support of, holistic approaches that integrate across the socio-ecological system.

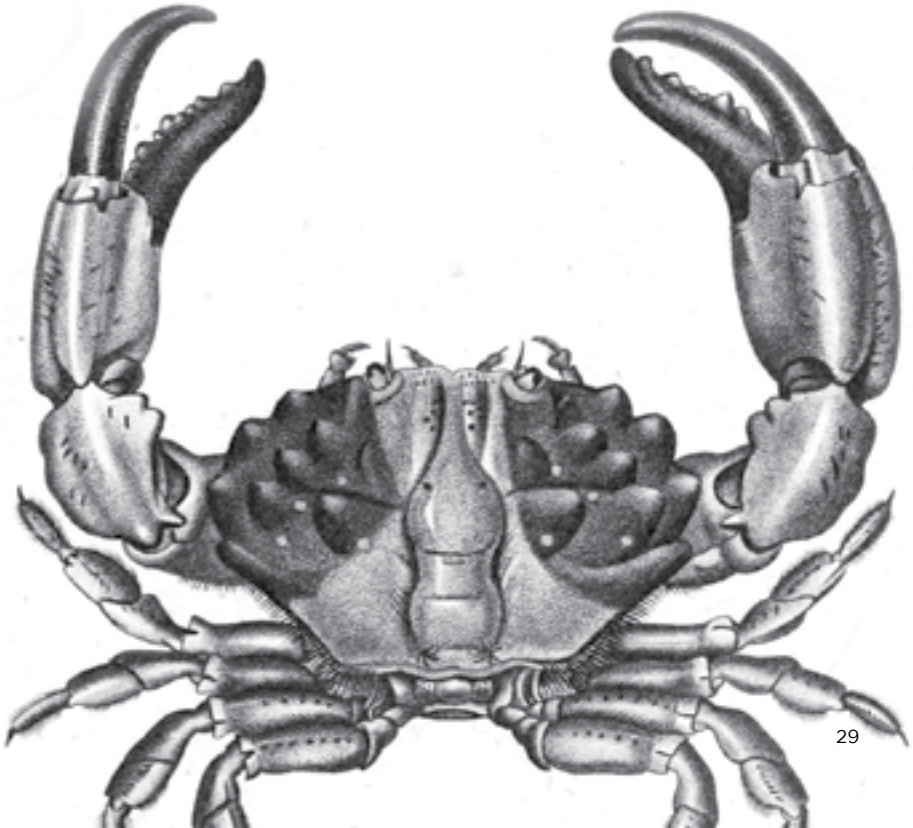
One instrument in the design of such holistic solutions is a well-structured public-private partnership (P3) that resolves pressing ocean issues by incorporating all five principles. P3s can be envisioned at both the larger sectoral level, where governments, industries, and relevant stakeholders would be the drivers, and at the coastal community level. A P3 should be based on a holistic strategy that addresses specific community or social needs in the context of sustainable socio-ecological systems. A well-structured P3 aims to optimize the yield of common goods utilized, minimize the cost to the public of such activity through the leveraging of opportunities and assets, and incentivize responsible behavior in a transparent and synergistic fashion that promotes long-term sustainability. These strategies should be optimized for scale and tailored to local conditions and culture.

The design and implementation of large scale P3s will require leadership with business expertise and the ability to envision and carry out the creation of an adaptive and iterative P3 structure and its essential components. P3s can be informed and driven to benefit all partners and maintain functioning ocean ecosystems. The project design needs to be clearly defined and there must be a focus on prompt project implementation. Members of the partnership will provide contributions according to their comparative advantage. Further, P3 should leverage private industry participation in solution development and the use of market systems and instruments.

P3s at the community level will need to assess baseline conditions as well as the tools and techniques necessary for ongoing review and feedback regarding socio-ecological conditions of all impacted or involved parties in the project. In addition, the partnership needs to be strategically built to align key stakeholders. Critical components include a clear articulation of the community's goals, the strategic engagement of the private sector, and the arrangement of financing solutions that minimize the cost of such financing. The Panel recognizes the scope and complexity of developing fully integrated P3 solutions and recommends adaptive and iterative approaches to implementation. The GPO can facilitate the emergence of informed project teams in developing such P3s and build this capacity over time.

