

Canada's Progress Report *on the* Implementation of
Key Actions Taken Pursuant *to the* National Plan
of Action *for* Reducing *the* Incidental Catch of
Seabirds *in* Longline Fisheries (*March 2007*)

July 2012

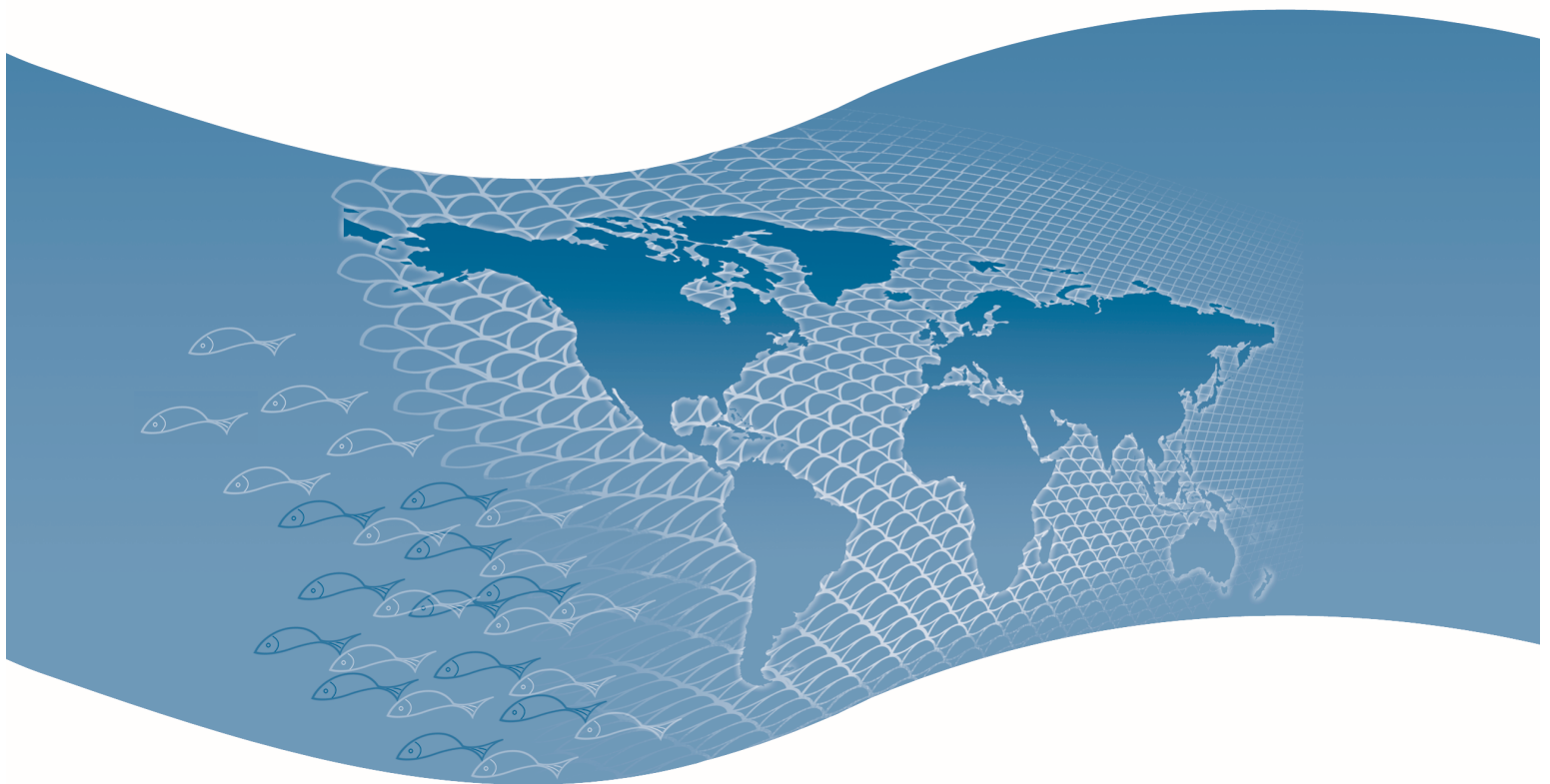


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ACRONYMS AND SHORT FORMS

ACAP	Agreement on the Conservation of Albatrosses and Petrels
Best Practice Guidelines	Food and Agriculture Organization's Best Practices to Reduce Incidental Catch of Seabirds in Capture Fisheries
Bycatch Guidelines	Food and Agriculture Organization's International Guidelines on Bycatch Management and Reduction of Discards
Canada's Bycatch Policy	Policy Framework on Managing Bycatch and Discards
CWS	Canadian Wildlife Service
DFO	(Department of) Fisheries and Oceans Canada
EMS	Electronic Monitoring System
FAO	United Nations Food and Agriculture Organization
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
IFMPS	Canada's Integrated Fisheries Management Plans
IPOA – Seabirds	FAO's International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries
NPOA – Seabirds	Canada's National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries
PR-SBWG	Pacific Region – Seabird Bycatch Working Group
RFMO	Regional Fisheries Management Organization
SFF	Canada's Sustainable Fisheries Framework
TAC	Total Allowable Catch
WCPFC	Western and Central Pacific Fisheries Commission

LIST OF SPECIES – COMMON AND LATIN NAMES*

Black-browed Albatross	<i>Thalassarche melanophrys</i>
Black-capped Petrel	<i>Pterodroma hasitata</i>
Black-footed Albatross	<i>Phoebastria nigripes</i>
Black-legged Kittiwake	<i>Rissa tridactyla</i>
Buller's Shearwater	<i>Puffinus bulleri</i>
Common Eider	<i>Somateria mollissima</i>
Common Murre	<i>Uria aalge</i>
Cook's Petrel	<i>Pterodroma cookii</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Fea's Petrel	<i>Pterodroma feae</i>
Great Black-backed Gull	<i>Larus marinus</i>
Great Shearwater	<i>Puffinus gravis</i>
