



Pacific Ocean 2020 Challenge

The Pacific Ocean Report: The Costs of Inaction A Planning Paper

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INTRODUCTION

The Pacific Ocean occupies one-third of the earth's surface area and almost half of the world's ocean area. It supports hundreds of millions of people living in Pacific Rim countries and the island nations of the Pacific. It is home to a diversity of plant and animal species within many complex ecosystems and supporting the economies of the Pacific Rim and Pacific countries, as well as globally. It is the engine room for Earth's climate, as well as being an integral part of the global politics and security. Despite such ecological, economic and social importance, the Pacific Ocean is not being managed sustainably. If anything the Pacific Ocean is under considerable stress from ongoing human activities, according to the Pacific Ocean *Scientific Consensus Statement* (Annex 1) coordinated by the Centre for Ocean Solutions, which is a partnership between the Monterey Bay Aquarium, the Monterey Bay Aquarium Research Institute (MBARI) and Stanford University, including:

- **Pollution:** Pollutants from different sources, such as sewage, ballast water discharges, fertilizer run-off, plastic marine debris, and urban run-off and dispersed pollutants combine to create one of the most critical classes of ocean threats. These pollutants fundamentally alter the basic ecosystem structure and clog habitats, which all create human health risks, and put stresses on local economies.
- **Habitat destruction:** Productive marine habitats are lost to things such as destructive fishing practices, poor agricultural land use, inappropriate coastal development, affecting livelihoods of people that depend on ecosystem productivity.
- **Overfishing and exploitation:** Unsustainable resource use reduces fish stocks throughout the Pacific, limiting fish catches and often causing ecological shifts that further reduce biodiversity and productivity, affecting subsistence, artisanal and commercial fishing, reduced income and insecure food supply.
- **Climate change:** Pacific countries have already seen strong effects of ocean warming, changes in ocean circulation and abrupt shifts in precipitation patterns, affecting natural ecosystems and environments as well as all sectors of the economy.

The Pacific Ocean *Scientific Consensus Statement* also concluded that continuation of the 'business as usual' practices is a major threat to the health of the Pacific Ocean and its ecosystems, the economies it supports and the livelihood of people.

THE FUTURE OF THE HEALTH OF THE PACIFIC OCEAN

The current rates of environmental change far outpace anything seen in human history, and are likely to accelerate in the near future, as population grows, needs and aspirations change, and as the effects of climate change becomes more pronounced. These new conditions present serious challenges to the Pacific Ocean Community for the next decades or centuries. Many habitats may become lost and resources may become depleted or get close to economic extinction. Many coastal areas and islands in and around the Pacific Ocean may become uninhabitable due to sea level rise, coastal inundation, shifting rainfall, collapse of fresh water

supplies, or changes in the migration patterns of food species. These changes will increase the number of impoverished people and increase the vulnerability of many nation states.

The *Scientific Consensus Statement* noted that “the best science indicates that over the next century we can expect to see dramatic declines in the health of the Pacific Ocean, its ecosystems, and the people that rely on this shared resource, unless concerted and prompt action to address known threats is taken”. The *Scientific Consensus Statement* has succinctly also identified the threats to the Pacific Ocean and summarized the solutions and options for the future, including:

- Maintaining ecosystem health and sustainability should be as fundamental a goal as economic development;
- New technologies, innovative market mechanisms, and financial tools that promote adoption of sustainable practices to empower local communities and help maintain the cultural richness of the Pacific Ocean (Island and Rim) nations, and reduce the human footprint on the Pacific;
- Each region within the Pacific must adopt sustainable adaptation strategies for ecosystems and human communities in the face of climate change; and
- Collaboration at many levels, including social, scientific, regulatory, institutional, and information technologies.

The Challenge

While many in the scientific community have signed the *Scientific Consensus Statement*, the more critical challenge is to obtain commitment from leaders from the Pacific Rim and Island nations and those who control the public purse in adopting a governance framework that focuses on the Pacific ecosystem as a whole and which transcends the sovereign boundaries, jurisdictions and mandates. Once the Leaders have agreed on for the need to take the necessary action to develop a comprehensive governance framework, it is essential that other key stakeholders including the civil society and the private sector are brought together as part of a solution. In finding a way forward there is an urgent need to address common problems in a coordinated manner, uncover underlying causes and adopt a collective action for the sustainability of vibrant, intact and highly functioning economically and ecologically sustainable Pacific Ocean communities.

PACIFIC OCEAN 2020 CHALLENGE – THE PROPOSAL

The Pacific Ocean 2020 Challenge seeks to focus global attention, to build new partnerships, and generate the necessary commitments, to address threats to the world’s largest natural asset – the Pacific Ocean - by 2020. Learning from the recent experiences in the climate change debate and the Stern Report on the economics of climate change, and acknowledging the importance of translating scientific knowledge into economics values and arguments to get political and broader buy-in, the IUCN has proposed a three-phased approach for tackling the challenges facing the Pacific Ocean, building on the Pacific Ocean Synthesis Report and the Consensus Statement:

- Phase 1 *The Pacific Ocean Report: The Costs of Inaction*;
- Phase 2 Political endorsement of the *Pacific Ocean Report: The Costs of Inaction*, and the call for a Pacific Ocean 2020 strategy; and
- Phase 3 Development of the *Pacific Ocean 2020 Strategy* including key targets and indicators, and a way forward.

