



Co-Chairs' Statement emanating from  
**Cancun Oceans Day:**  
**Essential to Life, Essential to Climate**

at the Sixteenth Conference of the Parties to the United Nations  
Framework Convention on Climate Change,  
December 4, 2010, 9:00 AM to 6:00 PM  
Cancún, Mexico

The world's oceans play a central role in global climate processes, generating oxygen, absorbing carbon dioxide and regulating climate and temperature. But climate change is now threatening the oceans' ability to continue to provide these services. The more than 50% of the human population that lives in 183 coastal countries, including 44 small island nations, are already experiencing the earliest and most pronounced effects of climate change, and will suffer disproportionate impacts from ocean warming—e.g., sea level rise, extreme weather events, glacial retreat, and from ocean acidification if bold action is not taken.

However, although oceans and coasts are inextricably linked to climate, they have not yet figured prominently on the agenda of the UNFCCC and have largely been regarded as a “sectoral nuisance.”

Oceans Day at Cancún, which was organized by the Global Forum on Oceans, Coasts, and Islands, in association with the Global Environment Facility (GEF), the Secretaries of Environment and Natural Resources of the Mexican States of Campeche, Quintana Roo, and Yucatan, and the Secretariat of Environment and Natural Resources (SEMARNAT), Mexico, in collaboration with other partners, brought together close to 100 representatives from government, intergovernmental, non-governmental, academia, museums and aquaria, and the private sectors to emphasize the importance of considering oceans in the climate negotiations of the UNFCCC.

This was the second Oceans Day to be held in the context of a UNFCCC COP, building on Oceans Day at UNFCCC COP 15 in Copenhagen, held on December 14, 2009 (<http://www.oceansday.org/>).

**Growing Scientific Evidence on Climate and Oceans**

Recent scientific evidence indicates that impacts of the changing global climate on oceans and coasts now far exceed the findings of the 2007 report of the Intergovernmental Panel on Climate Change (IPCC).

*Sea-Level Rise*

--There is now compelling evidence that sea level rise will be at least 1 meter by 2100, with the possibility of even higher levels of sea level rise likely.

### *Glacial Retreat*

--Polar ice is continuing to melt at a rapid rate, contributing to global sea level rise and the potential alteration of ocean currents and ecological processes.

### *Ocean Acidification*

--The oceans have increased in acidity by 30 per cent since the industrial revolution and are predicted to become even more acidic, undergoing a change in ocean chemistry not seen for 65 million years. Ocean acidification significantly hinders the ability of shell-forming organisms (such as corals and shellfish) to construct their shells, and can impact marine species distribution, notably fisheries, with negative implications for food security and coral reef ecosystems. Fish, including shellfish, provide one billion people with their primary source of animal protein, and another three billion people with 15 per cent of their protein.

## **Oceans and Coasts in the Global Carbon Cycle**

Oceans and coastal areas are a major sink for carbon and a valuable tool for climate change mitigation. Marine areas store and cycle over 90 per cent of the earth's CO<sub>2</sub>, while removing about 30 per cent of atmospheric CO<sub>2</sub>--current estimates conclude that the oceans have an annual net atmospheric uptake in the order of 2 gigatons of CO<sub>2</sub> (GtCO<sub>2</sub>). This is of particular importance when compared to the net terrestrial uptake per annum, estimated between 0.5--2.5 GtCO<sub>2</sub>. However, the oceans are quickly becoming oversaturated with CO<sub>2</sub> and negatively impacting biodiversity and ecosystems, emphasizing the need for stringent emissions reductions.

The ability of oceans and coasts to store carbon is also being compromised by the rapid destruction and degradation of coastal and marine ecosystems. Stored carbon dioxide is released when coastal ecosystems are destroyed, which can also become a significant source of greenhouse gas (GHG) emissions. For example, 13.5 GtCO<sub>2</sub> will be released within the next 50 years as a result of mangrove clearance of 35,000 km<sup>2</sup>, equivalent to all transport-related emissions in 27 EU countries from 1997 to 2005.