Hawaiian Petrel	<i>Pterodroma sandwichensis</i>
Herring Gull	<i>Larus argentatus</i>
Laysan Albatross	<i>Phoebastria immutabilis</i>
Mottled Petrel	<i>Pterodroma inexpectata</i>
Murphy's Petrel	<i>Pterodroma ultima</i>
Northern Fulmar	<i>Fulmarus glacialis</i>
Northern Gannet	<i>Morus bassanus</i>
Pink-footed Shearwater	<i>Puffinus creatopus</i>
Sabine's Gull	<i>Xema sabini</i>
Short-tailed Albatross	<i>Phoebastria albatrus</i>
Sooty Shearwater	<i>Puffinus griseus</i>
Yellow-nosed Albatross	<i>Thalassarche chlororhynchos</i>

*NB: This is a sample list of species.

1. INTRODUCTION

For at least two decades, the impact of the incidental catch of seabirds in longline and other targeted fisheries has been an international conservation concern. Throughout the years, actions have been taken, both regionally and globally, to reduce the problem; however, seabird bycatch in fisheries still remains a problem. In an effort to reduce the incidental catch of seabirds in longline fisheries, the International Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries (IPOA – Seabirds) was adopted in 1999 by the Food and Agriculture Organization (FAO). The IPOA – Seabirds is a voluntary international instrument that was elaborated within the framework of the FAO's Code of Conduct for Responsible Fisheries. The FAO's *Best Practices to Reduce Incidental Catch of Seabirds in Capture Fisheries* (Best Practice Guidelines) was adopted in 2009 as a supplement to the IPOA – Seabirds.

The IPOA – Seabirds calls upon States that conduct longline fisheries, or in whose waters longline fisheries are conducted, to assess these fisheries to determine if a problem exists with respect to the incidental catch of seabirds. Should it be determined that a problem exists, States are then called upon to adopt national plans of action to reduce the incidental catch of seabirds. Several States, including Canada, have responded by developing and implementing national plans of action.