Phase 1: Preparation of *Pacific Ocean Report: The Costs of Inaction*

Objective: To prepare *The Pacific Ocean Report: The Costs of Inaction*, focusing on the economic cost of doing business as usual, and benefits of alternative ocean-wide management of the Pacific ocean's ecosystems and resources.

The purpose of the Pacific Ocean Report is to provide necessary motivation to political Leaders of the Pacific Rim countries and the small island states and other stakeholders to take urgent actions towards adopting a Pacific Ocean-wide management approach, supported by a well compiled and compelling body of evidence of the economic cost of staying on the path of 'business as usual', and the benefits of improved Pacific Ocean-wide management.

The nature of issues and key messages to be covered in *The Pacific Ocean Report* are reflected in the attached draft report outline (Annex 2).

Phase 2: Political Endorsement

Objective: To obtain endorsement of *The Pacific Ocean Report* and the call for a Pacific Ocean 2020 Strategy

The Pacific Ocean Report will be used to produce policy briefs and advocacy materials for politicians and other key decision-makers to understand the socioeconomic costs of inaction, focusing on getting their support for a call for a Pacific Ocean 2020 Strategy for creating a healthy and sustainable *Pacific Ocean*. These advocacy material and policy briefs would be targeted at key regional and global Leaders foras such as Pacific Islands Forum leaders meeting, ASEAN, APEC and other UN thematic meetings and a specially convened Pacific Ocean Summit.

Phase 3: Preparation of the Pacific Ocean 2020 Strategy

Objective: To develop *The Pacific Ocean 2020 Strategy*

Once the Leaders have agreed to the need for a coordinated ocean-wide management of the Pacific Ocean, they and other stakeholders would need to agree on a *Pacific Ocean 2020 Strategy* to achieve desired outcomes by 2020.

The *Pacific Ocean 2020 Strategy* document would clearly articulate key outcomes and targets, as well as a road map of coordinated set of strategies for meeting the outcome targets. *The Pacific Ocean 2020 Strategy* by nature will be a long term framework of action, which subsequently would need to be operationalised into a practical program of work for implementation by the Pacific Rim countries and small island states.

The Pacific Ocean 2020 Strategy will cover responses necessary to address a diverse range of threats to living and non-living coastal and ocean resources discussed in the Pacific Ocean Synthesis Report, and elsewhere. It will build on regional policies and plans of action, including the Pacific Islands Framework for Regional Action on Climate Change (PIFRAC) and Pacific Islands Regional Oceans Policy (PIROP), and regional tuna fisheries management policies. Various regional international governmental organizations, such as SPREP, FFA and SPC, which are members of the Council of Regional Organizations of the Pacific (CROP), are mandated under the Pacific Plan to coordinate the implementation of these regional policies and plans of action. However, the proposed Pacific Ocean 2020 Strategy by nature will

include, but also go beyond, these resources and policies. Thus, involvement of the CROP agencies and other regional and international organization, such as the International Maritime Organization, in the development of the Pacific Oceans 2020 Strategy would be also important. And the Leaders and other stakeholders would thus also need to agree to a 'way forward' for operationalising the Pacific Ocean 2020 Strategy.

The Process for addressing the Pacific Ocean 2020 Challenge

A transparent and accountable management of the Pacific Ocean 2020 initiative, together with a stakeholder based process that also emphasizes technical robustness, is critical, if the broad based ownership of the process and confidence in the outputs are to be achieved. This applies before, during, and after completion of the report, including the follow-up to international responses. As such the suggested approach needs to be considered and agreed to by Partners in the Pacific Ocean 2020 Challenge as soon as practicable.

IUCN, through the IUCN Regional Office for Oceania in Suva, Fiji, will facilitate the report preparation process and be responsible for the completion of the phase one. IUCN is a neutral but high profile agency that is well respected internationally, and is now building a significant presence in Oceania.

The preparation of key outputs, *The Pacific Ocean Report* and *The Pacific Ocean 2020 Strategy* will be managed at two levels: political and technical levels, with policy briefs and advocacy material used to get political endorsement of the key outputs. The interaction between the two levels is illustrated in Figure 1.

Political Level Pacific Ocean 2020 Steering Committee

It is proposed that a Steering Committee be established, with high level regional representatives; and key high level representations from the partners that provide financial resources towards the initiative. Steering Committee members may include heads of co-financial partners, as IUCN, Centre for Oceans Solution, WWF, World Bank, NOAA, Conservation International and Asian Development Bank, and a the government representative from each region (Central Asia, South East Asia, Latin America, Central America, North America, and subregions (such as Australia & New Zealand, Melanesia, Polynesia and Micronesia, and California.

The key role of the Steering Committee will be to:

- provide political oversight of the production of the *Pacific Ocean Report: The Costs of Inaction*; and *The Pacific Ocean 2020 Strategy*; and
- help obtain support for the Pacific 2020 Initiative from key political leaders in the Pacific Rim Countries, including the leaders from the APEC, and the Island Nations, and development partners.

Phase 1 Preparation of the Pacific Ocean Report

Assuming the endorsement by the Partners of the Pacific Ocean 2020 of the three-phase approach suggested above the first output will be *The Pacific Ocean Report: The Cost of Inaction*, to be completed by January 2010

To efficiently produce a quality *Pacific Ocean Report: The Costs of Inaction*, a combination of a strong technical expert team and a supportive secretariat is essential.