In creating P3s, privatization of public goods should be carefully considered. The questions to be addressed with broad input from the community and other stakeholders include the following: what rights are allocated, how rights are allocated (actors range from individuals to communities to the general public), how communities are engaged and empowered in the allocation and management of any rights, how the terms of rights allocation are structured to promote proper management and utilization, and how individuals are to be incentivized. Ideally, the P3 should be dynamic and evolve as limiting factors are modified or reduced over time.

We are also at a unique time in history where technology allows for establishing a network and marketplace for ideas and solutions at a global scale. This has revolutionized the ability to bring systems together that can manage and utilize common goods as efficiently as privatized systems, while maintaining the benefits of the common good for the public. These new global networks and markets, along with rapidly advancing technology and sharing of global expertise, offer new opportunities to obtain a more holistic, sustainable, and equitable approach to the management and utilization of the common goods derived from the ocean.



CONCLUSIONS AND CALL TO ACTION

"It's not only governments that need to act on this. All stakeholders need to combine in joint action as a response to this very global problem."

TUILOMA NERONI SLADE, SECRETARY
GENERAL OF THE PACIFIC ISLANDS FORUM

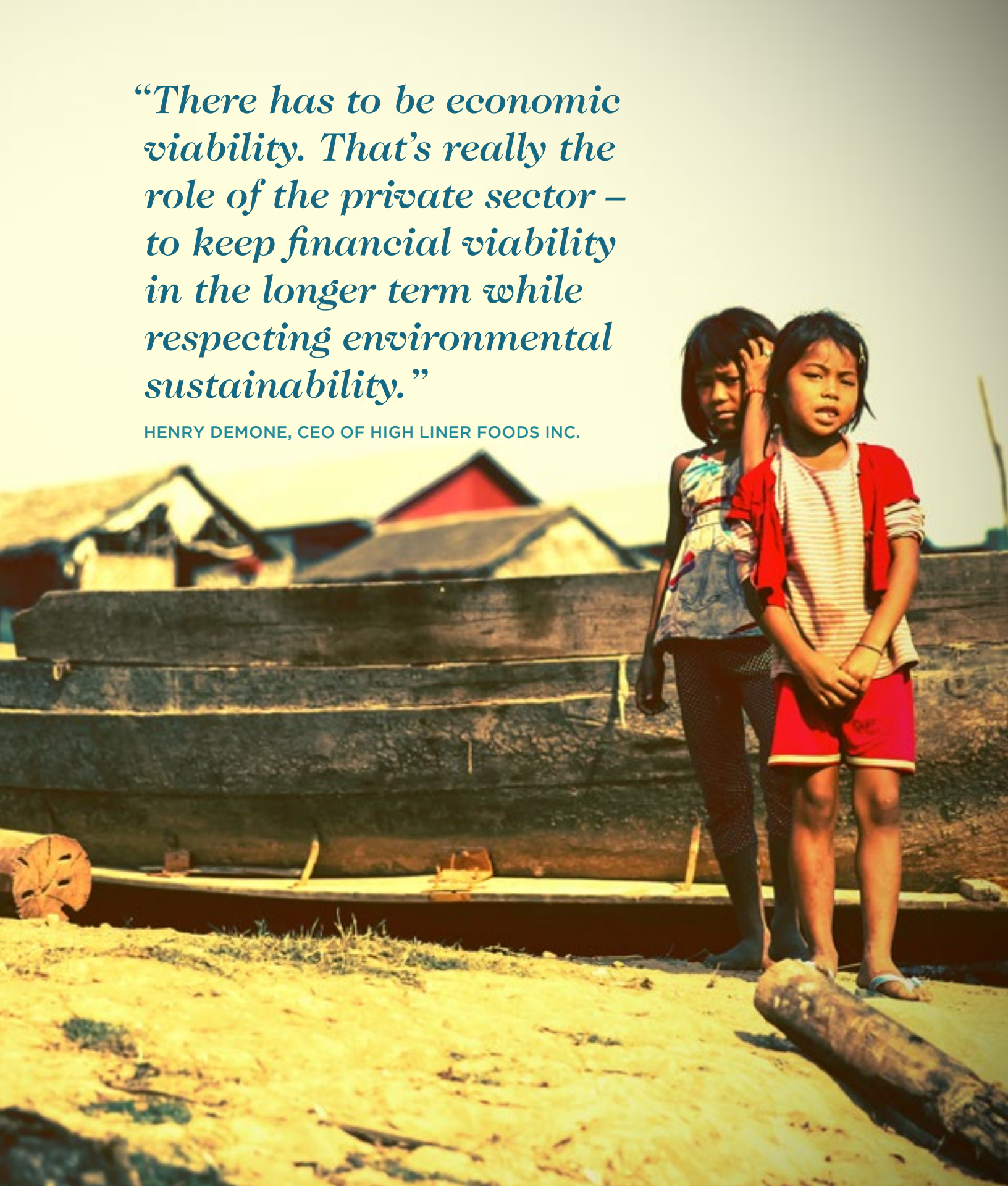
There is little doubt that the world faces great challenges in the sustainable use of the ocean. Over the last 50 years the world's ocean has been subject to greater human pressure than at any time in recorded history. These pressures have taken a considerable toll on the resilience and productivity of the marine environment. Collapsing fisheries, vanishing habitat, and global pollution are threatening the ecosystem goods and services on which humanity depends. While there are many successful interventions and reasons for hope, urgent and concerted action on a global scale is required to ensure that necessary progress in improving the health of the ocean and ocean services can offset the rapid decline. The Blue Ribbon Panel has concluded that a global call to action is required if we are to rebuild and sustain benefits associated with ocean ecosystems and resources.

