Actions taken to address the effects of climate change on the oceans: New Zealand submission to the United Nations Office of Legal Affairs

January 2017

Introduction

In order to assist in the preparation of the report of the Secretary-General on the topic of "The effects of climate change on oceans", the Office of Legal Affairs has invited contributions from States outlining action undertaken to address the effects of climate change on the oceans.

This submission outlines some of the actions that New Zealand is taking to address the effects of climate change on the oceans, with a particular focus on the impacts of ocean acidification.

Executive Summary

New Zealand's actions to address the effects of climate change on the oceans have a particular focus on Ocean Acidification (OA). OA is an emerging issue with significant implications domestically and in the Pacific region.

Internationally, as part of our climate-related support efforts, New Zealand provides development assistance to Pacific island countries to strengthen resilience to OA and to build their capacity to manage the impacts of this emerging issue with significant implications for their economies and the region. Domestically, central and local government provides funding and supports work into the socio-economic value of the ocean and the impacts of OA on ecosystems.

International action

New Zealand's international OA efforts centre around the "New Zealand Pacific Partnership on Ocean Acidification" ('the Partnership'). In 2014 New Zealand, in partnership with the United States and SPREP, co-hosted and co-funded "An International Workshop on Ocean Acidification: State of the Science Considerations for Small Island Developing States". The workshop successfully brought together scientists, technicians and policy makers on ocean issues as well as Small Island Developing States (SIDS) delegates from the three SIDS regions. Subsequently, New Zealand initiated and provided funding for the "New Zealand Pacific Partnership on Ocean Acidification" – the first partnership of its kind.

The Partnership aims to identify and implement practical adaptation actions; undertake research and monitoring initiatives; find ways to address capacity-building needs and raise awareness; and build resilience of people, communities, and the environment to OA, largely by reducing other local stresses on the marine environment. More broadly, over half of the New Zealand Aid Programme managed funds are allocated to the Pacific and the Partnership is helping to ensure that hard won development gains in the region are not undermined by the impacts of OA.

Other donor partners are welcome to join the Partnership which currently includes funding from the Principality of Monaco and co-financing from the James Cook University, Australia.

Domestic action
New Zealand collects scientific data from 14 coastal stations around the country working with regional councils and the aquaculture industry, using methodology aligned with the Global Ocean Acidification-Observing Network (GOA-ON) and standard references. Additionally, the national project entitled "Coastal Acidification: Rate, Impacts & Management" (CARIM) assesses the effects of coastal water acidification on species of particular environmental and economic importance.

Outreach and engagement with Māori, schools and other community groups is integrated into the sampling and information exchange within CARIM. An OA factsheet is circulated among regional councils and resources are being produced for New Zealand schools. Opportunities have been created for scientists to discuss OA with non-scientists, including a series of New Zealand Ocean Acidification workshops which have been taking place annually for 10 years. The theme of the 2017 workshop is "Celebrating Progress in NZ OA Research and Outreach" and will take place at the University of Otago, Dunedin in February 2017.

Report

New Zealand's actions to address the effects of climate change on the oceans have a particular focus on Ocean Acidification (OA). New Zealand is addressing OA both internationally and domestically. Internationally, as part of our climate-related support New Zealand is providing development assistance to support Pacific island countries to build resilience to OA and to build their capacity to address this emerging and challenging issue. Domestically, New Zealand has an active programme of research into OA and its impacts on ecosystems and socio-economic value of the ocean. Within New Zealand, the potential impact of OA is broadly recognised by government departments and regional councils, which are providing funding and supporting work being led by the National Institute of Water and Atmospheric Research (NIWA) and the University of Otago.

Collection of relevant scientific data
New Zealand has collected pH data in sub-Antarctic surface waters for almost 20 years, the longest time series of ocean pH measurements in the southern hemisphere. A national project initiated in 2015 monitors pH levels at 14 coastal stations around New Zealand, including at both impacted and pristine sites. Water samples are collected by a range of partners including regional councils and the aquaculture industry. This project aligns with methods agreed by the Global Ocean Acidification-Observing Network (GOA-ON) and uses complementary reference standards. The national project entitled "Coastal Acidification: Rate, Impacts & Management" (CARIM) is funded by the New Zealand Ministry of Business, Innovation and Employment (MBIE) and focuses on the direct and indirect effects of coastal water acidification on species of environmental and economic importance including plankton, macro-algae, shellfish and fish.

Awareness-raising

A sub-project within CARIM focuses on outreach and includes engagement with Māori, schools and other community groups for sampling, information exchange and awareness-raising across three regions of New Zealand. An OA factsheet has been provided for regional councils and a resource booklet is being produced for New Zealand schools. Scientists have discussed OA at a number of public and industry-based fora and non-science end-users (including representatives of government departments, regional councils and industry) attend the annual New Zealand OA workshops. The 10th workshop has the theme of "Celebrating Progress in NZ OA Research and Outreach" and will take place at the University of Otago, Dunedin, in February 2017.