The Expert Group

An Expert Group is recommended to be appointed urgently. This Expert Group will comprise an overall Project Leader and thematic specialists preferably drawn from the different regions. Ideally, the Project Leader will be an internationally recognized economist, and the respective thematic experts will have recognized standing in at least one of the relevant natural and social disciplines. The Expert Group will ideally also include a person with appropriate experience/ expertise in ocean policy and management / regional and or international law on ocean issues.

Collectively, the Expert Group members will have appropriate combination of disciplinary background, thematic knowledge, and experience in ocean management as well as have appropriate experience leading in large/complex projects. Ideally there will also be a balanced regional representation on the Expert Group. The team members will also have excellent writing skills.

The key tasks for the Project Leader will be to oversee the preparation of *The Pacific Ocean Report*. He/She will, in collaboration with the other members of the Expert group,:

- identify key gaps in the literature in relation economic costs of business as usual in the Pacific Ocean use and management, including international and regional instruments;
- identify additional papers that may need to be commissioned to fill known gaps in knowledge related to sustainable use and management of the Pacific Ocean, including ocean governance; and
- Coordinate the synthesis of key thematic papers and lead the preparation of the draft *Pacific Ocean Report* for peer review.

The Report will highlight the economic cost of business as usual, the value of science-based thematic and cross thematic targets for achieve healthy, productive and sustainable Pacific Ocean. For each theme, the report must also include specific thematic/ resource case studies drawn from the different regions/ key countries.

A workshop will be held to discuss the draft Pacific Ocean Report, involving key regional and thematic experts and representatives of the Pacific Rim and Oceania countries. Following this workshop, the report will be finalized for endorsement by the Steering Committee and then by the political Leaders.

To support the Expert Group, a small research team of at least three senior research advisers (natural and physical scientists (1 each), economist (1), and marine policy/ environmental lawyer/ international lawyer), plus an officer level social scientist, is also recommended. These researchers, based with the IUCN-Oceania office in Suva, will help undertake additional research required by, and support the work of the Pacific Oceans Expert Group.

Phase 2: Political Endorsement

A multi-pronged approach is necessary, if broad political endorsement of the Pacific Ocean Report and the call for the *Pacific Ocean 2020 Strategy* is to be achieved. Members of the Steering Committee, equipped with the advocacy material and policy briefs prepared by the Expert Group in partnership with the Pacific Ocean Secretariat will approach Pacific Rim Leaders as well as the Pacific SIDS for the endorsement of the *Pacific Ocean Report* and the call for a Pacific Ocean 2020 strategy. This will be an on going activity, but the Steering

Group members may selectively attend and or request side events to discuss the Pacific Ocean 2020 initiative at key regional and global Leaders foras, such as Pacific Islands Forum leaders meeting, ASEAN, APEC and other UN thematic meetings. Lastly a specially convened Pacific Ocean Summit will be held around March 2010 where Leaders may discuss and agree on a way forward, including a call of the development of the Pacific Ocean 2020 Strategy.

Phase 3: Preparation of the Pacific Ocean Strategy

Once *The Pacific Oceans Report* has been endorsed by the Leaders, the Expert Group would prepare the first draft of the *Pacific Ocean 2020 Strategy Report*, with the assistance of a strategic planning expert/ adviser.

The purpose of the *Pacific Ocean 2020 Strategy* is to confirm clear desirable 2020 targets towards a healthy, productive and sustainable Pacific Ocean and to provide a framework and broad roadmap for the management of resources and ecosystems at all national, regional and inter-regional levels.

For the *Pacific Ocean 2020 Strategy* to be effective in achieving its purpose it must target high level outcomes or goals, reflect principles of sustainable development and address stakeholder based adaptive management of resources and ecosystems in the face of changing local and global environments. The *Pacific Ocean 2020 Strategy* is a long term strategic document, which subsequently will need to be operationalised into action that reflects prioritised strategies for each outcome and a program of initiatives required across the Pacific Rim countries and small island states to achieve the desired targets for 2020.

The desired outcomes of the *Pacific Ocean 2020 Strategy* can only be achieved through coordinated partnerships across nations and regions. Thus, draft strategy document would need to be discussed in a workshop involving key national and technical stakeholders before being it is finalized. The Leaders and other stakeholders would also agree on a practical way forward for operationalising the Pacific Ocean 2020 Strategy. A Pacific Ocean 2020 Strategy Summit is expected to be held around June 2010.

Pacific Ocean 2020 Secretariat

A small Secretariat located in the IUCN-Regional Office for Oceania, headed by the Regional Director-Oceania, will be established. The Secretariat will comprise a Pacific Ocean 2020 Coordinator, Chief Technical Adviser-Initiatives, Communications Specialist and an Administrative Officer¹.

The Coordinator will facilitate the work of the Expert Group, with the assistance of the Administrative Officer. One of the initial tasks for the Communications Specialist will include developing the Communication Plan for the Pacific Ocean 2020 Initiative. The

¹ The small research team of advisers and officers supporting the Expert Group preparing the *Pacific Ocean Report* and the *Pacific Ocean 2020 Strategy* documents will also be located with the Secretariat.

