COOK ISLANDS NATIONAL PLAN OF ACTION FOR REDUCING INCIDENTAL CATCH OF SEABIRDS (NPOA-SEABIRDS)

Executive Summary

Global concern about the impact of longline fishing on seabirds is reflected in the adoption by FAO of the International Plan of Action for Reducing Incidental Catch Of Seabirds In Longline Fisheries (IPOA-Seabirds). The Cook Islands has decided that the application of the approach in the National Plan of Action – Seabirds (NPOA-Seabirds) should not be limited only to longline fisheries but should cover all fisheries in which Cook Islands is involved. The Cook Islands NPOA-Seabirds covers flag vessels involved in longline, trawl and troll operations in the Pacific and Indian oceans and plans to fish for krill in Antarctica. The plan contains the following themes:

1. Action Items:
    a. Implementation of mitigation measures where required;
    b. On-going monitoring and assessment of all fishing operations;
    c. Code of Practice;
    d. Education and awareness;
    e. Research;
    f. Enhancement of monitoring capability including:
        i. Increased observer coverage;
        ii. Enhanced training of observers;
        iii. Non-fish by-catch logsheets observer logsheets;
        iv. Use of remote monitoring;
2. Partnerships with fishers to develop efficient fishing operations and monitoring systems to benefit the nation while ensuring resources are harvested on a sustainable basis and with due regard to the ecosystem. This will include utilization of private sector resources to conduct research; and
3. Bilateral and multilateral cooperation with neighboring and like-minded States to enhance fisheries management including through the development of effective, governance systems, research and monitoring.

An assessment of longline operations inside the Exclusive Economic Zone (EEZ) concluded that there was no seabird interaction problem. Longline sheets showed that 33 million hooks had been set since 2001 with no reports of seabird by-catch. This was supported by observer reports and interviews with vessel operators. The Forum Fisheries Agency (FFA) and the Western Central Pacific Fisheries Commission (WCPFC) commissioned seabird bycatch studies for the region concluded:

“Available information indicates that seabird interactions with longline vessels operating in tropical and subtropical areas of the western and central Pacific Ocean (WCPO) are very rare, except in the Hawaii-based longline fisheries… This is because there is low abundance in the tropical and subtropical Pacific, excluding Hawaii, of the species of seabirds known to be vulnerable to capture in longline gear (Watling, 2002).

In 2006, WCPFC agreed on a conservation and management measure to require longliners that operate north of 23º North and south of 30º South to use certain mitigation measures. This measure has been applied to all Cook Islands longline vessels operating in the WCPFC region. The measure will also apply to longline vessels that may fish in the IATTC region. Mitigation measures will also apply to longliners that operate in the Indian Ocean Tuna Commission (IOTC) region in accordance with the recently adopted IOTC conservation and management measure for seabird mitigation.

As far as the trawl and troll vessels are concerned, the NPOA-Seabirds calls for continued monitoring of operations and compliance with any conservation and management measures that may be adopted by relevant regional management authorities (RFMOs). The Ministry of Marine Resources (MMR) will work with the fishing industry to develop mitigation measures which may include input controls and codes of practice.

All measures are applied as a condition of license for vessels operating within the EEZ and as a condition of authorization for those vessels operating outside fishery waters. Overall management of fishing vessels is through the Tuna Management Plan and Distant Water Fishery Plan implemented by the Ministry of Marine Resources (MMR). These plans are reviewed annually with a major review scheduled for 2011. The NPOA-Seabird will be reviewed on an annual basis and in accordance with any new conservation and management measures including those agreed by relevant RFMOs.

1. Introduction

The framework for an Ecosystem Approach to large pelagic fisheries management for Cook Islands has determined seabird mortality from fishing to be a Medium Risk Category Issue which requires consideration of a management response. The basis for this determination is that there is international concern over seabird mortality from longlining, and a requirement from the Western and Central Pacific Fisheries Commission (WCPFC) to implement measures to mitigate seabird mortality for some longline fishing.

In addition, while the draft framework applies only to fishing inside Cook Islands waters, Cook Islands vessels also operate outside Cook Islands waters in the high seas and in waters under the jurisdiction of other states, where there may be additional issues and specific requirements relating to mitigating seabird mortality from longlining.

Global concern about the impact of longline fishing on seabirds is reflected in the adoption by FAO of the International Plan of Action for Reducing Incidental Catch Of Seabirds In Longline Fisheries (IPOA-Seabirds). The IPOA-Seabirds includes provisions that:

- States with longline fisheries should conduct an assessment of these fisheries to determine if a problem exists with respect to incidental catch of seabirds.
- If a problem exists, States should adopt a National Plan of Action for reducing the incidental catch of seabirds in longline fisheries

The Western and Central Pacific Commission (WCPFC) adopted at its December 2006 meeting a Conservation and Management Measure for Seabirds, which among other things:

- Resolves that Commission Members, Cooperating Non Members and participating Territories (CCMs) shall, to the extent possible, implement the International Plan of Action for Reducing Incidental Catches of Seabirds in Longline fisheries (IPOA-Seabirds) if they have not already done so
- Resolves that CCMs shall report to the Commission on their implementation of the IPOA-Seabirds, including, as appropriate, the status of their National Plans of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries
- Adopts certain mitigation measures to be adopted by longliners fishing north of 23º North and south of 30º South.