## **Climate Change and Marine Biodiversity**

The linkages between climate and biodiversity were underscored at the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD COP 10) in Nagoya, Japan, October 18-29, 2010. Parties in Nagoya highlighted that climate change impacts, which are predicted to increase in the future, have significant implications for biodiversity and will serve to exacerbate the negative impacts of other harmful human activities. The Nagoya Oceans Statement (emanating from the Nagoya Oceans Day organized by the Global Forum on Oceans, Coasts, and Islands, October 23, 2010; please see: [http://globaloceans.org/sites/udel.edu.globaloceans/files/Nagoya\\_Oceans\\_Statement.pdf](http://globaloceans.org/sites/udel.edu.globaloceans/files/Nagoya_Oceans_Statement.pdf)) emphasized that many life-sustaining ecosystems, such as coral reefs, are highly sensitive to climate change; climate change adds an additional stressor to biodiversity and ecosystems that are already facing significant pressures. Climate change will likely result in species migrations, leading to the spread of invasive species, and will have adverse impacts on fisheries and food security. Further, a 20-25 per cent loss of marine biodiversity leads to a 50-80 per cent loss of ecosystem function, which may well threaten the life support function of the oceans and their role in the global carbon cycle.

## **Coastal Adaptation**

Over half of the world's population living within 100 kilometers of the coast is living less than 100 meters above sea level. Coastal populations, and especially small-island developing states (SIDS), are highly vulnerable to the impacts of sea-level rise, glacial retreat, extreme weather events, and coastal inundation. Ecosystem-based adaptation approaches promoting the preservation and restoration of coastal ecosystems and natural buffers, some of which are already being implemented as part of integrated coastal management efforts in many coastal nations, must be strengthened and promoted to increase the resilience of coastal ecosystems and communities to the impacts of climate change. However, many areas lack the necessary capacity to implement adequate adaptation measures. Hence, there is an urgent need for technical and financial adaptation assistance for the world's most vulnerable coastal populations.

## Climate Change Financing for Coastal and Island Populations

Current adaptation cost estimates for coastal areas and small island states are woefully inadequate, as are the adaptation resources currently available. In 2007, the UNFCCC estimated the cost of adaptation in coastal zones at about \$11 billion/year, using lower sea level rise predictions and not including potential impacts of increased storm intensity. With over half of the world's population living in coastal regions and likely to experience the most pronounced effects of climate change, at least half of the funds made available for adaptation should target coastal and island populations.

While progress is being made in the assessment of adaptation costs for developing countries, existing sectoral estimates remain fragmented and incomplete. For example, most cost estimates for sea level rise focus on infrastructure damage, but do not address saltwater intrusion in coastal aquifers and the destruction of habitats that support fisheries and mariculture. In addition, the significant monetary non-market value associated with coastal and ocean services are largely unaccounted for. For example, current valuations of wetland services do not incorporate the values associated with coastal storm protection, water filtration, and spawning grounds for commercially important fish species.

In addition, costs of impacts on coastal and marine ecosystems and the critical economic and climate-regulating functions they provide have not been addressed at all. Adaptation financing support for developing countries has been hailed since the inception of the UNFCCC process in 1992, yet little has actually materialized. There is, therefore, an obvious need to incorporate adequate financing for coastal adaptation into any forthcoming climate regime.

## Integrated Strategy on Oceans and Coasts

In light of the various interconnected elements associated with oceans and climate, members of the global oceans community—governments, international agencies, NGOs, science groups, and the private sector—are mobilizing to call attention to the oceans and climate issue. The Global Oceans Conference 2010, held on May 3-7, 2010 at UNESCO, Paris, brought together over 800 participants from 80 countries, who underscored the need to develop an integrated strategy for oceans and coasts within and beyond the UNFCCC. Such a program should include provisions for:

- (i) *Mitigation*, emphasizing the need for stringent reductions in emissions within a short time frame, and recognizing the positive contribution that oceans play in the global carbon cycle, as well as using the oceans for a variety of mitigation activities.
- (ii) *Adaptation* through integrated coastal and ocean management institutions at local and regional scales, contributing to the improved preparedness, resilience, and adaptive capacities of coastal communities;
- (iii) Programs focusing on *capacity development, public education and awareness* to prepare national and local officials, and the public to address climate change; and
- (iv) Measures to address the issues associated with the *displacement of coastal populations* as a result of climate change.