Communications Specialist will work with the IUCN-Oceania Regional Director and the Chief Technical Adviser- Initiatives, supported by the Project Leader to prepare and widely disseminate information, policy briefs and other materials related to the Pacific 2020 Challenge Initiative.

IMPLEMENTATION STEPS

Once the Partners have agreed to this initiative, and appropriate resources have been secured, the following implementation plan (Table 1), together with a time line (Figure 2), is suggested. In addition, it is expected the Steering Committee would regularly meet at strategic times as necessary and interact with the Expert Group and the Secretariat, summarized in Figure 1.

Table 1: Proposed activities for each of the three Phases		
	Activities(need to confirm with the core planning team)	Time line (need to confirm with the core planning team)
Phase 1 Preparation of the Pacific Ocean Report		March 2009- February 2010
Inception Phase		March -June 2009
	Establish Core Planning Team, comprising representatives from the Center for Ocean Solutions and the IUCN-Oceania	<i>Completed</i>
	Establish Steering Committee (at least initial core team)	
	Appoint Project Leader	
	Establish Expert Group	
	Appoint core research team of Advisers and Project Officers	
	Establish the Pacific Ocean 2020 Secretariat and appoint Communication Specialist and Administration Officers	
Communication	Communication Specialist, in collaboration with the IUCN-Oceania Regional Director and the core planning team, prepare/ finalise and implement the Communication Plan the <i>Pacific Ocean 2020 Initiative</i>	May 2009-July 2010
Report Preparation Framework & Report Outline	Expert Group meet to: <ul style="list-style-type: none"> • develop the outline of the <i>Pacific Ocean Report</i> • identify broad areas of issues for which published literature may be scarce and which may need 	June 2009

	<p>particular attention</p> <p>(Will be good to do this in person over a meeting scheduled for 1-2 days)</p>	
Literature scoping and identification of gaps and actions for filling in the gaps	<p>Expert Group and the Research staff to:</p> <ul style="list-style-type: none"> • identify the scope, depth and breadth of published and other literature on the management of the Pacific Ocean, including international instruments of relevance to key natural resources, environmental/thematic management; • identify gaps in literature; • develop TOR for specialized overview economics papers to be commissioned and select experts to prepare these papers 	June – July 2009
	Commissioned experts prepare their economic reports and specific regional/country case studies	
Pacific Ocean Report	<p>Project Leader and Expert Group prepare the draft Pacific Ocean Report</p> <p>Peer Review, including Pacific Ocean 2020 Workshop</p>	<p>July '09 - December 2009</p> <p>Jan-February 2010</p>
Phase 2: Political Endorsement		March 2010
Political endorsement	<p>Preparation of policy briefs and advocacy material</p> <p>Political Advocacy at regional and international foras</p>	March 2010
	Pacific Ocean 2020 Summit & Launch of the <i>Pacific Ocean Report: The Costs of Inaction</i>	March 2010

Phase 3: Pacific 2020 Strategy		
Pacific Ocean 2020 Strategy	Expert Group, with the assistance of a strategic planner/ adviser prepare the draft Pacific Ocean Strategy Report, with clearly defined time-bound targets and indicators, together with ‘a way forward’ for operationalising the Pacific Ocean 2020 Strategy	March-April 2010
Pacific Ocean 2020 Strategy Summit	Finalise the <i>Pacific Ocean 2020 Strategy</i> Launch <i>the Pacific ocean 2020 Strategy</i> and agree on a practical ‘Way Forward’ for operationalising the Pacific Ocean 2020 Strategy	June 2010

Figure 1. Pacific Ocean 2020 Initiative – Political and Technical Management Structure