As part of the MBIE funded "Climate Change: Impacts & Implications" project on the projected future state of the oceans around New Zealand, a recent Marine Case Study report has been distributed to a variety of end-users and stakeholders.

Under New Zealand's Environmental Reporting Act 2015, the Government Statistician and the Secretary for the Environment are required to produce reports on the state of New Zealand's environment. The first report entitled 'Our Marine Environment 2016' was widely publicised and considered the effects of greenhouse gases and climate change as one of the biggest threats to New Zealand's marine environment.

Development of ocean-based mitigation measures and adaptation policies and strategies

The CARIM project is also examining potential solutions to coastal acidification. Models are being developed to assess the relative factors that contribute to acidification of coastal waters aiming to inform potential management strategies such as reducing terrestrial inputs into coastal waters. CARIM is also screening different families of two economically important shellfish, green-lipped Mussels and Abalone to determine which are most resistant to lower pH water, which may benefit the shellfish industry. In addition an 'Innovation Fund' project is assessing the potential to control pH in waters around mussel farms by returning waste shells and also using aeration.

Fostering climate resilient sustainable development of oceans and seas

In recognition of the growing challenge OA poses for the economies and ecosystems of SIDS, the United States and New Zealand co-hosted and co-funded, in partnership with the Secretariat of the Pacific Regional Environment Programme (SPREP), "An International Workshop on Ocean Acidification: State of the Science Considerations for Small Island Developing States" (SIDS), as an official side event to the 3rd UN SIDS Conference in Apia, Samoa (2014). The workshop presented an important opportunity to discuss OA in the context of climate-resilience for the sustainable development of the oceans and seas and brought together scientists, technicians and policy makers on ocean issues as well as SIDS delegates from three SIDS regions – the Pacific, the Caribbean, and the Atlantic, Indian Ocean, Mediterranean, and South China Sea (AIMS).

The workshop identified the need for more local research and monitoring; capacity building and coordination at national and regional level; and the need for an integrated approach to monitoring, resilience building strategies, and practical adaptation strategies. These findings were subsequently incorporated into the 'SAMOA Pathway' SIDS Conference outcome document.

Additionally, New Zealand and United States scientists and science organisations exchange information and coordinate activities on OA as part of the US-NZ Joint Commission on Science and Technology Cooperation (JCM). Joint activities developed through this forum have included monitoring, regional capacity-building, impact studies, modelling and mitigation, and are coordinated by the US State Department.

Capacity-building, partnerships and financing mechanisms for the implementation of such measures

Following the international workshop, New Zealand initiated and funded the "New Zealand Pacific Partnership on Ocean Acidification" – the first partnership of its kind, globally. SPREP, in collaboration with the Pacific Community (SPC) and the University of the South Pacific (USP), is leading this work. The knowledge generated and disseminated is expected to have wide applicability. New Zealand is providing NZ$2.1 million over four years (to mid-2019).

The Partnership aims to identify and implement practical adaptation actions; undertake research and monitoring initiatives; find ways to address capacity-building needs and raise awareness; and build resilience to ocean acidification of people, communities, and the environment largely by reducing other local stresses on the marine environment. As part of the wider programme, a regional vulnerability analysis has been conducted, a regional workshop held, and adaptation pilot sites are being identified in Tokelau, Kiribati, Vanuatu and Fiji.

Over half of New Zealand's aid programme funding is allocated to the Pacific and the OA Partnership is helping to ensure that hard won development gains in the region are not undermined by the impacts of OA on fisheries, tourism and community livelihoods. The Partnership is also contributing to improved environmental management and resilience to the impacts of climate change and natural disasters. Its outcomes will contribute to the achievement of the Sustainable Development Goals related to oceans, in particular target 3 of Goal 14 on OA (to "minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels") and Goal 13 (to "take urgent action to combat climate change and its impacts").

In May 2016, SPREP presented to the international conference on "Oceans in a High CO2 World" (Hobart, Australia) on the New Zealand OA Partnership, highlighting to the global community the challenges facing the Pacific region and actions we are taking to build resilience to OA.

Other donor partners are welcome to join the New Zealand Pacific Partnership on Ocean Acidification to further this important work, the findings of which will have wide applicability for other regions. In December 2015, the Principality of Monaco joined this Partnership and has recently announced it will contribute €320,000 to support the planned work. The Partnership has also attracted AU$400,000 in co-financing from James Cook University in Australia for its work on the vulnerability of tuna, kingfish and other nearshore pelagic fish.