## Priority Actions at UNFCCC COP 16 and Beyond

As an important step in the Rio+20 process, the oceans community recommends taking the following actions to advance the global oceans and climate agenda both within the UNFCCC and in the overall Rio+20 process:

1. **Enact stringent and immediate reductions in CO<sub>2</sub> emissions.**
  - Ensure the continuing functioning of the oceans in sustaining life on Earth by adopting the most stringent reductions in greenhouse gas emissions, within a short timeframe, to avoid disastrous consequences on oceans and coastal communities around the world;

- Avoid dangerous levels of ocean acidification by reducing CO<sub>2</sub> emissions; and
- Incorporate issues related to oceans and climate into the discussions of the UNFCCC Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA) and any subsequent agreements on emissions reductions.

## **2. Deepen understanding of “Blue carbon”**

- Natural carbon sinks in coastal areas (e.g., mangroves, seagrass beds, kelp forests, tidal marshes), which have a greater capacity (per unit of area) than terrestrial carbon sinks in achieving long-term carbon sequestration in sediments, have not yet been considered in the UNFCCC context;
- Support additional research on quantifying the amounts of carbon stored and released by various marine and coastal ecosystems; and
- Further examine the potential for the trading of “Blue carbon” in a similar way to green carbon (such as rainforests) and how this could be incorporated into emission and climate mitigation protocols.

## **3. Accelerate progress on mitigation approaches using oceans and coasts**

- Develop ocean-based renewable energy (such as offshore wind power, wave energy, tidal power, etc.); and accelerate efforts to implement these approaches through marine spatial planning;
- Accelerate efforts to reduce CO<sub>2</sub> emissions from ships; and
- Consider and develop regulatory systems for carbon capture and storage via injection in deep seabed geological formations.
- Discourage other geo-engineering approaches, such as iron fertilization, CO<sub>2</sub> injection in water column

## **4. Undertake climate change adaptation in vulnerable coastal areas**

- Encourage and implement ecosystem-based adaptation strategies, including marine protected areas, through integrated coastal and ocean management institutions at national, regional, and local levels to build the preparedness, resilience, and adaptive capacities of coastal communities; and
- Provide sufficient funding to support adaptation for coastal and island communities that are at the frontline of climate change in 183 coastal countries, considering the creation of a special Coastal Adaptation Fund.

## **5. Work with coastal countries to raise awareness about the implications of climate change impacts on ocean and coastal areas**

- Call for recognition in the UNFCCC negotiating text of the important role played by oceans in climate--generating oxygen, absorbing carbon dioxide and regulating climate and temperature;
- Mobilize broad-based support for the oceans and climate agenda within the UNFCCC process and in the Rio+20 process leading up to the UN Conference on Sustainable Development in May 2012 in Brazil; and

- Work towards the creation of an integrated oceans and coasts program within and beyond the UNFCCC by 2013, emphasizing the elements noted above.

Climate change impacts are not only projected into the future but constitute a present and immediate threat. In the Seychelles, for example, desalinization plants can no longer meet demand for freshwater because rainfall has reduced dramatically, leading to difficult tradeoffs between water and food provision and presenting challenges in balancing sustainable development with sustaining the tourism industry. The Seychelles, and other small island nations, are in danger of becoming failed states if bold action is not taken.

There is abundant scientific evidence that marine ecosystems are undergoing substantial changes--physically, chemically and biologically--due to the direct and indirect effects of changes in climate and atmospheric composition. These impacts will have local, national, regional, and global implications. If left unaddressed, climate change will severely impact marine ecosystems resulting in lasting change which may be difficult, and in some cases impossible, to adapt to both. It is imperative that climate change impacts on oceans and coasts be considered both within and outside the UNFCCC both for our planetary survival and human well-being.

**For further information contact:**

Dr. Biliana Cicin-Sain

Global Forum on Oceans, Coasts, and Islands

Telephone: +1-302-831-8086

Email: [bc@udel.edu](mailto:bc@udel.edu)

Website: [www.globaloceans.org](http://www.globaloceans.org)