The Ministry of Marine Resources has decided that the application of the approach in the NPOA-Seabirds for Cook Islands should not be limited only to longline fisheries but should cover all fisheries in which Cook Islands is involved. For this purpose it is necessary to assess whether a problem exists with respect to incidental catch of seabirds in fisheries in Cook Islands waters or by Cook Islands vessels operating outside Cook Islands waters, and therefore whether it is necessary for Cook Islands to prepare a NPOA-Seabirds, and the nature of any such problems.

2. Institutional Framework

The Cook Islands is a party to the following international legal instruments relating to fisheries conservation and management:

- 1982 UN Convention;
- 1993 FAO Compliance Agreement;
- 1995 UN Fish Stocks Agreement;
- 2000 WCPF Convention;
- South pacific Forum Fisheries Agency Agreement;
- Convention for the Conservation of Antarctic Marine Living Resources;
- Convention on Migrating Species (South Pacific Cetaceans MOU);
- South Indian Ocean Fisheries Agreement.

Fisheries conservation and management is governed by the Marine Resources Act, 2005 which incorporates principles elaborated in the Code of Conduct for Responsible Fishing, Fish Stocks Agreement and the Compliance Agreement. The responsibility for fisheries management including the development and implementation of fishery management plans is vested in the Ministry of Marine Resources. The Ministry has implemented the Longline Fishery Plan 2008-2011 which covers tuna longlining within the EEZ and is finalizing the Distant Water Fishery Plan 2009-2011 to cover the management of all flag vessel activity outside the EEZ. Vessels are licensed (to fish inside the EEZ) and/or authorized (to fish outside the EEZ) in accordance with conditions elaborated in the relevant plan and these conditions include the requirement to establish a resident agent, be VMS compliant, report catch and effort, carry observers, submit to inspection and to employ fishery specific mitigation measures. Failure to comply with conditions may result in termination of license or authorization, confiscation of vessel, gear and catch, a fine and/or imprisonment.

To a large extent, Cook Islands relies on cooperative partnerships with neighboring States, the private sector and regional fisheries bodies to enhance fisheries management, research and development. Over the last 30 years this is particularly evident with respect to tuna fisheries management and the role FFA and SPC has played. In recent times, Cook Islands and the United States signed an MOU on fisheries cooperation which includes cooperation in joint surveillance and enforcement as well as monitoring. The national Sea Turtle Mitigation program which is heavily supported by the United States is one result of this endeavor and this cooperation will be extended to include data exchange, observer placements, vessel inspections and possibly ongoing support with respect to the seabirds and sharks mitigation programs.

The partnership with the private sector is becoming increasingly important because of their central role in the development of the domestic catching and processing sectors as well as their capacity to undertake field research. One partner fishing company has, as a member of the South Indian Ocean Deep Water Fisheries Association, undertaken a number of research activities including work in acoustic stock assessment surveys and the collection of biological data for fisheries models. The association has also established benthic protected areas to conserve deepwater corals and other related bottom fauna. Current research and development activities relate to the jack mackerel and krill fisheries.

3. Assessment

Introduction

The Cook Islands is active in several fisheries globally. The assessment considered first the extent of interactions in relation to the domestic tuna longline fishery and then separately the issue of interactions with respect to operations in distant water regions as follows:

- North Pacific tuna troll fishery (WCPFC);
- Indian Ocean tuna longline fishery (IOTC);
- South Indian Ocean orange roughy trawl fishery (SIOFC);
- Eastern Pacific tuna longline fishery (IATTC);
- South Pacific snake mackerel trawl fishery (SPRFMO)
- Antarctic krill trawl fishery (CCAMLR)

Domestic Longline Fishery

Offshore fishing for tuna and associated species has been prevalent in waters surrounding the Cook Islands since the 1950s when Japanese longline vessels were active. These vessels began to be replaced in the 1970s by vessels from Taiwan and Korea. The Cook Islands declared its EEZ in 1977 and began licensing Korean and Taiwan longliners in 1980 and 1981 respectively. These vessels were geared principally for the canned albacore market but also took catches of yellowfin and bigeye. In 1993 two longline vessels targeting the fresh fish sashimi market began operations out of Rarotonga and were followed in 1994 by a fully owned Cook Islands operation. These operations however proved to be unsustainable and it wasn't

until 2002 that a significant domestic based fleet became established. By 2002 a total of 21 domestic or domestically based foreign vessel licenses were issued (the licensing of foreign fishing vessels was discontinued in 2000). Vessel catch and effort is provided in Table 1.

Table 1. Annual catch estimates by species taken within the WCPFC.