Fisheries and Oceans Canada (DFO) recognizes the importance of implementing a precautionary approach to fisheries management and that sustainability of fisheries is an international as well as a national challenge. In March 2007, Canada presented its National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries (NPOA – Seabirds). The NPOA – Seabirds was developed jointly between DFO and the Canadian Wildlife Service (CWS) of Environment Canada, with a focus on techniques and technologies that, once implemented, would work towards mitigating the incidental take of seabirds in longline fisheries. A technical report developed in 2003, the *Status Report and Future Directions Towards the Development of a National Plan of Action for the Reduction of Incidental Catch of Seabirds in Domestic and Foreign Longline Fisheries in Canadian Waters*, formed the basis for the NPOA – Seabirds.

Canada supports regular reporting of implementation of FAO instruments as part of performance-based management. Regular reporting is a key tenet of prudent financial and resource planning for governments. As such, Canada presents this report on progress made, lessons learned and effective strategies implemented to reduce the incidental catch of seabirds in longline fisheries. Given that the NPOA – Seabirds was developed before the FAO's Best Practice Guidelines were adopted, this document also reports on progress to reduce the incidental catch of seabirds in other fisheries to the extent relevant. The report is structured similarly to Canada's NPOA – Seabirds and should be read in conjunction with that document. This report first begins with an outline of mitigation of the incidental catch of seabirds in Canada and then shifts focus to actions to reduce the incidental catch of seabirds that have been completed, planned or are ongoing. The report concludes with an outlook of future initiatives.

2. FISHERIES MANAGEMENT FRAMEWORK FOR MITIGATING THE INCIDENTAL CATCH OF SEABIRDS

Traditionally, fisheries management has focused on regulating fishing on the targeted species. However, in recent years there has been a shift, both internationally and domestically, towards implementing an ecosystem-based approach in fisheries management to ensure the sustainability of fisheries, habitat and other species. In order to implement an ecosystem-based approach, managers and policy makers consider not only impacts on the targeted species, but also impacts on non-targeted species and habitat. Canada has been proactively engaged in the elaboration of ecosystem-based and precautionary approaches and their application to fisheries management.

At the domestic level, Canada undertakes ecosystem-based and precautionary approaches to fisheries management through:

- Fisheries Management Policies;
- Integrated Fisheries Management Plans; and
- Fisheries Monitoring Programs.

Ecosystem-based and precautionary approaches are key components for reducing the incidental catch of seabirds in longline fisheries in Canada. Although the number of seabirds caught in Canadian longline fisheries is generally considered to be low, especially when compared to the level of bycatch in other areas of the world such as the Southern Hemisphere, ongoing monitoring of incidental capture and mortality is necessary to ensure the effectiveness of existing mitigation measures. In 2005, it was reported that Black-footed Albatrosses (*Phoebastria nigripes*) and several species of gulls were most frequently taken on commercial longline gear fishing off the Pacific coast of Canada.¹ Some recent estimates of commercial hook and line groundfish fisheries bycatch indicate that the same bird taxa are incidentally caught in those fisheries.

2.1 Sustainable Fisheries Framework

Canada's fisheries renewal initiative aims to achieve sustainable fisheries, economic prosperity and greater stability in fisheries management. Central to this initiative is the Sustainable Fisheries Framework (SFF), established in 2009 to consolidate existing and new fisheries management policies and tools. This Framework provides the foundation for ecosystem-based and precautionary approaches to fisheries management in Canada. Combined with reforms to socio-economic policies and initiatives, the SFF is a key instrument in developing environmentally sustainable fisheries that also support economic prosperity in the industry and fishing communities. It comprises two main elements: conservation and sustainable use policies, and planning and monitoring tools. The conservation and sustainable use policies include, among others, A Fishery Decision-Making Framework Incorporating the Precautionary Approach (Precautionary Approach Policy) and Canada's Policy Framework on Managing Bycatch and Discards (Canada's Bycatch Policy), currently under development.

The Precautionary Approach Policy requires that a harvest strategy consistent with the precautionary approach be incorporated into respective fisheries management plans. The policy focuses on the management of stocks that are the specific and intended targets of a fishery. Canada's new Bycatch Policy will focus on the impacts of Canadian fisheries on non-targeted species. The management of bycatch for non-targeted species has become a key topic of international interest.