The Panel calls for scalable, sustainable and inclusive partnerships that span the full spectrum of stakeholders and which yield positive outcomes in the next decade before changes become irreversible. No single approach will be sufficient to address the complexity of the issues that face the world's ocean today. Instead, solutions must be multidimensional and integrate all aspects of the socio-ecological system. For example, aquaculture can make a vital contribution to meet the growing demand for animal protein and provide critical jobs in developing countries. However, research is needed and governing systems designed to develop aquaculture practices that not only provide food and livelihoods, but also ensure minimal negative impacts to the environment. This is an example where creating centers-of-excellence for specific industries or sectors can rapidly build local knowledge and capacity, while also providing meaningful economic and social development opportunities.

To develop and share the required knowledge and experience, the GPO should lead in the establishment of global networks of expertise and research. Nations face many ocean issues that are not unique to their countries and global partnerships can facilitate knowledge exchange. These centers and networks should help integrate key areas, such as sustainable aquaculture, fisheries reform, combating marine pollution, conserving critical habitat and species, and engaging in integrated ecosystem-based management, which can provide attractive economic development opportunities while also improving sustainable management practices and governance in vulnerable coastal communities. Developing educational networks and initiating shared knowledge platforms can also build global capacity and scholarship on the significant challenges that face ocean ecosystems encompassing communities and industries that rely on them. These initiatives might involve the full range of partners—industry, philanthropy, government, NGO, and other sectors.

The good news is that we stand at a point in history where it is neither too late nor impossible to turn the tide of change that is currently sweeping across the ocean. There are many actions that can be taken today with substantial effect and benefit for people and communities that are dependent on the ocean. Consumer behavior and choices can be changed on a global scale as we increase the awareness in the general public about the links between land and sea. As examples, we can address illegal, unregulated and unreported fishing through leveraging existing partnerships and organizations at a global scale; combat market distortions that further exacerbate the overexploitation of ocean resources; and empower community leaders and people around the world to partner in positive change.

We are confident that solutions can be developed that maximize benefits for people, industries, ecosystems, and economies. At no other time in history have we had as much capacity to assess past successes and failures in order to solve the problems of the future. At no other time in history have technology and information so linked people globally and offered the opportunity to solve the problems that face our ocean and our planet. A global partnership can bring about the transformation required to change our course. This requires, however, that the Global Partnership for Oceans forms an inclusive partnership that draws on the wealth of global knowledge and science available in all aspects of the ocean.