		Catch (metric tonnes)								
Year	**Effort (100hks)**	**ALB**	**BET**	**YFT**	**BLM**	**BUM**	**MLS**	**SWO**	**OTH**	**TOTAL**
2001	266	1.8	0.6	1.0	0.2	0.0	0.1	0.4	1.7	5.8
2002	11,371	490.0	55.9	42.3	0.3	13.6	13.8	12.5	75.1	703.5
2003	52,940	1,358.2	203.5	178.5	5.8	47.7	40.7	157.3	277.6	2,269.3
2004	78,248	1,868.8	394.5	506.0	9.9	54.3	37.4	160.7	333.7	3,365.3
2005	79,238	2,371.2	220.2	412.7	8.3	140.9	42.9	102.8	251.0	3,550.0
2006	61,529	2,222.7	165.7	262.1	6.5	20.1	14.5	83.1	228.9	3,003.6
2007	54,763	2,099.1	188.3	250.8	15.1	37.1	12.5	42.8	112.9	2,758.6

(Source: Cook Islands longline vessel logsheets)

Two distinct longline fisheries exist in the Cook Islands. In the Northern Cook Islands the target species is albacore for the canning market. In the Southern Group vessels are based in Rarotonga Initially the Rarotonga based fishery targeted high value tunas for the fresh fish sashimi markets in Japan and the USA but since 2006 the principal target has been swordfish, mahimahi and spanish mackeral for the Rarotonga market. Overall, albacore is the predominant species caught making up 70% of total catch.

Susceptible Seabird Species

Based on available information, seabird species that may be vulnerable to capture in pelagic longline fisheries operating in the tropical and subtropical Pacific Islands region include the: Wedge-tailed Shearwater (*Puffinus pacificus*), Sooty Shearwater (*P. griseus*) Short-tailed Shearwaters (*P. tenuirostris*), Flesh-footed Shearwater (*P. carneipes*), Pink-footed Shearwater (*P. creatopus*), Christmas Shearwater (*P. nativitatis*), Newell's Shearwater (*P. newlli*), Heinroth's Shearwater (*P. heinrothi*), Juan Fernandez Petrel (*Pterodroma externa*), and Murphy's Petrel (*Pterodroma ultima*) (Watling, 2002).

This species list is based primarily on observations of the species of seabirds that are commonly captured in longline fisheries outside of the tropical and subtropical Pacific Islands region. However, observations of a seabird species bycatch levels in a longline fishery in one area may not necessarily be an accurate predictor of the existence or lack of problematic bycatch of this species in other regions. There is a need for onboard observer data across seasons and different parts of ranges of seabirds thought to be vulnerable to capture in longline fisheries in tropical and subtropical Pacific Island longline fisheries, because it is possible that a seabird species may have different foraging strategies when breeding vs. not breeding, or whilst migrating vs. non migrating. Observer coverage of Pacific Island longline fisheries is needed to

directly determine which seabird species, if any, are caught in tropical and subtropical Pacific longline fisheries.

The Hawaii-based longline tuna and swordfish fisheries catch seabirds primarily at fishing grounds North of the Hawaii Islands and predominantly catch black-footed (*Phoebastria nigripes*) and Laysan (*P. immutabilis*) albatrosses, which range throughout the North Pacific primarily North of 20 degrees N. latitude; observer data show that the capture of other seabird species in the Hawaii-based longline fisheries are extremely rare events (Gilman et al., 2005). Based on their ranges, is not likely that Laysan or Black-footed albatrosses are caught in tropical and subtropical Pacific longline fisheries other than the Hawaii-based fleet. Watling (2002) reviews seabird bycatch data from Australia and New Zealand to determine if the ranges of the species and species groups known to be caught in these nation's longline fisheries overlap with tropical and subtropical Pacific longline fishing grounds, and concludes that, of the four species groups (petrels, shearwaters, boobies and skuas) that are potentially vulnerable to capture in longline fisheries in the tropical Pacific, only four seabirds of the 32 that are caught in the New Zealand and Australia fisheries are found in the tropical Pacific. These four species are the Wedge-tailed Shearwater, a common breeding resident, Sooty and Short-tailed Shearwaters, which are common annual migrants through the Pacific Islands region, and the Flesh-footed Shearwater, which is an uncommon annual migrant (Watling, 2002). It is not known if the three shearwater species that are annual migrants forage in the tropical Pacific, or if they simply migrate across the region to and from the Southern and Northern Pacific (Watling, 2002). Watling (2002) also concluded that the species known to be caught in Australia and New Zealand-based pelagic longline fisheries are > 500 g in weight, corresponding to relatively large sized seabirds. Based on this observation, Watling (2002) identifies seven additional seabird species (Pink-footed Shearwater, Christmas Shearwater, Newell's Shearwater, Heinroth's Shearwater, Hawaiian Petrel, Juan Fernandez Petrel, and Murphy's Petrel) that occur in the tropical Pacific that may be vulnerable to capture in pelagic longline fisheries, these being the seabirds that are > 500 g excluding those whose range overlaps with the Australia and New Zealand longline fleets and have not been observed to be caught in these fisheries. Six of these seven seabird species are classified as threatened by IUCN's Red List (Watling, 2002). The Hawaiian Petrel, which breeds in the Hawaiian Islands and migrates to the Southern Hemisphere where it overlaps with fishing grounds of the Australian pelagic longline fleet, has not been observed to interact with the Australia-based longline vessels (Environment Australia, 1998). This demonstrates that a seabird species' weight is not the only factor to consider to determine its vulnerability to capture in longline fisheries. A species' behavior is a more important attribute to consider, as certain species exhibit no inclination to interact with fishing vessels.