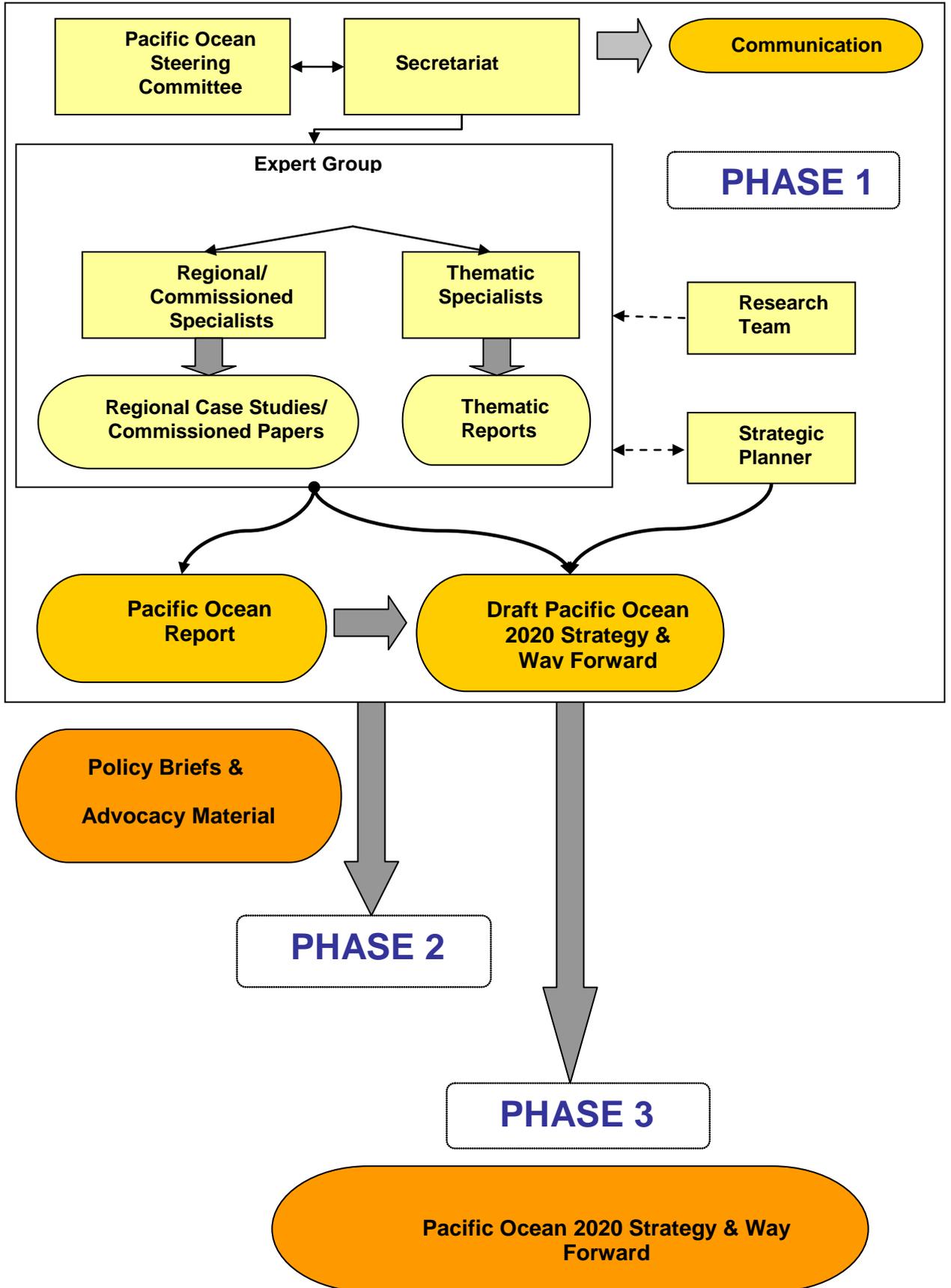
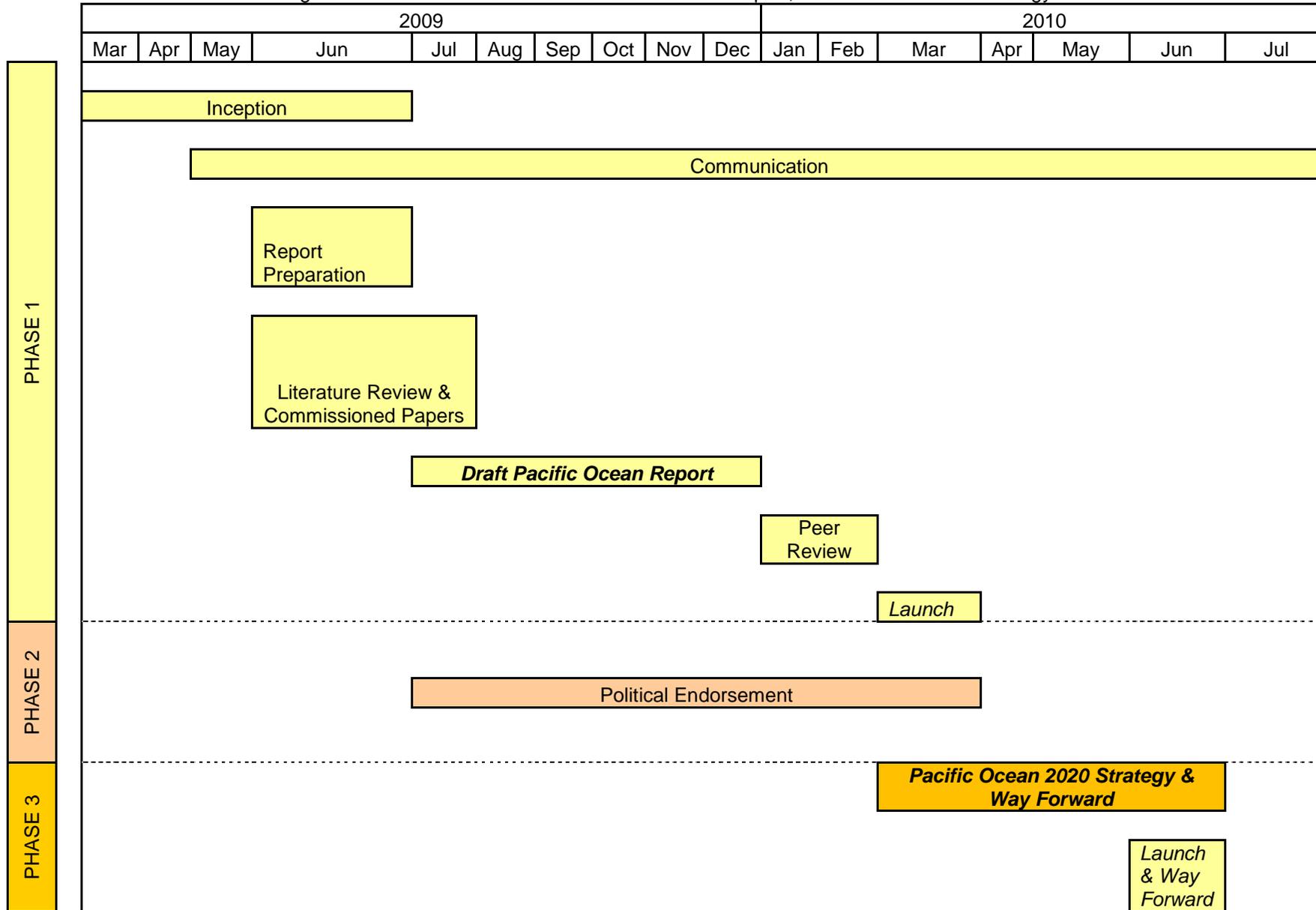