1. Smith, J. and K. Morgan. 2005. An Assessment of Seabird Bycatch in Longline and Net Fisheries in British Columbia. Canadian Wildlife Service Technical Report Series No.401.

In February 2011, the FAO adopted the *International Guidelines on Bycatch Management and Reduction of Discards* (Bycatch Guidelines). The Bycatch Guidelines indicate that States and regional fisheries management organizations (RFMOs) should establish and implement national policies for the effective management of bycatch and reduction of discards, based on the application of ecosystem-based approaches to fisheries, and should give consideration to all significant sources of mortality of both target and non-targeted species. Canada actively participated in the FAO's efforts leading to the development and adoption of these Bycatch Guidelines and attaches great value in them as they have provided direction for Canada's new Bycatch Policy.

Canada's *Policy Framework on Managing Bycatch and Discards* (under development) aims to ensure that all Canadian fisheries, which include shark fisheries, are managed in a manner that supports sustainable harvesting of aquatic species. The two main objectives of the policy consist of minimizing the risk of fisheries causing serious or irreversible harm to bycatch and discard species and accounting for total mortalities, including retained bycatch and discards.

2.2 Integrated Fisheries Management Plans

Canada's Integrated Fisheries Management Plans (IFMPs) are developed by DFO in consultation with regional and advisory stakeholder committees, to identify goals and measures relating to conservation, management and science for a particular fishery. IFMPs also outline licensing requirements and identify total allowable catch (TAC) limits for users and for the geographic areas in which licences are applicable while also providing information related to area closures. IFMPs and subsequent TACs are reviewed and updated regularly through consultations with regional and advisory committees.

As of the 2010 fishing season, the *Integrated Pacific Commercial Fishery Groundfish*, which was first introduced in the commercial groundfish fisheries in 2006, became a permanent program. A key element of the program is a comprehensive and consistent catch monitoring system for all groundfish fleets that ensures: all groundfish are accounted for; groundfish are managed on a stock specific basis; harvesters are individually accountable for their catch; and, new monitoring standards (dockside and at sea) have been implemented. As a condition of licence, each vessel must maintain a logbook that reports all catch for each set by species, including whether catch is retained or discarded. Licence holders are also required to report on seabird encounters in their logbooks. On larger vessels, at-sea monitoring is conducted by independent third-party on-board observers. Otherwise, there is video monitoring and the logbook information can be cross-referenced for accuracy against information from the video. Additionally, dockside monitoring is required when catches are landed. This is widely considered one of the most comprehensive catch monitoring programs in Canada and world-wide.

3. REPORTING ON ACTIONS TO REDUCE THE INCIDENTAL CATCH OF SEABIRDS

3.1 Enhancing Canada's Approach

In Canada, the management of migratory birds is the responsibility of Environment Canada through the CWS, while the responsibility for fisheries and oceans management rests with DFO. Additionally, successful implementation of programs to manage bycatch rests with the Canadian fishing industry. Canada has taken steps towards developing a coordinated approach to reducing the incidental catch of seabirds in longline fisheries off the Pacific coast. Canada has improved data and information sharing concerning seabird bycatch among government agencies, such as through the development of data sharing agreements to facilitate open and ongoing information exchange.

In addition, the National Seabird Bycatch Working Group, which was involved first hand in the development and initial assessment of the NPOA – Seabirds, has been reinvigorated. This Working Group provides the necessary forum to coordinate efforts of government agencies and enhance information exchange, and also to engage non-governmental organizations, Aboriginal groups, provincial and territorial governments and industry. Similarly, the Pacific Region – Seabird Bycatch Working Group (PR-SBWG), which includes officials from DFO and CWS, has been revitalized. The PR-SBWG focuses on improving information exchange concerning seabird bycatch, effectiveness of both monitoring and mitigation measures, and working with industry to find ways to reduce the number of seabirds taken in the Pacific Region.

