

Information Paper 5

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Adapting Pacific Island Tuna Fisheries to Climate Change:
Progress of proposal to the Green Climate Fund
Conservation International and FAME Secretariat



Pacific
Community
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Introduction

1. At HoF 10, Conservation International and SPC outlined plans to prepare a proposal to the Green Climate Fund to assist small-scale and industrial tuna fisheries in the Pacific Island region adapt to climate change (see HoF10 Information Paper 9). This initiative launched a process designed to obtain the resources needed to help ‘climate-proof’ the components of the *Regional Roadmap for Sustainable Pacific Fisheries* and the *New Song for Coastal Fisheries* related to the region’s tuna resources. More broadly, the proposal aligns with the *Framework for a Pacific Oceanscape*, which seeks to ensure that climate change adaptation is incorporated into sustainable development, conservation and governance actions.
2. The Green Climate Fund (GCF) was established by the United Nations Framework Convention on Climate Change to assist developing countries mitigate greenhouse gas (GHG) emissions and adapt to the effects of climate change. A feature of the GCF of special interest to HoF is that 50% of the funding is allocated to adaptation, and at least half of the adaptation funding goes to least developed countries (LDCs), small island developing states (SIDS), and African States. The priorities for investments in adaptation by GCF are:
 - 1) Enhanced livelihoods of the most vulnerable people, communities, and regions
 - 2) Increased health and well-being, and food and water security
 - 3) Resilient infrastructure and built environment to climate change threats
 - 4) Resilient ecosystems
3. Proposals to the GCF must have a strong climate change rationale and significant impact potential, result in a paradigm shift and sustainable development, meet the needs of recipients and have country ownership. Grants are made to *Accredited Entities* and in turn to *Executing Entities*, following a two-step process. Step 1 involves submission of a Concept Note to the GCF Secretariat. If the Concept Note is approved, Step 2 involves development of a full proposal for submission to the GCF Board. Development of full proposals typically takes 1–2 years. The GCF National Designated Authority (NDA) for each country involved in a project must endorse the inclusion of the project in its GCF Country Programme.
4. Conservation International is one of the few Accredited Entities within the Pacific Island region with approval from GCF to submit large proposals (\$50–250 million). If the proposed project to adapt the region’s tuna fisheries to climate change is approved by GCF, the great majority of the funding will be channelled through CI to SPC as an Executing Entity. The Pacific Islands Forum Fisheries Agency (FFA) will also be an Executing Entity for some project activities, and FAO will be an Implementing Partner for two activities.
5. Following HoF10, a pre-concept for the proposed tuna project was prepared by Conservation International in consultation with SPC and circulated to members. Official letters of support to develop the official Concept Note for submission to the GCF Secretariat were received from national fisheries agencies in Cook Islands, French Polynesia, Nauru and Papua New Guinea. Joint letters of support were received from national fisheries agencies and NDAs in Fiji, Solomon Islands and Vanuatu.
6. On the basis of this support, Conservation International has held a series of discussions with SPC, and with FFA and FAO, to design the project on behalf of the region and draft the Concept

Note. This process has also been informed by discussions between Conservation International, SPC, the GCF Secretariat and several Pacific Island countries at the GCF ‘Structured Dialogue with Pacific’ meetings in Tonga and Pohnpei.

7. The purpose of this Information Paper is to explain the rationale for the project, summarise the main activities for each component of the project, report progress on the development of the Concept Note, and outline the actions to be taken by HoF in the immediate future to enable the Concept Note to be submitted to the GCF Secretariat by the end of April 2019.

Rationale

The comprehensive assessment of the vulnerability of tropical Pacific fisheries and aquaculture to climate change conducted by SPC^{1,2}, and the recent seminal report by FAO on the global and regional impacts of climate change on fisheries and aquaculture^{3,4}, demonstrate that the two major marine resources supporting communities and economies in the Pacific Island region – coral reefs and tuna stocks – are very likely to be affected by continued greenhouse gas emissions. Under a high emissions scenario, ocean warming and ocean acidification are expected to reduce live coral cover by 50–75%, and cause declines in coral reef fish production of at least 20% and possibly up to 50%, by 2050 across the Pacific Island region. Preliminary modelling of the effects of increasing sea surface temperatures and other consequences of climate change on the shared stocks of skipjack, yellowfin, bigeye and albacore tuna caught in the exclusive economic zones (EEZs) of Pacific Island countries indicates that a significant shift in the distributions of all tuna stocks will occur by 2050. In particular, the biomass of the two most abundant species, skipjack and yellowfin tuna, is expected to decrease in the west of the region, and increase in the east.