Domestic Tuna Longline Fishery Assessment

Following an assessment of available information relating to the domestic longline fishery and distant water longline vessels operating in the WCPFC region between 23º North and 30º South, , it has been determined that no seabird interaction problem exists. This determination was made following an assessment of fishing logbooks, observer reports and interviews with vessel operators. The findings were consistent with assessments conducted for the Australian

longline fishery and also with the two major seabird interaction reports for the Pacific region by Gilman (2006) and Watling (2002). Gilman summarizes these findings as follows:

"Available information indicates that seabird interactions with longline vessels operating in tropical and subtropical areas of the western and central Pacific Ocean (WCPO) are very rare, except in the Hawaii-based longline fisheries… This is because there is low abundance in the tropical and subtropical Pacific, excluding Hawaii, of the species of seabirds known to be vulnerable to capture in longline gear (Watling, 2002).

Australia's *Threat Abatement Plan for the Incidental Catch (or Bycatch) of Seabirds During Oceanic Longline Fishing Operations* requires the employment of 'serious' seabird avoidance methods by longline vessels operating South of 25 deg. S. latitude, based on evidence that seabird bycatch in Australian longline fisheries is problematic in areas South of this boundary (Environment Australia, 1998)."

The national observer program will continue to monitor for all by-catch occurrences including with respect to seabirds, shark and turtles. Currently fleet coverage is at 5 percent and will increase 20 percent coverage within two years.

Distant Water Fishery

Since the mid-1990s Cook Islands flag fishing vessels have operated beyond Cook Islands waters including in the Pacific, Indian and Atlantic oceans.. Cook Islands is a party to Western Central Pacific Fisheries Convention (WCPFC), a non-member party to the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), a cooperating non-party to the North East Atlantic Fisheries Convention (NEAFC) as well as the Inter-American Tropical Tuna Convention (IATTC) and is actively involved in the development of the South Pacific Regional Fisheries Management Organisation (SPRFMO) to be responsible for the high seas management of demersal fisheries in the Southern Pacific Ocean. The Cook Islands has also recently submitted its instrument of accession to the South Indian Ocean Fisheries Agreement (SIOFA), which governs the management of deep-sea fisheries in this area. For the near future, it is anticipated that Cook Islands vessels will continue to operate in the WCPFC, IATTC, IOTC and SIOFA regions and will look to further develop fisheries in SPRFMO and CCAMLR regions. Currently the Cook Islands has a total of 33 vessels authorized to fish in high seas and/or foreign EEZ areas. Information on these vessels by fishing area, method, tonneage and target species is provided in (Table 1).

Table 1: Fishing Areas and Target Species

RFMO Areas	Sub-Area	Fishing Method	Vessel No.	Total GRT (MT)	Target Species	RFMO Status
Western and Central Pacific Fisheries Convention Area	High Seas	Longline	17[1]	3140.8	Highly Migratory Species (HMS)	Contracting party

[1] Includes vessels also authorized to fish in WCPFC EEZs as well as IATTC Area.

(WCPFC)						
	Tuvalu, Vanuatu Solomons Tokelau	Longline	6	1106	HMS	
	North Pacific (high seas)	Troll	3	440.41	HMS especially albacore	
Inter-American Tropical Tuna Convention Area (IATTC)	High Seas	Longline	2[2]	276	HMS	Contracting non-Party
	North Pacific	Troll	3[3]	440.41		
Indian Ocean Tuna Convention Area (IOTC)	High Seas	Longline	1		HMS	Cooperating non-Party
South Indian Ocean Fisheries Area	High Seas	Mid and deepwater- Trawl	2	3994.7	Demersal species especially Orange Roughy	acceded
South Pacific Regional Fisheries Management Area (SPRFMO)	South eastern Pacific	Mid-water trawl	4	29433	Demersal species especially Jack mackerel	SPRFMO under negotiation
Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR)	High Seas	Mid and deepwater -water trawl[4]	No Active Vessel		Krill	Contracting party
North East Atlantic Fisheries Commission Area (NEAFC)	High seas	Mid and deepwater Trawl[5]	Ceased fishing 2006		Demersal species especially Orange Roughy	Cooperating non-party

[2] Also authorized for WCPFC Area Tuna longline fishery
[3] Same vessels authorized for WCPFC Area troll fishery.
[4] Notification of fishing provided 2008
[5] No longer active in this fishery

WCPFC Distant Water Fishery Assessment

For Cook Islands vessels active in high seas fisheries, measures will be derived primarily from international and regional agreements to which Cook Islands is a party or a cooperating non-party. In fisheries where no international or regional agreements exist, or where the existing measures are not of a sufficiently high standard to achieve the goals and objectives of the NPOA-seabirds, the Cook Islands may choose to adopt measures unilaterally for specific fisheries through a code of practice. In addition, the Cook Islands will continue to actively participate within international and regional organisations to promote appropriate measures for achieving a reduction in incidental catch.