3.2 Adoption of Ecosystem-based and Precautionary Approaches as Key Elements of Fisheries Management Renewal

Canada is dedicated to fisheries management renewal and the adoption of ecosystem-based and precautionary approaches to fisheries management. As mentioned above, the suite of policies within Canada's SFF provides the foundation for the conservation and management of aquatic species and the management of bycatch. Fisheries management renewal is implemented by DFO's regional offices. Regional IFMPs incorporate ecosystem-based and precautionary approaches where the impacts of fisheries on habitat and the incidental catch of non-targeted species are considered as well as the impacts of fisheries on targeted species.

3.3 Reviewing and Enhancing Observer Programs

Canada has made significant improvements with respect to the monitoring of seabird bycatch and to enhance the accuracy of data collected through existing programs. For instance, CWS and the provider of the on-board Electronic Monitoring System (EMS) are collaborating to facilitate the acquisition of video imagery of seabird bycatch events in the commercial groundfish hook and line fisheries off the Pacific coast. Bycatch events observed during the audits of the video imagery (approximately 10% of the imagery from a fishing trip), along with fishing effort data, are now being used to derive estimates of seabird bycatch by species, by fishery and by gear type. Comparisons between the bycatch events observed in the audits with vessel logbook entries can be made to assess the level of seabird bycatch reporting in the logbooks. These data can be used to help determine the spatial/temporal nature of seabird bycatch in west coast longline fisheries.

In Newfoundland and Labrador, new Fisheries Observers are trained by CWS on the importance of recording seabird bycatch events and are trained on how to identify incidentally taken seabirds. Since 2007, the fisheries observers are equipped with cameras and are encouraged to take photos of bycatch events to enable proper documentation of occurrences and enhance identification of species through verification by seabird experts from CWS.

3.4 Promotion of Mitigation Measures to Reduce Seabird Bycatch in Longline Fisheries

Using the best information available and in a precautionary context, Canada has implemented a variety of mitigation measures to reduce the incidental catch of seabirds in Canadian fisheries. These measures include area closures, where information has indicated unacceptable levels of seabird bycatch, such as the closure of Lobster Bay in southwest Nova Scotia to groundfish fisheries due to elevated levels of bycatch in gillnet fisheries. Some seasonal closures, such as those affecting rockweed harvesting in the Maritimes Region, have been put in place to protect migrating seabirds. Environment Canada is also developing general Avoidance Guidelines for the marine environment in order to inform the fishing industry and other stakeholders on geographic risk zones and time periods in regards to seabirds. Such information will be provided by Environment Canada in support for the selection and/or development by industry of relevant Beneficial Management Practices aimed at reducing seabird bycatch.

Through continued involvement at the international level, most notably through collaborative efforts with the Agreement on the Conservation of Albatrosses and Petrels (ACAP), Bird Life International and others, Canada has learned new mitigation techniques to help reduce the incidental catch of seabirds in fisheries. This involvement has enabled Canada to remain informed on emerging techniques and conservation threats and issues for the incidental catch of seabirds. These new techniques and measures, such as integrated weighted longlines, paired bird-scaring streamer (tori) lines, night-setting, etc., are being considered for broader domestic implementation.

3.5 Improving Knowledge of Seabird Distributions in Canadian Waters

As one of its key actions in Canadian waters, Canada has improved data collection in order to increase knowledge of offshore seabird distributions. Canada's Pelagic Seabird Monitoring Program focuses on mapping the relative abundance and distribution of pelagic seabirds off Canada's Atlantic and Pacific coasts in order to identify and minimize the impact of human activities on birds at sea, including the impacts of fishing activities.