The implications of such impacts for Pacific Island communities and economies are serious. A gap is already emerging between the fish needed for food security of growing populations and the maximum sustainable yield of fish from coral reefs (which have traditionally provided most of the dietary protein for coastal communities) in many Pacific Island countries. Degradation of coral reefs due to climate change and ocean acidification will enlarge this gap.

The publications by SPC and FAO referred to above identify practical adaptations that are expected to maintain the supply of fish for food security, including: 1) supporting small-scale fishers to adapt by progressively transferring more of their fishing effort from degrading coral reefs to tuna occurring in nearshore waters to provide the fish needed by coastal communities; and 2) ensuring that some tuna from industrial fishing is made available to urban populations during the transshipping operations that occur in regional ports.

The economies of many Pacific Island countries and territories also have an extraordinary dependence on the industrial tuna fisheries operating within their EEZs for economic development and employment. Six countries obtain at least 45% of their total government revenue from licence fees derived from these important fisheries⁵. In addition, the processing of tuna in canneries employs

¹ <http://spc.int/cces/climate-book/spc-publications-onclimate-change/>

² <http://doi:10.1038/nclimate1838>

³ <http://www.fao.org/3/I9705EN/i9705en.pdf>

⁴ https://www.researchgate.net/publication/328166919_A_new_climate_change_vulnerability_assessment_for_fisheries_and_aquaculture

⁵ FFA 2016 https://www.ffa.int/tunadev_indicators

thousands of people in American Samoa, Papua New Guinea, Solomon Islands and Fiji. Recent analysis by SPC and Conservation International indicates that the redistribution of tuna could result in the loss of >\$60 million in licence revenue per year for Pacific Island countries by 2050. Adaptations are needed to minimise the risks posed by climate change to the tuna-dependent economies, and capitalise on the opportunities.

Project components and activities

Component A. Adaptations to harness the necessary contributions of tuna to food security

The main activities for Component A of the project are listed below. These activities will be implemented in eight countries for the reasons explained in Table 1. The organisations responsible for implementing the activities in collaboration with these countries are shown in brackets.

1. Strengthening and sustaining national FAD programmes to transfer more fishing effort from coral reefs degraded by climate change to tuna and other large pelagic fish species by expanding the use of FADs and making them part of the national infrastructure for food security (SPC).
2. Supporting cyclone-prone countries (especially Vanuatu, Fiji, Cook Islands, and Tuvalu) to install cyclone-proof containers on remote islands to store spare FAD materials (and to provide protection for some boats as a cyclone approaches) so that communities are well prepared to replace lost FADs and resume fishing for tuna and other large pelagic fish immediately after a cyclone (CI).
3. Scaling-up training in safe and effective FAD-fishing methods for coastal communities, so that fishers making the necessary transition to fishing further offshore can do so with confidence and in safety (SPC).
4. Training coastal communities in simple post-harvest methods (e.g. drying, smoking, salting) to increase the storage life of tuna caught around FADs in remote locations without refrigeration (SPC).
5. Developing reliable systems for forecasting environmental conditions (e.g., sea surface temperatures, nutrient levels, currents) that should bring tuna closer to the coast and increase catch rates for small-scale fishers (SPC & CI).
6. Assessing the need for new vessel designs to enable small-scale fishers to catch tuna further from shore efficiently and safely, and to increase the value of the catch and reduce waste and GHG emissions (FAO).
7. Strengthening capacity of small-scale fishers, and national and regional organizations, to manage disaster risks and enhance the resilience of coastal communities (FAO).
8. Measuring the levels of methyl mercury in tuna in the EEZs of Pacific Island countries, so that communities can augment their diet with tuna with confidence, and to determine whether mercury levels are affected by the climate-driven redistribution of tuna (SPC).

9. Developing national policies to ensure that transshipping operations are frequent enough to supply the tuna needed for food security of urban populations, regardless of the effects of climatic variability and climate change on the location of industrial fishing (FFA and SPC); and supporting local enterprises to distribute this tuna to urban and semi-urban populations through construction of appropriate market infrastructure (FFA).

Table 1. Countries selected to participate in Component A of the project, together with the criteria used for selection.