Figure 2: Indicative Timeline for the Pacific Ocean Report, Pacific Ocean 2020 Strategy



Ecosystems and People of the Pacific Ocean - Threats and Opportunities for Action:

A Scientific Consensus Statement²

Executive Summary:

The people from around the Pacific Ocean, from the Arctic to Antarctic, from countries populous and sparse, are witnessing a decline of the Pacific Ocean's vast resources and in the ability of people to use those resources. Pollutants, nutrient and sediment run-off from land, overfishing, habitat destruction, and climate change emerge repeatedly as the major causes. Though this wide-spread similarity of threats across the Pacific Ocean is alarming, it also provides the opportunity to craft solutions that target pan-Pacific problems and therefore provide hope to hundreds of millions of people who rely on the Pacific Ocean and its ecosystems.

The Pacific, Covering Half the Global Ocean

The Pacific Ocean is the largest single geographic feature on our planet. It represents half the world's ocean area, occupies one-third of the earth's surface, and helps support hundreds of millions of people. The Pacific Ocean contains complex ecosystems and supports oceanbased economies that produce a wealth of resources for local and global benefit. The Pacific is also the engine room of Earth's climate and the storeroom of its ocean biodiversity. However, Pacific Ocean is not being managed sustainably. A host of interacting impacts threaten the future of the human communities around it, the future of life within the Pacific, and the future of our global climate.

A Complex Ocean, a Common Crisis

The Pacific Ocean supports much of the world's marine and terrestrial biodiversity. Threats to the Pacific's ecosystems and to communities that depend on its bounty continue to intensify as its resources are over-harvested, and sediments, nutrients and chemical pollution pour off the land. Marine habitats ranging from shallow corals, mangroves and sea grasses to previously inaccessible deep sea beds show decaying health. Some species of large tuna, sharks and turtles have experienced significant declines, marking the progressive depletion of top predators and other large species in the Pacific Ocean. These reductions jeopardize economies, local livelihoods, and food security across the globe. Climate change exacerbates these threats and increases the vulnerability of coastal and ocean ecosystems and resources.

Scientists who study Pacific Ocean ecosystems have worked together to summarize the most important environmental threats to the Pacific Ocean and its people, and to identify opportunities for addressing many of these threats. This consensus statement:

1. Identifies and prioritizes key threats to the health and productivity of the Pacific Ocean - many accelerated by climate change – for which there is broad consensus in the scientific community.
2. Highlights the environmental and socioeconomic impacts of these threats.
3. Outlines a 'road map' that identifies available solutions for these broad categories of threats.

² http://www.centerforoceansolutions.org/data/consensus_statement.pdf

Although the threats are serious, it is not too late to take decisive action to prevent almost certain future catastrophes, and that will bolster a critical part of the life of our planet.

Threats Facing the Pacific Ocean:

A review of environmental threats across the Pacific Ocean shows remarkable similarity between the major problems experienced in poor and rich countries alike, in densely settled areas and rural zones, in populous nations and on small islands. Across these diverse areas, three rank as the most pervasive and serious local threats: habitat destruction, pollution from sewage and land run-off, and over-fishing. In addition, climate change imperils all Pacific ecosystems, already creating pulses of warm water, hypoxic dead zones, and acidic conditions. These threats interact with one another to damage natural ecosystems, reduce biological and human economic diversity, destroy productivity, and make human use of the sea more difficult. Each is described briefly below.

Though this summary suggests that the Pacific Ocean faces ecological peril, it also reveals that countries very different in wealth, population, size, and culture face similar problems. The presence of these same dominant threats across the Pacific suggests that effective solutions to these problems will have major beneficial impacts for societies across the Pacific Ocean. These societies form a network of nations and communities connected by the vast Pacific Ocean, joined by their mutual reliance on the ocean, and united in their need and will to repair its damage.

Pollution: Organic pollutants from sewage, nutrient pollution from fertilizer run-off, plastic marine debris, toxic dumping and oil spills, urban run-off and dispersed pollutants combine to create one of the most critical classes of ocean threats. Sewage and farm run-off can create dead zones, algal blooms, and acidic areas. Across the Pacific organic pollution can fundamentally alter the basic ecosystem structure, create human health risks, and stresses economies. Plastics and other long-lived industrial products accumulate in vast areas in the North Pacific Gyre and on beaches and shorelines around the Pacific. They clog habitats and strangle seabirds, turtles, sea mammals, and fish, and, in certain areas, outnumber plankton. The rate of breakdown of some chemicals is so slow that they persist for decades. In the case of old fishing gear, nets and long lines continue to fish long after they are lost at sea. Toxic chemicals, oil and run-off debilitate coastal marine life, reduce birth rates, and create hormonal disruption.