"There has to be economic viability. That's really the role of the private sector – to keep financial viability in the longer term while respecting environmental sustainability."

HENRY DEMONE, CEO OF HIGH LINER FOODS INC.

APPENDIX:

Biographical Sketch of Panel Members and Staff

PANELISTS

Transform Aqorau

Transform Aqorau is Chief Executive Officer of the Parties to the Nauru Agreement Office, a Tuna Management and Regulatory Body consisting of the Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands, and Tuvalu. He is also Administrator of the Purse Seine and Longline VDS and the Federated States of Micronesia Arrangement for Regional Access (a multilateral access agreement amongst the PNA). He has been involved in several international and regional fisheries negotiations. He was Chair of the Forum Fisheries Committee, Chair of the Solomon Islands Fisheries Advisory Council, Member of the Solomon Islands Economic Advisory Council, Board Member of Soltai Fishing Company, and Senior Visiting Fellow of the Australian National Centre for Oceans, Resources and Security (ANCORS)of the University of Wollongong.

Ragnar Arnason

Ragnar Arnason is a professor in fisheries economics and the Chairman of the Institute of Economic Studies at the University of Iceland. Since 1990, Professor Arnason has primarily conducted his research in the area of fisheries economics and fisheries management where he has a publication record of over 160 scientific articles and several books. In addition to advising on fisheries policy in many countries around the world, he has been on the board of several business enterprises and is currently on the board of the Central Bank of Iceland.

Thiraphong Chansiri

Thiraphong Chansiri, President of Thai Union Frozen Products Public Company Limited (TUF) and Group CEO of subsidiary companies across the world, steers the group's overall global business and growth strategies. Prior to his role as the President of TUF, Mr. Chansiri held a series of executive positions at TUF and Thai Union Manufacturing Company Limited (TUM), a subsidiary of TUF. In just over two decades, he has helped TUF grow its business from an annual revenue of US$10 million to today's US$3.5 billion. Mr. Chansiri was presented with CEO Award for four consecutive years by Securities Analysts Association of Thailand (SAA). In 2012, he was ranked second amongst 100 Most Powerful Executives in the global seafood industry.

Nelson Del Rio

Nelson Del Rio is Chairman of Emergent Intelligence Solutions. An attorney by training, he has experience in mergers and acquisitions, tax structuring, finance and securitization, real estate, social ventures, strategic advisory services, gaming, GIS and agent-based modeling, big data and semantic platforms, incentive based innovation, crowd-sourced solution development and public-private partnership structuring and implementation. Del Rio is involved in business efforts as well as numerous university and philanthropic boards focusing on environment, social equity and justice, education, health, leadership and various forms of application of nascent technologies.

Henry Demone

Henry Demone is CEO of High Liner Foods, Inc. where he has led the transformation of the company from its roots as a fishing company to a well-known food processor and marketer of high quality sustainable seafood. He is past Chair of the National Fisheries Institute, and the Groundfish Forum and is currently a Director of Saputo, Inc.

Sylvia Earle

Called "Her Deepness" by the New York Times, a "Living Legend" by the Library of Congress, and Time Magazine's first "Hero for the Planet," Sylvia Earle has led more than 100 expeditions as an oceanographer and explorer, authored 180 publications, and lectured in 80 countries. Formerly Chief Scientist of NOAA, she is Explorer in Residence of the National Geographic Society, Founder of Mission Blue and the SEAlliance, a founding Ocean Elder, and Council Chair for the Harte Research Institute.

Mary H. Feeley

Mary H. Feeley (Missy) is Chief Geoscientist, ExxonMobil Exploration Company. She has held various technical and managerial positions in Houston, Norway, Indonesia, Malaysia and Nigeria. Dr. Feeley currently chairs the Methane Hydrates Advisory Committee for the Committee for the US Department of Energy, on the Executive Board for the Scientific Committee for Oceanic Research and served on the Ocean Studies Board of the US National Academies.