Country	Selection criteria			
	Supporting letter for pre-concept (HoF)	Supporting letter for pre-concept (NDA)	Reason to develop small-scale fisheries for tuna as coral reefs degrade	Opportunity for transshipping to help stabilise fish supply
Cook Is	Yes		High demand for fish and ciguatera in Rarotonga	
Fiji	Yes	Yes	Difficulty in supplying fish to main urban centres	
Kiribati			Difficulty in supplying fish to urban centre (Tarawa)	Yes
Nauru	Yes		Insufficient reef area to meet demand for fish	
PNG	Yes		Insufficient reef area to meet demand for fish	Yes
Solomon Is	Yes	Yes	Insufficient reef area to meet demand for fish	Yes
Tuvalu			Difficulty in supplying fish to urban centre (Funafuti)	Yes
Vanuatu	Yes	Yes	Insufficient reef area to meet demand for fish	

Component B. Adaptations to maintain the contributions of industrial tuna fisheries to economic development

The main activities for Component B of the project are designed to enable adaptations to the management of industrial tuna fisheries to maintain their contributions to Pacific Island economies to be made with confidence. These activities centre around the investments required to gain a much better understanding of the likely responses of tuna to climate change, and a series of precautionary investments expected to help maintain government revenue, or capitalise on new opportunities, based on our present understanding of the responses of tuna to ocean warming. These activities will be implemented mainly on behalf of the eight Parties to the Nauru Agreement, but are also expected to benefit all Pacific Island countries and territories. The organisations responsible for implementing each activity are shown in brackets.

1. Assessing the effects of climate change and ocean acidification on each stock within the distribution of a tuna species (rather than assuming a single stock for each species), to inform all potential adaptations for tuna-dependent economies. This involves:
 - i) Collecting and storing samples needed to identify the number distribution, size and behaviour of all tuna stocks (SPC);
 - ii) Analysing the samples described above to produce ‘resource maps’ showing the spatial distribution of stocks for each tuna species (SPC);
 - iii) Conducting tuna tagging programmes to verify the distribution, size and behaviour of all tuna stocks (SPC);
 - iv) Modelling the effects of climate change on each tuna stock to identify the proportion of fish available for capture within the EEZs of Pacific Island countries and in high seas areas (SPC); and
 - v) Arranging for industrial fishing vessels to collect data to improve the tuna-climate models, including acoustic information to assess responses by the prey of tuna (midwater fish, squid and shrimps) to climate change, and data on sea surface temperature and current speed to validate those components of global climate models used to inform the tuna-climate models (SPC).
2. Exploring ways to add value to tuna catches to increase the rates for fishing licence fees and reduce waste, thereby (i) enabling countries in the west of the region, where tuna catches are expected to decrease due to climate change, to adapt to the impacts of catch reduction on their economies; and (ii) assisting tuna-dependent countries in the east to harness the full potential of increased tuna catches for government revenue and GDP (FFA & CI).
3. Investigating the cost:benefit of establishing shore-based transshipping facilities in Kiribati and Cook Islands, to create livelihoods through servicing purse-seine fishing vessels expected to spend more time fishing in their EEZs due to climate change (FFA).
4. Exploring all avenues to assist Pacific Island countries retain the right to manage catches of any tuna stock where modelling predicts a redistribution of biomass from their EEZs to high seas areas (FFA, SPC & CI).

Activity 1 will also inform several of the adaptations in Component A.

Component C: Capacity building

The main activities for Component C of the project are designed to ensure that the adaptations described in Components A and B are transferred effectively to all relevant levels in Pacific Island countries. The organisations responsible for implementing the activities are shown in brackets.

1. National workshops to transfer the adaptations needed to strengthen all aspects of FAD programmes (SPC)

2. Regional workshops to share lessons learned in adapting small-scale tuna fisheries to climate change in the eight selected countries with other countries in the region (SPC).
3. Pacific Island Fisheries Professional Programme to support attachments at SPC to (i) learn skills in management of small-scale tuna fisheries; and (ii) increase national skills in tuna-climate issues (SPC).
4. Establishment of a team of advisers on tuna and climate to inform national tuna management plans (SPC).

Progress of Concept Note

The project partners have collaborated to draft the Concept Note in the format specified by GCF (12-page limit), and develop an estimated budget for the project, including potential co-financing. The draft Concept Note is expected to be ready to send to the Heads of Fisheries Departments in the eight countries selected to participate in Component A of the project for their feedback and endorsement by the end of March 2019.

Recommended action by HoF

Although the project is expected to assist most members of SPC to adapt the management of their small-scale and industrial tuna fisheries to climate change, it will only be necessary to formally include the eight countries in the project documentation. By providing a letter of support for the project to GCF from the NDA, and officially including the project in the GCF Country Programme, these countries can help champion the project on behalf of the entire region.

To enable the Concept Note to be finalised and submitted to GCF by the end of April 2019, the Heads of Fisheries of the eight selected countries are requested to:

1. Send any suggested revisions to the proposal to Conservation International by 15 April 2019;
2. Consult with their NDA to have the project included in their Country Programme;
3. Provide a joint letter of support for the project from their agency and the NDA before the end of April, which will be included with the submission of the Concept Note.

Other members of SPC are also welcome to provide feedback on the draft Concept Note by 15 April 2019.