Habitat destruction: Productive marine habitats are lost to destructive fishing practices, poor agricultural land use, inappropriate coastal development, and industrial wastewater. Destructive fishing, including coastal trawling, the use of dynamite or poisons, and indiscriminate netting, can destroy habitats and reduce fishery productivity. Land use practices that create erosion, or eat up mangroves and smother sea grass beds reduce coastal ecosystem health and impair local productivity. Poorly designed development projects for tourism, roads, housing, urban centres, and aquaculture needlessly destroy coastal habitats across the Pacific and limit livelihoods that depend on ecosystem productivity.

Overfishing and exploitation: Unsustainable resource use reduces fish stocks throughout the Pacific, limiting fish catches and often causing ecological shifts that further reduce biodiversity and productivity. Over-hunting of herbivores results in uncontrolled growth of algae and seaweeds, which can smother corals and other bottom-dwelling organisms. Fishing on the high seas for top predators such as sharks has made these creatures rare across the Pacific. International tuna fleets often fish unsustainably in waters controlled by small countries, strip stocks to low levels and move on. Bycatch further reduces fish stocks because large numbers of non-target species with low economic return are discarded as waste back into the ocean. Artisanal and recreational fishing suffer when local needs outstrip local supply, causing misplacement of fishing activity, reduced income and insecure food supply. Habitat destruction exacerbates overfishing by reducing fishable area and productivity.

Climate change: Pacific countries have already seen strong effects of ocean warming, changes in ocean circulation and abrupt shifts in precipitation patterns. The bleaching and subsequent death of reef-building corals caused by warm water pulses have destroyed reef ecosystems, or required decades to recover. Shifts in ocean and atmospheric currents have created massive dead zones or changed migration patterns of whales and seabirds. Some ocean areas have already acidified to levels known in laboratory studies to cause harm to ocean life. In addition, decreasing pH levels due to CO₂ acidosis are shifting the ecological balance of marine plankton and bottom dwelling species that form calcium skeletons. The

rates of current environmental change far outpace anything seen in human history, and are likely to accelerate in the near future. These new conditions present serious challenges to the Pacific Ocean Community for the next decades or centuries. Many areas of the Pacific Ocean may become uninhabitable due to sea level rise, coastal inundation, shifting rainfall, collapse of fresh water supplies, or changes in the migration patterns of food species. These changes will increase the number of impoverished people and reduce the stability of many nation states.

Multiple stressors multiply harm: When marine life is subjected to multiple stressors, such as pollution, habitat destruction, over-fishing, and changing climate, populations of ecologically and economically important species can collapse. From coral reefs to kelp forests to cold water deep seas, an increase in harm and a decrease in growth and reproduction can wipe out once productive communities. In this sense, global climate change is coming at the worst possible time, when many communities around the Pacific – both human and ecological – are threatened by other powerful problems.

Solutions and options for a better future

Maintaining ecosystem health and sustainability should be as fundamental a goal as economic development. While there are currently no solutions in place to solve all these problems across the Pacific Ocean, a set of sensible approaches to pervasive environmental problems can be deployed in a concerted way to limit and even reverse environmental harm, returning Pacific ecosystems and communities to greater health. Overall, solutions must significantly reduce pollution from human sewage, sediment and run-off from poor land use practices, flows of debris and toxic material into the sea from point and nonpoint sources, and unsustainable extraction of marine organisms. Major reductions (some up to 95% of current rates) are probably required in discharges of nutrients and sediments from land to sea.

New technologies, innovative market mechanisms, and financial tools that promote adoption of sustainable practices can empower local communities, help maintain the cultural richness of the Pacific Ocean nations, and reduce the human footprint on the Pacific. In many cases, the straightforward response to an environmental problem (such as pollution or habitat destruction) might be simply to prohibit the human activities that cause the pollution or habitat loss. But for large and complex problems such as those that span the whole Pacific, learning *how* to stop or alter the activities that give rise to these problems is the key to a set of enduring environmental solutions. Strategic changes that can lead to effective solutions include incorporation of ecological principles in economic decisions, use of financial and market instruments such as environmental bonds, legacy trusts, catch share programs, and tax systems to create incentives for activities that promote rather than degrade ecosystem health, and environmental education across the age spectrum to build capacity for local populations in ecosystem and economic management.

Climate change mitigation is a global task, and yet a united Pacific can be instrumental in promoting frank global dialogue about establishing and achieving mitigation targets. The long term health of Pacific ecosystems and human communities across the ocean requires aggressive mitigation of global greenhouse gas emissions. Key to the solution is the observation that the Pacific contains some of the highest and lowest emitting countries.

In addition to mitigation, each region within the Pacific must adopt sustainable adaptation strategies for ecosystems and human communities in the face of climate change. Though these strategies will need to be locally tailored, they can draw on similar principles to solve common problems. For example sea level rise will impose different challenges for highly urbanized coastal communities than for rural areas, but both geographies can consider a common range of adaptation options to achieve some protection for vulnerable human settlements and ecosystems.