Dimitri Gutierrez

Dimitri Gutiérrez, a Peruvian biological oceanographer, has been the Director of Research in Oceanography and Climate Change of the Peruvian Marine Research Institute (IMARPE) since 2012, and leads the graduate program in Marine Sciences at the Universidad Peruana Cayetano Heredia in Peru. His research is focused on benthic responses to natural and human-induced anoxia, paleo-reconstruction of the Peruvian upwelling ecosystem history, and global warming impacts on the upwelling ecosystem. He is currently involved in developing adaptation projects for the impact of climate change on Peruvian fisheries and marine coastal ecosystems.

Ray Hilborn

Ray Hilborn is a Professor in the School of Aquatic and Fishery Sciences, University of Washington specializing in natural resource management and conservation. He serves on the Editorial Boards of seven journals including the Board of Reviewing Editors of Science Magazine. He has been a member of the Ocean Studies Board of the National Research Council, and the Scientific Advisory Panel for the Presidents Commission on Ocean Policy and the Independent Science Advisory Panel for the Commission for the Conservation of Southern Bluefin Tuna.

Ove Hoegh-Guldberg

Ove Hoegh-Guldberg is the Director of the Global Change Institute and Professor of Marine Science, at The University of Queensland, Brisbane, Australia. He has published works that include over 200 refereed publications and book chapters and is one of the most cited authors within the peer-reviewed literature on climate change. He is Queensland Smart State Premier's Fellow, Australian Research Council Laureate and Deputy Director of the ARC Centre for Excellence in Reef Studies. In 2013 he was elected Fellow of the Australian Academy of Sciences.

Naoko Ishii

Naoko Ishii is the CEO and Chairperson of the Global Environment Facility. Prior to this she was Deputy Vice Minister of Finance for Japan. She has also served in international assignments outside of Japan, including at the World Bank and the International Monetary Fund. She has published numerous papers and several books, two of which were awarded the Suntory Prize (1990) and Okita Memorial Prize for International Development Research (2004).

Chris Lischewski

Chris Lischewski is the President and CEO of Bumble Bee Foods, the largest, branded seafood company in North America. He has worked in the seafood industry for more than 25 years and has been extremely active in seafood sustainability initiatives including being a founding member and Chair of the International Seafood Sustainability Foundation. In addition to his operating role at Bumble Bee, Mr. Lischewski is currently the Chair of the U.S. National Fisheries Institute and sits on the Executive Committee and Board of the U.S. GMA (Grocery Manufacturers Association).

Jane Lubchenco

Jane Lubchenco is currently Wayne and Gladys Valley Professor of Marine Biology and Distinguished Professor of Zoology at Oregon State University, and was previously the Under Secretary of Commerce for Oceans and Atmosphere and Administrator of NOAA from 2009-13. She has served as president of the American Association for Advancement of Science (AAAS). She is an elected member of the National Academy of Sciences; the American Academy of Arts and Sciences; the American Philosophical Society; the Royal Society; and the Academies of Science for the Developing World, for Europe, and for Chile. Dr. Lubchenco has received numerous awards including a MacArthur "genius" award and 19 honorary doctorates. She was named "2010 Newsmaker of the Year" by the scientific journal Nature.

Kim Anh Nguyen

Kim Anh Nguyen is professor of economics at Nha Trang University. Dr. Nguyen's varied research interests include fisheries and aquaculture economics and management, international trade, poverty alleviation and sustainable livelihoods in the small-scale fisheries and small-scale aquaculture and, most recently, effects of climate change. She serves as director of the NOMA-FAME international master's program and is the author/co-author of numerous books as well as many scholarly papers.

David Obura

David Obura is a Founding Director of CORDIO East Africa, supporting activities in mainland Africa and Indian Ocean island states. His work includes research on coral bleaching, reef ecology and biogeography, supporting coral reef monitoring, and working with community-based fishers and protected area managers for sustainable use and management of coral reefs and coastal ecosystems. David plays a number of roles regionally and globally with IUCN (International Union for the Conservation of Nature), and is currently chair of the Coral Specialist Group. In 2007 he was nominated as an Honorary Fellow of the Western Indian Ocean Marine Science Association.