With respect to longline activity, the WCPF Commission has established a conservation and management measure requiring longline vessels to use at least two of the mitigation measures in Table 1, including at least one from Column A in areas south of 30º South and north of 23º North. The recent ACAP report presented to the WCPFC Science Committee meeting, 2008, Albatross and Petrel concluded that:

"The analysis indicates that the mitigation areas defined in WCPFC-CMM-2007-04 incorporates a high proportion of the distribution of albatrosses, petrels and shearwaters (the species considered most at risk of bycatch in longline fisheries) in the West and Central Pacific. Less than 20% of WCPFC longline fishing effort is distributed in these areas."

The WCPFC mitigation measure has been implemented as a condition of authorization for all longline vessels operating in the WCPFC region. The authorization also requires vessels to be VMS compliant, fulfill catch and effort reporting requirements, participate in the respective national or regional observer programme and to submit to authorized inspections both at sea and in port.

A distant water fishery plan covering all flag vessels operating outside fishery waters is currently under development and is expected to be operational for the three year period beginning January 2009. The plan is anticipated to have the force of regulations and will form the framework for the management of distant water flag vessels. Adherence by vessels to international and RFMO obligations including agreed conservation and management measures will be a feature of the plan.

Table 1: Mitigation measures

Column A	*Column B*
Side setting with a bird curtain and weighted branch lines2 *Tori line3* *Night setting with minimum deck lighting* *Weighted branch lines*	*Tori line Blue-dyed bait* *Weighted branch lines Deep setting line shooter* *Underwater setting chute* *Management of offal discharge*

Currently the Cook Islands has 17 longline and 1 troll vessel operating on the high seas or areas of national jurisdiction in the WCPFC Area. The longline vessels generally operate south

of 23º North and north of 25º South but reported activity has indicated two vessels occasionally fishing south of 30º South. An assessment of logbooks and

With respect to the troll vessel which operates north of 23º North in the over-lapping IATTC/WCPFC area, there have been no reports of seabird interactions. Information provided by NMFS indicates that there is no interaction problem with respect to the troll fishery in the area.

IATTC Area Longline and troll Fisheries Assessment

There are currently 2 longline and 3 troll vessels authorized to operate in the IATTC Area. None of these vessels has reported seabird interactions and indeed no reports of interaction have been made since flag vessels began operations in these waters in 1995. For the IATTC area as a whole there is at present insufficient information to assess the degree of seabird by-catch problems in member fisheries. IATTC Resolution C-05-01 recommends that:

1. Each ICPC should inform, the Commission of the status of its National Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries.
2. CPCs should be encouraged to collect and voluntarily provide the Commission with all available information on interactions with seabirds, including incidental catches in all fisheries under the purview of IATTC.
3. When feasible and appropriate, the Working Group on Stock Assessment should present to the Commission an assessment of the impact of incidental catch of seabirds resulting from the activities of all the vessels fishing for tunas and tuna-like species, in the eastern Pacific Ocean. This assessment should include an identification of the geographic areas where there could be interactions between longline fisheries and seabirds.

The IATTC Working Group on By-catch has noted the following:

1. Information indicates that longline fisheries in the IATTC Area may have both direct and indirect impacts on some seabird populations. The level of the impact is currently not known.
2. Remote-tracking data and at-sea observations highlight the importance of the IATTC Area for foraging and breeding of waved and Laysan albatrosses, foraging of black-footed and black-browed albatrosses, and several other albatross species from New Zealand which migrate across the Pacific to forage in the Humboldt Current.
3. Observer data from US pelagic longline fisheries indicate bycatch of Laysan and black-footed albatrosses in the Northeast Pacific. No comparable data exist from industrial longline fleets in the central and southeast Pacific.
4. Plots of seabird distributions overlaid on pelagic longline effort revealed several areas of potential vulnerability to by-catch:
    a. the area between the Galápagos Islands and mainland Ecuador and Perú where waved albatross breed and forage;
    b. the area north of 20°N latitude where Laysan and black-footed albatross breed and forage, particularly near the small breeding colonies off Baja California;

c. the coastal zone along South America where several species are known to forage.

5. Seabird by-catch mitigation measures have been developed which have effectively reduced seabird by-catch in longline fisheries, and more gear research is ongoing.

Indications are that IATTC will take its lead from the WCPFC and establish mitigation measures for areas north of 23º North and south of 30º South requiring vessels in these areas to use at least one of the following:

1. Side setting
2. Night setting with minimal deck lighting
3. Bird scaring lines
4. Weighted branch lines

Mitigation Action

All longline vessels operating in the IATTC area that are active north of 23º North and south of 30º South will be subject to the same mitigation measures as for longline vessels operating in the WCPFC area until specific measures have been adopted by IATTC.

IOTC Longline Fishery

Historically the Cook Islands was active in the IOTC tuna longline fishery with one vessel operating in 2005 and 2006 targetting swordfish, yellowfin and bigeye tuna. The vessel set 128,600 hooks during that period and no incidental catches of seabirds were reported. There are currently no plans to re-enter the fishery but should this change, vessels will be required to comply with the recently adopted IOTC resolution relating to seabird by-catch mitigation.

The region covered by the IOTC includes the southern Indian Ocean south to 45-55°S, where many ACAP-listed species occur, including 17 species of albatrosses, all of which are considered to be threatened or near threatened. Notably the Critically Endangered Amsterdam Albatross Diomedea amsterdamensis and the Endangered Indian Yellow-nosed Albatross Thalassarche carteri are endemic to the IOTC area and both forage almost exclusively in areas fished by IOTC longline vessels.