Species of concern at a global level that are known to occur (or have occurred) in Canada's Pacific waters include: Black-footed Albatross, Laysan Albatross (*Phoebastria immutabilis*), Short-tailed Albatross (*P. albatrus*), Buller's Shearwater (*Puffinus bulleri*), Pink-footed Shearwater (*P. creatopus*), Sooty Shearwater (*P. griseus*), Cook's Petrel (*Pterodroma cookii*), Hawaiian Petrel (*P. sandwichensis*), Murphy's Petrel (*P. ultima*), and Mottled Petrel (*P. inexpectata*). Species of a global concern that are known to occur (or have occurred) in Atlantic Canada's waters include: Black-browed Albatross (*Thalassarche melanophrys*), Atlantic Yellow-nosed Albatross (*T. chlororhynchos*), Black-capped Petrel (*Pterodroma hasitata*), Fea's Petrel (*P. feae*), and Sooty Shearwater. Of these species, the Short-tailed Albatross and Pink-footed Shearwater are listed as Threatened under Canada's Species at Risk Act and the Black-footed Albatross is listed as a Species of Special Concern.

Although not considered threatened, other species of seabirds known to occur in Atlantic Canada's waters include Northern Fulmar (*Fulmarus glacialis*), Northern Gannet (*Morus bassanus*), Herring Gull (*Larus argentatus*), Great Black-backed Gull (*L. marinus*), Common Murre (*Uria aalge*), Double-crested Cormorant (*Phalacrocorax auritus*), and Common Eider (*Somateria mollissima*).

In 2009, CWS published the *Atlas of Pelagic Seabirds off the West Coast of Canada and Adjacent Areas*² based on data collected from at-sea surveys conducted between 1982 and 2005. Data from the Atlas assist with conservation area planning and identifying interactions between seabirds and human activities, and also provide a baseline to compare future seabird distributions and measure the shifts in composition. In addition, the CWS is developing map layers of the Pacific at-sea distribution of several seabird species that are known to be taken on longlines (or in gillnets), for the species' breeding and non-breeding seasons. Once completed, the layers will be publicly accessible online. The maps will demonstrate marine 'hot spots' for the selected seabird species, and are intended to assist the fishing industry in reducing bycatch.

During the fiscal year of 2012-2013, the CWS will initiate a multi-year project to develop predictive spatial and temporal models of seabird distribution and abundance throughout the entire Exclusive Economic Zone off the Pacific coast. These models will add to, as well as further refine, the marine hot spots noted above and identify 'marine-scapes' of interest (areas of increased potential risks of interactions between birds and human activities, including commercial fishing).

In eastern Canada, work is currently underway to analyze fisheries observer data in order to publish pertinent information about the risk factors associated with seabird bycatch. Analysis of the variance in these risk factors will help to determine potential areas of conflict for seabird bycatch and enable mapping of seabird-fishery conflict zones. The data collected from this work will serve as a base to enhance Environment Canada's general Avoidance Guidelines, which will provide information to support risk assessments and selection by the fishing industry of relevant measures to minimize the risk of seabird bycatch off the Atlantic coast.

This work on the east and west coasts of Canada will provide an increased understanding of the spatial and temporal distribution and abundance of seabirds will enhance integrated approaches to the management of fisheries, assessing the risk and impacts of bycatch of seabirds; these activities will ultimately aid the conservation of seabird populations.

3.6 Enhancing Outreach and Education Efforts

The fishing industry is becoming increasingly interested in learning more about mitigation measures as bycatch incidents often result in damage to gear, lost production time to release bycatch and overall reduction of catch. As such, many fish harvesters and Canadians in general are becoming more informed and aware of the importance of taking action to reduce seabird bycatch. As more knowledge about seabird distributions and the direct and indirect effects of fisheries on seabirds becomes available, this information can be used to create a better understanding about how seabird bycatch occurs and how to reduce bycatch occurrences. Environment Canada plans to develop marine-scapes with map layers of seasonal distribution of selected vulnerable seabird species; the map layers will provide the fishing industry with more information on the risks of bycatch in certain fisheries and areas. With the map layers being available online, this will provide easy access to information for Canadians who may have interactions with seabirds in those areas.

Additionally, Canada will produce laminated seabird identification cards that will focus on species susceptible to bycatch in longline and other fisheries on the Pacific coast. These identification cards will be distributed to fish harvesters in order to assist with proper identification and reporting of seabird bycatch in vessel logbooks. The proper identification will result in better monitoring and reporting of the incidental catch of seabirds and ultimately help to better tailor mitigation measures in areas of high bycatch occurrences.