Effective and enduring solutions require capacity-building within the Pacific Ocean Community and integrated problem solving. The solution to the spatial and economic challenges in sustainable management of the Pacific Ocean lies in collaboration at many levels, including social, scientific, regulatory, institutional, and information technologies. To help promote sustainable change in how communities across the Pacific interact with their common ocean, we propose a new executive institution – one that joins banking, industrial, ecological, and educational expertise into a single

collective enterprise that can help build capacity within and advise Pacific nations and evaluate overall progress. Combining financial, livelihood, conservation, and educational goals and functions into a collaborative institution would encourage managers and decision makers to examine and address issues across the larger whole, and cultivate the integrated ecological, economic and education understanding and problem solving that progress requires. Pacific Ocean countries need to coordinate their expertise, creating open access online information systems, for example, for education, research, and resource management. A Pan-Pacific Century Trust could provide economic resources and management knowledge for the entire Pacific community, and could deliver education and expertise in how to apply sustainability principles to economic development.

We must act now. The best science indicates that over the next century we can expect to see dramatic declines in the health of the Pacific Ocean, its ecosystems, and the people that rely on this shared resource, unless concerted and prompt action to address known threats is taken. Identifying common problems, uncovering their underlying causes, and addressing them now may allow the Pacific nations to enter the next century as world leaders in the creation of vibrant, intact and highly functioning economically and ecologically sustainable communities.

Annex 2

Outline of the Pacific Ocean Report: The Costs of Inaction

Report based on already existing synthesis documents and analysis (45-60 page report)

Executive Summary: Key Findings of Report (3-5 pages)

Section 1: State of the Pacific Ocean - connecting Pacific Ocean Health and Environmental and Socioeconomic Impacts

- Brief synthesis and overview of meta-analysis findings on Pacific Ocean health and threats, including regional diversity of issues(5-10 pages)
- Brief synthesis of the economic value of Pacific Ocean resources and ecosystem with a focus on key economic sectors (such as tourism, wild and culture fisheries, and transport) and covering key thematic issues (such as food security; livelihood; human health; ecosystem health; and ecosystem services), including regional information where possible(10-20 pages)

Section 2: State of the Pacific Ocean Management

- Brief overview of international and regional instruments relevant to the management of resources and ecosystems of the Pacific Ocean, and gaps and areas that need strengthening for improved governance of the Pacific Ocean, focusing on the key categories of threat identified by the meta analysis. (5-10 pages).

Section 3: Costs of business as usual and alternative action scenarios (20-30 pages with graphics)

This section will present three different scenarios of management, for the entire Pacific Ocean – Insular and Rim countries and territories, based upon already existing data and analysis. A different set of scenarios for management will be defined for each of the broad category of threats, addressing ‘root causes. Where possible to provide regionally disaggregated information

These three scenarios will show the economic, social, and environmental consequences and vulnerabilities of various coastal and ocean environmental management and conservation effort levels. A high level cost and benefit analysis based on already existing analysis, will be conducted for each scenario, taking into account accepted climate change predictions. (This may have to be primarily qualitative for some regions due to limited data and empirical analysis)

- Scenario 1: Business as usual
 - Define business as usual
 - Costs of ‘Business as Usual
 - Present consequences 5, 20, and 50 years in the future taking into account climate change
 - Estimate economic costs/benefits under Alternative Management Scenarios

- Scenario 2: Moderate Increase in Action
 - Define moderate action³
 - Present consequences 5, 20, and 50 years in the future taking into account climate change
 - Estimate costs/benefits
- Scenario 3: Aggressive Increase in Action, proactive action taken to address impacts around and across the Pacific
 - Define aggressive action
 - Present consequences 5, 20, and 50 years in the future taking into account climate change
 - Estimate costs/benefits

Section 4: Solutions and Next Steps (7-12 pages)

This section will present broad categories of solutions and next steps for call to action and the Pacific 2020 Strategy

- Outline 4 key threat areas, as identified in consensus statement and root causes from the regional reports, and based on scenarios level of action needed, present examples of activities, goals/ targets for the Pan Pacific Community taking into account already existing frameworks, instruments and building on them.
- Discuss key themes for creating solutions, identify achievable targets and mechanisms for achieving targets, with an emphasis on building commitment, capacity, and a Pacific Ocean community with aligned goals and objectives.

The key themes are:

- Improving the understanding of the Pacific Ocean.
- Sustainably developing and managing the use of the resources of the Pacific Ocean.
- Maintaining the health of the Pacific Ocean.
- Promoting the peaceful use of the Pacific Ocean.
- Improving the governance of the Pacific Ocean.
- Creating partnerships and promotion of cooperation.

References:

A complete list of references

³ We think defining moderate and aggressive action, as noted in scenario 3, is really important and a big challenge as this is what could lead to setting targets in the future for the region.

Annex 3 – Pacific Ocean 2020 Strategy

(Outline for discussion)

Pacific Ocean Vision

Guiding principles

Overall Goal of the Pacific Ocean 2020 Strategy

Key Themes and expected outcomes and achievable targets

A log frame of specific strategies under each theme:

- List of strategies to achieve the thematic outcome and broad timeline
- List of activities to address the specific strategy
- Indicators for measuring success for the strategy
- Milestones

A Way Forward: An implementation Plan for operationalising the Pacific Ocean 2020 Strategy