The new resolution on reducing incidental catch of seabirds adopted in June 2008, which supersedes an earlier resolution adopted in 2006, makes it a requirement for longline vessels fishing south of 30°S to adopt a minimum of two out of six mitigation measures, one of which (the obligatory measure) must be either night setting with minimum deck lighting, use of a bird-scaring (Tori) line during setting, or use of weighted branch lines. The resolution will apply to longline vessels of IOTC Contracting Parties and Cooperating non-Contracting Parties (CPCs). It requires that CPCs report on seabird interactions by their flagged vessels to the Commission annually. The IOTC Scientific Committee will analyse the impact of the new resolution on seabird by-catch by no later than 2011, when, if thought desirable, the resolution may be revised.

South Indian Ocean Fisheries Organization Trawl Fishery

The Cook Islands has authorized a total of 8 flag vessels to operate in the Southern Indian Ocean trawl fishery since 2001. Currently there are 2 vessels authorized to fish in FAO areas 51, 57 and 58 targeting orange roughy. The vessel operator has been a member of the South

Indian Ocean Demersal Fisheries Association (IODFA) since its inception in 1995 and has participated in various ecosystem and stock assessment research activities undertaken by industry members. The Cook Islands acceded to the South Indian Ocean Fisheries Agreement in 2008 but as yet no management measures have been established in relation to seabirds. The IOFA has however established codes of practice amongst its members with the most prominent being the establishment of benthic protected areas (BPA) in order to protect pristine benthic areas to ensure damage to corals and sponges does not occur. Seabird interactions with Cook Islands trawl vessels is not considered problematic.

South Pacific Regional Fisheries Management Organization Area (proposed) Jack Mackeral Trawl Fishery

At present the Cook Islands has no trawl vessels operating in the proposed SPRFMO area as the fleet is undergoing refit and is expected to recommence operations in 2009. With the establishment of SPRFMO still under negotiation, the following interim management measures with respect to pelagic fisheries have been agreed:

1. To limit the total level of gross tonnage (GT) of vessels flying their flag fishing for pelagic stocks in 2008 and 2009 to the levels of total GT recorded in 2007 in the Area.
2. That taking into account the interests of coastal and fishing States with a catch history in the pelagic fisheries in the South Pacific, but not exercising their fisheries activities in 2007, these States may enter the fishery in the Area in 2008 and 2009 and will exercise voluntary restraint of fishing effort.
3. To submit for review to the interim Science Working Group any stock assessments and research in respect of pelagic stocks in the Area and to promote the active participation of their scientific experts in the Jack Mackerel Stock Structure Task Team, the Jack Mackerel Stock Structure and Assessment Workshop, and, when established, the interim Science Working Group's Jack Mackerel subgroup.
4. That in 2009, the interim Science Working Group will give advice to the Meeting of Participants on the status of the pelagic stocks and that the Participants, based on the advice from the interim Science Working Group, will determine the conservation and management measures to be applied from 2010 onwards.
5. To cooperate through coastal States adjacent to the Area informing the interim Secretariat of their own conservation and management measures in respect of straddling pelagic stocks.
6. In undertaking scientific research activities on pelagic stocks in the Area, including joint research, for assessment purposes, to do so in accordance with a research plan that has been provided to the interim Secretariat for forwarding to the interim Science Working Group and all Participants, preferably 60 days prior to the commencement of that activity. Participants will provide promptly a report of the results of such scientific research activities to the interim Secretariat for circulation to all Participants.
7. To ensure, to the extent practicable, an appropriate level of observer coverage on fishing vessels flying their flag in order to observe the pelagic fisheries in the Area and collect relevant scientific information.
8. To strengthen its control over vessels flying its flag fishing for pelagic fisheries by ensuring that all such vessels operating in the Area be equipped with an operational vessel monitoring system no later than 31 December 2007, or earlier if so decided by the flag State.
9. That these interim measures do not apply to squid fisheries in the Area.

As an active participant in the SPRFMO jack mackerel trawl fishery as well as being involved in the establishment of an RFMO for the region, the Cook Islands is committed to the implementation of these interim measures. With respect to seabird inter-actions, assessment has not been possible due to the brief history of fishing activity in the region. As a matter of course, monitoring for interactions will take place once the fleet is operational. It is considered that the use of the pump method of extracting fish from the net through the cod end while the net is still in the water, will minimize the possibility of interactions.

Monitoring and Reporting Regime

All flag vessels are monitored by VMS and are required to fulfill catch and effort reporting for each trip, port entry or unloading. Vessels are also required to carry observers and to submit to inspection where appropriate. All reporting is centralized at MMR where data is analyzed and reports developed for national and RFMO management requirements.

It is accepted however that observer coverage needs to be enhanced and efforts are underway to recruit national observers to fulfill the 20 percent coverage requirement established for the WCPFC region. Observer programs have yet to be established for the SPRFMO and SIOFC regions.

Because of difficulties experienced with observer retention and in order to enhance spatial and temperal observation, the use of electronic observation systems is now being investigated. Trials will be conducted in the trawl fisheries and if successful, will be adapted for application on the longline and troll vessels.