2 Kenyon, J.K., Morgan, K.H., Bentley, M.D., McFarlane Tranquilla, L.A., and Moore, K.E. 2009. Atlas of pelagic seabirds off the west coast of Canada and adjacent areas. Tech. Rep. Ser. No. 499, Can. Wildl. Serv., Env. Canada, Delta, B.C. Available at: <http://publications.gc.ca/site/eng/348190/publication.html> (link accessed 2012)

3.7 Conducting a Reassessment of Incidental Take at the National Level

Canada has endeavored to reassess the incidental take of migratory birds at the national level, including the identification of the magnitude of incidental take in Canadian Fisheries. Environment Canada has developed estimates of the numbers of incidental take of seabirds in the majority of the west coast commercial groundfish fisheries, for the period of 2006 through 2009. In addition, using the number of birds observed as bycatch through the Observer Program and the proportion of the catch that was audited, estimates of seabird bycatch off the Atlantic coast were also derived by taxa. With the ongoing evolution of the implementation of the video monitoring program, seabird bycatch reporting in Canada continues to improve.

Between 2000 and 2003, a joint DFO/CWS seabird salvage program took place in the west coast salmon gillnet and groundfish longline fisheries. Because of the high proportion of unidentified birds, Canada is working to re-establish a seabird salvage program in the Pacific coast groundfish fisheries. There are also early discussions with regards to establishing a seabird salvage program in west coast salmon gillnet fisheries.

3.8 International Perspective

Canada actively participates in three of the five RFMOs that manage highly-migratory species: the Inter-American Tropical Tuna Commission (IATTC), the International Commission for the Conservation of Atlantic Tunas (ICCAT), and the Western and Central Pacific Fisheries Commission (WCPFC). The IATTC has recently adopted measures to mitigate seabird bycatch, using the IPOA - Seabirds as a basis. Canada fully supports the IATTC Resolution to Mitigate the Impact on Seabirds of Fishing for Species Covered by the IATTC. As such, Canadian fish harvesters operating in areas covered by the IATTC are required to implement a number of mitigation measures in line with the resolution (night-setting, tori lines, weighted hooks, etc.). Similarly, ICCAT also agreed to a resolution to reduce the incidental catch of seabirds for longline fisheries within its regulatory area. Canada is fully supportive of these measures to address seabird bycatch and plans to continue to cooperate towards an enhanced international approach to reducing the incidental catch of seabirds.

As well, Canada actively participates in meetings of the Advisory Committee to the ACAP; Canada is an active member of ACAP's Seabird Bycatch and Population and Conservation Status Working Groups and also significantly contributed to the process of listing the three North Pacific albatross species under the Agreement.

In addition, Canada has also been developing partnerships with other States. For example, in 2009 and 2011, Canadian officials met with Chilean officials, non-governmental organizations and residents of the main Pink-footed Shearwater breeding colonies in Chile, to share information and expertise and to promote conservation of this species. This meeting highlighted the necessity to collect information on seabird bycatch numbers and rates in waters throughout the species' range. This work was conducted under the Canada-Chile Agreement on Environmental Cooperation.

4. STEPS FORWARD

Although the IPOA – Seabirds and Canada’s NPOA – Seabirds focus primarily on minimizing the risk of the incidental catch of seabirds in longline fisheries, bycatch of seabirds occurs in other types of fisheries as well; concerns with seabird bycatch have also been identified within gillnet fisheries. Although gillnet seabird bycatch events appear to be sporadic, they can often involve large numbers of birds, which is a cause for concern. Incidents of seabird bycatch in gillnet fisheries have been reported off the Pacific and Atlantic coasts as well as within the Gulf of St. Lawrence. Seabird bycatch has also been associated with bottom otter trawls in the Gulf of St. Lawrence and the Maritimes. The CWS is conducting studies to determine the magnitude of seabird bycatch and associated causal factors in salmon gillnet fisheries off the coast of British Columbia. As more information on seabird bycatch in other fisheries becomes known, mitigation measures can be implemented to avoid the incidental capture of seabirds across all fisheries.