Rolph Payet

Rolph Payet is currently Minister of Environment and Energy for the Government of the Seychelles. Rolph is also presently the Pro-Chancellor of the University of Seychelles and Associate Professor at the University of Linnaeus, Sweden. He has been involved in ocean issues for many years, including local coordinator of the Shoals of Capricorn Programme of the Royal Soceity and Chairman of the Seychelles Centre for Marine Research and Technology. He is currently committee member of the Global Forum on Oceans, Coasts and Islands, and member of the Group of Experts for the World Ocean Assessment.

H.E. Neroni Slade

Tuiloma Neroni Slade is currently the Secretary General of the Pacific Islands Forum Secretariat and is also the Pacific Ocean Commissioner–a high level advocacy role underpinning the Pacific Oceanscape Framework's holistic approach to ocean management and conservation. SG Slade has had a long career in law and diplomacy. Prior to his current position he was a Judge of the International Criminal Court in The Hague; Samoa's Ambassador/Permanent Representative to the United Nations, and to the USA and Canada; and has also served his country as Attorney General.

John Tanzer

John Tanzer is Director of WWF's Global Marine Programme. John was appointed as the inaugural Chair and Chief Executive of Queensland's Fisheries Management Authority (QFMA) when it was established under new legislation in 1994. In 1998 he was appointed as Executive Director of the Great Barrier Reef Marine Park Authority (GBRMPA); from 2001 onwards he was the Executive responsible for the oversight of the spatial rezoning of the Great Barrier Reef Marine Park based on the Representative Areas Program which increased the network of highly protected areas from less than 5 percent of the Great Barrier Reef to over 30 percent. He has also worked considerably with the Coral Triangle Initiative in South East Asia and the South Pacific.

Johán H Williams

Johán H. Williams is Specialist Director, Department of Fisheries and Aquaculture Management, Royal Norwegian Ministry of Fisheries and Coastal Affairs. He is currently President of the North East Atlantic Fisheries Commission (NEAFC) and Chair of FAO Fisheries and Aquaculture Committee (COFI). From 1997 to 2011 he was Director General managing the department for Fisheries and Ocean Management. He has worked nine years with the Norwegian Development Agency NORAD, and has been a consultant to many organizations and countries, including the World Bank and most notably with the Government of Vietnam from 2003-2012 implementing new fisheries legislation.

Dawn J. Wright

Dawn J. Wright is Chief Scientist of the Environmental Systems Research Institute (ESRI). She is also an affiliated Professor of Geography and Oceanography in the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University. She has authored or co-authored more than 130 articles and five books. Dr. Wright is a fellow of the American Association for the Advancement of Science (AAAS) and of Stanford University's Aldo Leopold Leadership Program. In 2007 she was named U.S. Professor of the Year for the state of Oregon by the Carnegie Foundation for the Advancement of Teaching and the Council for the Advancement and Support of Education.

Jintao Xu

Jintao Xu is currently a professor of natural resource economics and director, China Center for Energy and Development at the National School of Development, Peking University. Before joining Peking University in 2006 he worked as Deputy Director and professor at the Center for Chinese Agricultural Policy, Chinese Academy of Sciences for six years.

STAFF

James L. Anderson

Jim Anderson leads The World Bank Global Program on Fisheries and Aquaculture (PROFISH). He is an internationally recognized expert in fisheries and aquaculture management, seafood markets, and international trade. Prior to joining the World Bank, he was professor and chair of the Department of Environmental and Natural Resource Economics at the University of Rhode Island and served as editor of the international journal, Marine Resource Economics.

Claudia Mengelt

Claudia Mengelt is a senior program officer and study director with the US National Academy of Sciences (NAS). Her research expertise is in coastal water quality, harmful algal blooms, and marine ecosystem health. She has field experience in both Polar Oceans and temperate latitude coastal systems. At the NAS, she has led studies on a range of topics including climate change adaptation, ocean acidification, and application of remote sensing to the Earth sciences.

Timothy A. Bouley

Timothy Bouley is a medical doctor and environmental scientist working within the World Bank to (i) implement the Global Partnership for Oceans and (ii) develop collaborative strategies for global health and environmental investment.

Stacee Karras

Stacee Karras is a Research Associate at the U.S. National Academy of Sciences' Ocean Studies Board. She received her J.D. from the University of Virginia School of Law after completing her B.A. and M.A. in marine affairs and policy at the University of Miami.