With respect to the WCPFC region, Gilson (2006) has recommended that observer data collection protocols be enhanced to ensure that every hook is observed on haul and that any loss of birds caught before the haul, is accounted for. Observers should also be trained to identify and record species and to estimate seabird abundance during setting and hauling.

Conclusions

An assessment of longline operations inside the Exclusive Economic Zone (EEZ) concluded that there was no seabird interaction problem. Longline sheets showed that 33 million hooks were set since 2001 with no reports of seabird by-catch. This was supported by observer reports and interviews with vessel operators. The Forum Fisheries Agency (FFA) and the Western Central Pacific Fisheries Commission (WCPFC) commissioned seabird bycatch studies for the region which concluded

“Available information indicates that seabird interactions with longline vessels operating in tropical and subtropical areas of the western and central Pacific Ocean (WCPO) are very rare, except in the Hawaii-based longline fisheries… This is because there is low abundance in the tropical and subtropical Pacific, excluding Hawaii, of the species of seabirds known to be vulnerable to capture in longline gear (Watling, 2002).

In 2006, WCPFC agreed on a conservation and management measure to require longliners operate north of 23º North and south of 30º South to use certain mitigation measures. This

measure has been applied to all Cook Islands longline vessels operating in the WCPFC region. The measure will also apply to longline vessels that may fish in the IATTC region. Mitigation measures will also apply to longliners that operate in the IOTC region in accordance with the recently adopted IOTC conservation and management measure for seabird mitigation.

As far as the trawl and troll vessels are concerned, the NPOA-Seabirds calls for continued monitoring of operations and compliance with any conservation and management measures that may be adopted by relevant RFMOs. The Ministry of Marine Resources will work with the fishing industry to develop mitigation measures which may include input controls and codes of practice.

All measures are applied as a condition of license for vessels operating within the EEZ and as a condition of authorization for those vessels operating outside fishery waters. Overall management of fishing vessels is through the Tuna Management Plan and Distant Water Fishery Plan implemented by the Ministry of Marine Resources (MMR). These plans are reviewed annually with a major review scheduled for 2011.

PART II NPOA-seabirds

Overview

The Cook Islands NPOA-Seabirds contains the following themes:

1. Action Items:
    a. Implementation of mitigation measures where required;
    b. On-going monitoring and assessment of all fishing operations;
    c. Code of Practice;
    d. Education and awareness;
    e. Research;
    f. Enhancement of monitoring capability including:
        i. Increased observer coverage;
        ii. Enhanced training of observers;
        iii. Non-fish by-catch logsheets observer logsheets;
        iv. Use of electronic monitoring;
2. Partnerships with fishers to develop efficient fishing operations and monitoring systems to benefit the nation while ensuring resources are harvested on a sustainable basis and with due regard to the ecosystem. This will include utilization of private sector resources to conduct research; and
3. Bilateral and multilateral cooperation with neighboring and like-minded States to enhance fisheries management including through the development of effective, governance systems, research and monitoring.

Mitigation Measures

General Measures

The following measures will be applied to all fisheries:

1. Offal discharge protocols will be established for each fishery to ensure that offal is not discharged at the set and haul phases;
2. Seabird identification, care and release, protocols established;
3. Seabird identification log made an integral part of the catch and effort log report as well as observer reports;
4. On-going monitoring including observation, data gathering and verification for all fisheries;
5. Use of remote monitoring and reporting technology where feasible; and
6. Monitoring of mitigation related measures under development or in use elsewhere for possible use by Cook Islands vessels.

WCPFC and IATTC longline fisheries

With respect to longline activity, the WCPF Commission has established a conservation and management measure requiring longline vessels to use at least two of the mitigation measures in Table 1, including at least one from Column A in areas south of 30º South and north of 23º North.

Table 1: WCPFC Mitigation measures

Column A	*Column B*
Side setting with a bird curtain and weighted branch lines2 *Tori line3* *Night setting with minimum deck lighting* *Weighted branch lines*	*Tori line Blue-dyed bait* *Weighted branch lines Deep setting line shooter* *Underwater setting chute* *Management of offal discharge*

This requirement will be a condition of authorization for vessels operating in the WCPFC Area and in the absence of any mitigation measure for the Eastern Pacific Ocean (EPO) this conservation and management measure shall also apply to flag vessels operating in the IATTC region.

IOTC Longline Fishery

The IOTC resolution on reducing incidental catch of seabirds makes it a requirement for longline vessels fishing south of 30°S to adopt a minimum of two out of six mitigation measures, one of which (the obligatory measure) must be either night setting with minimum deck lighting, use of a bird-scaring (Tori) line during setting, or use of weighted branch lines. This requirement will be made a condition of authorization for any flag vessel permitted to operate in the IOTC tuna longline fishery.

Trawl Fisheries

For the trawl fisheries targeting, jack mackerel and krill assessments of incidental catches have not been possible due mainly to the short period of fishing activity. The monitoring and collection of data from these fisheries will be on-going.