GLOSSARY

Climate change
a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use. [G1, G2]

Eutrophication
Natural or artificial addition of nutrients to bodies of water and the associated impacts due to the added nutrients such as higher than usual algal biomass and oxygen depletion below the sun-lit surface waters. (adapted from [G4])

Fish stocks
"...all the individuals of fish in an area, which are part of the same reproductive process. It is self-contained, with no emigration or immigration of individuals from or to the stock. It occupies a well-defined spatial range and is independent of other stocks of the same species."[G5]

Healthy ocean
A healthy ocean is "clean, safe, prospering, and sustainably managed. It contributes significantly to the economy, supporting multiple, beneficial uses such as food production, development of energy and mineral resources, recreation and tourism, transportation of goods and people, and the discovery of novel medicines, while preserving a high level of biodiversity and a wide range of critical natural habitats." [G7] (See also [G8] for further conceptualizations of the term.)

Livelihood
A way of earning money in order to live; means of support or subsistence. [G8]

Natural capital
"...the resources that we easily recognize and measure such as minerals and energy, forest timber, agricultural land, fisheries and water. It also includes ecosystems producing services that are often 'invisible' to most people such as air and water filtration, flood protection, carbon storage, pollination for crops, and habitat for fisheries and wildlife." [G9]

Public private partnership
A cooperative venture between the public and private sectors, built on the expertise of each partner that best meets clearly defined public goals and needs through the appropriate allocation of resources, risks, responsibilities, and rewards. [G10]

Socio-ecological
Of or relating to the combination of natural, socio-economic, and cultural resources that compose a socio-ecological system (see below).

Socio-ecological system
A dynamic and complex system of natural, socio-economic, and cultural resources, whose flow and use are determined by social, economic, and biophysical factors. [G11]

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"Holistic goal-driven public-private partnerships can only be achieved through multi-sector collaborations that first focus on the development of and consensus on higher order goals."

NELSON DEL RIO – CHAIRMAN, EMERGENT INTELLIGENCE SOLUTIONS

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"The Blue Ribbon Panel is as diverse as it is impressive, yet there is common ground –passion for the ocean and understanding that it is essential for human well-being. The result: an exceptional document and forged connections that can help nations, institutions and partnerships for a better ocean future."

James L Anderson, Advisor on Oceans, Fisheries, and Aquaculture, The World Bank and Blue Ribbon Panel Co-Director

"In the report of the Blue Ribbon Panel there is a demanding case for collective world action now. There are opportunities which simply cannot be missed."

Tuiloma Neroni Slade, Secretary General of the Pacific Islands Forum

"The Global Partnership for Oceans is a very unique platform and it's something that probably couldn't have happened 20 years ago. But today you have people understanding the seriousness of the challenges for the ocean and you have different interest groups beginning to work together to solve these problems."

Henry Demone, CEO of High Liner Foods Inc.

"This is the sweet spot in time. Never before could we know what we now know…The Blue Ribbon Panel is charged with recognizing that there are issues but there are also opportunities…This panel has a chance to provide some insight from different angles and different perspectives."

Sylvia Earle, Founder of Mission Blue / The Sylvia Earle Alliance

"Being a member of the Blue Ribbon Panel has been a rewarding opportunity to collaborate with key players and thought leaders in ocean sustainability…The process reinforces that improving ocean health is a complex process that requires participation and interaction across a broad sphere of communities, industries and governments."

Chris Lischewski - President and CEO, Bumble Bee Foods

"After working with the Blue Ribbon Panel in recent months, I am convinced that the Global Partnership for Oceans will bring break-through solutions to today's ocean challenges. The achievement of the BRP mission with unique combination of the panel members has also set a great example of how the public-private partnership can be the key contributor in any GPO initiatives to come."

Thiraphong Chansiri, President, Thai Union Frozen Products PCL

Probably what impressed me most is that every member of this group was prepared to put aside their differences to work towards solutions to the problems affecting our oceans. Just goes to show what could be possible on the scale of the GPO."

John Tanzer, Director WWF Global Marine Programme