For trawl vessels fishing in the CCAMLP Convention Area, the following conservation and management measure applies:

1. The use of net monitor cables on vessels in the CCAMLR Convention Area is Prohibited;
2. Vessels operating within the Convention Area should at all times arrange the location and level of lighting so as to minimize illumination directed out from the vessel, consistent with the safe operation of the vessel;
3. The discharge of offal shall be prohibited during the shooting and hauling of trawl gear.
4. Nets should be cleaned prior to shooting to remove items that might attract birds;
5. Vessels should adopt shooting and hauling procedures that minimize the time that the net is lying on the surface of the water with the meshes slack. Net maintenance should, to the extent possible, not be carried out with the net in the water;
6. Vessels should be encouraged to develop gear configurations that will minimize the chance of birds encountering the parts of the net to which they are most vulnerable. This could include increasing the weighting or decreasing the buoyancy of the net so that it sinks faster, or placing coloured streamers or other devices over particular areas of the net where the mesh sizes create a particular danger to birds.

In addition to the above measure for CCAMLR, the following framework for a code of practice shall apply to all trawl vessels:

1. Vessel managers to brief crew on the importance of minimizing seabird mortality and to ensure accurate reporting;
2. Deck crew to be specifically briefed to ensure seabirds captured alive are handled with care and released as soon as possible;
3. Crew to be briefed to ensure that dead birds are reported to the Master before being returned to the sea;
4. Master to ensure that all seabird captures are accurately recorded in the non-fish incidental by-catch log;
5. Trawl wires to be well greased and free of sprags;
6. The amount of offal discard minimized;
7. Scupper meshes in place to restrict offal escape;
8. Offal is not discharged during the hauling and shooting process;
9. Any ideas on mitigation improvements are forwarded to MMR.

2. Research and development

In general, the Cook Islands policy with respect to offshore fisheries research is to establish partnerships and utilize the capacities where practical of other States, regional institutions and private sector partners to ensure that the best possible science and research is used to properly manage the fisheries in which the Cook Islands participates.

Research on seabird mitigation measures has been undertaken by FFA and SPC with respect to longline fishing contributing to the development and adoption of the conservation and management for seabird mitigation by the WCPFC. The Cook Islands also has an MOU with the United States covering cooperation in fisheries matters which will extend to assistance with respect to all aspects of fishing including the development of mitigation measures. The United States has already assisted with the establishment of a Sea Turtle Mitigation Plan which has included training, the development of information material and reporting protocols as well as the supply of mitigation tools. With respect to the trawl fisheries, flag vessel operators have participated in research activities relating to stock assessment, mitigation measures and the establishment of benthic protected areas. Research by these partners into seabird specific

issues has already commenced in relation to the jack mackerel and krill fisheries likely to be initiated in 2009.

As a condition of authorization, flag vessels will be required to comply with national and relevant RFMO reporting regimes including with respect to VMS, observers, inspection and catch and effort reporting as appropriate. The Distant Water Fishery Plan also requires representation and participation at the technical and general meetings of relevant RFMOs including participation and involvement by vessel operators.

3. Education, training and publicity

A close working relationship exists between MMR and the fishing industry with all relevant interests involved in the development of the domestic Tuna Plan and the Distant Water Fishery Plan. Both plans provide for the adoption of mitigation measures including with respect to the IPOAs and also with respect to turtles. The Action Plan for Sea Turtle Mitigation is now operational and will be the model for seabird mitigation education, training and publicity when and if the need arises.

Under turtle plan, a training program (for observers, trainers, operators and crews) has been developed and necessary training and awareness materials produced and distributed to all concerned. In addition, each vessel is issued with mitigation tools. Workshops are to be conducted on an annual basis for those vessels unloading in American Samoa and more often for the Rarotonga based operators. Vessels are also inspected to ensure mitigation tools, reporting logs and identification materials are on board. Seabird mitigation training will be incorporated into these workshops.

Consultations with the distant water fishery operators are held at least once a year usually coinciding with various RFMO meetings. These discussions will include attention to all conservation and management measures including any relating to seabird by-catch. Under the tuna plan and distant water plan, fishers are required to be consulted on conservation and management issues and are encouraged to participate in relevant RFMO meetings.

In general, all vessel operators are required to respond to notifications issued by MMR and mitigation information will also be available on the Ministry website. Vessel operators that do not respond positively to such notices (and indeed to any mitigation requirement) may face prosecution along with loss of authorization.

4. Data collection

The Cook Islands will employ innovative ways to ensure observer coverage of the domestic fleet meets the WCPFC requirement of at least 20 percent. At present it is necessary to employ foreign observers to operate out of Rarotonga because of the reluctance of local trained observers to go to sea. This program will continue for the foreseeable future. In addition work is being progressed with industry partners to develop suitable remote observer and electronic reporting capability for use in all fisheries.

The Cook Islands will continue to work with RFMOs to ensure that appropriate data collection protocols are in place for fisheries of concern. With respect to the WCPFC longline fishery the following enhancements will be developed:

1. Increased observer coverage of fleets and ensure that all fleets and seasons are covered equally;
2. Enhanced observer collection protocols to ensure
    a. Every hook on haul is observed;
    b. Account for loss of caught birds before the haul;
3. Enhanced observer capacity to
    a. Identify and record species;
    b. Estimate seabird abundance during setting and hauling