5. CONCLUSION

An increasing number of States are responding to the call for action from the FAO's IPOA - Seabirds with new national plans of action to reduce the incidental catch of seabirds currently under development. Canada first published its NPOA – Seabirds in March 2007 and remains dedicated to ecosystem-based and precautionary approaches to fisheries and bycatch management through improved monitoring, reporting, scientific research and consultation. Since the NPOA – Seabirds was published, scientific knowledge of seabird species and populations has improved with increased research efforts leading to enhancements in mitigation measures. The incidence of seabird bycatch in Canada continues to be low, with recent estimates remaining consistent with estimates reported in the NPOA – Seabirds. The reduction of bycatch of seabirds is and will remain an ongoing process, as new knowledge is developed, additional actions will be taken with the expectation that the incidental take of seabirds in Canadian fisheries will decrease in the future.

ANNEX 1: SUMMARY OF THE INCIDENTAL CAPTURE OF SEABIRDS IN CANADIAN FISHERIES

1.1 Incidental Capture of Seabirds in Canada’s Atlantic Longline Fishery

Bycatch of Great Shearwaters, Great Black-backed Gulls, Herring Gulls, Northern Gannets and Northern Fulmars occurs over most of the Gulf of St. Lawrence, Scotian Shelf, and Bay of Fundy regions, reflecting the wide geographic range of these seabirds. Estimates of seabird bycatch in the Atlantic longline fishery take into account observer coverage. As observed catch rates are extremely variable from year to year, estimates include a range of mortality, using estimated catch rates from previous years. The range of mortality provides a clearer representation of seabird bycatch events as it accounts for years of low observer coverage where reported catches may be significantly lower than years where observer coverage is high.

Table 1: Annual Mortality of Seabirds Caught in Longline Fisheries off the Atlantic Coast

DFO ATLANTIC REGION	ESTIMATED ANNUAL MORTALITY	RANGE OF MORTALITY	MAIN SPECIES OF SEABIRDS CAUGHT
Newfoundland and Labrador	139	92-185	Northern Fulmar
			Great Shearwater
			Sooty Shearwater
Maritimes	230	153-322	Great Shearwater
			Great Black-backed Gull
Gulf	88	6-286	Large Gulls
			Northern Gannet

1.2 Incidental Capture of Seabirds in Canada’s Atlantic Gillnet Fishery

Annual mortality rates in the gillnet fishery are substantially higher compared to the longline fishery. The majority of reported catches in the gillnet fisheries from the period of 2001 to 2008 involved Common Murres. In the Atlantic, schools of capelin, an important prey species of both murres and cod, are sporadically distributed, leading to clustering of murres in areas of high capelin density. Such areas may be targeted by harvesters fishing for cod, which likely increases the number of murres captured at once with relatively few gillnets. The occasional capture of large number of murres in trips using comparatively little fishing effort can strongly influence the final estimate of annual mortality rates. Associated confidence intervals are often considerable, indicating high levels of uncertainty.

Table 2: Annual Mortality of Seabirds Caught in Gillnet Fisheries off the Atlantic Coast

DFO ATLANTIC REGION	ESTIMATED ANNUAL MORTALITY	RANGE OF MORTALITY	MAIN SPECIES OF SEABIRDS CAUGHT
Newfoundland and Labrador	7885	3811-12, 146	Common Murre
			Great Shearwater
Maritimes	196	138-729	Common Eider
			Great Shearwater
Gulf	367	11-1783	Double-crested Cormorant
			Common Murre

1.3 Incidental Capture of Seabirds in Canada’s Pacific Commercial Groundfish Longline Fishery

In an analysis of the Pacific commercial groundfish longline fishery (2006 - 2009), the seabirds most commonly reported as bycatch were Black-footed Albatrosses and unidentified gulls. The predicted total annual numbers of seabirds caught were derived by extrapolations of bycatch events detected during the random audits of the Electronic Monitoring System (EMS) videos, and the proportion of fishing effort that was audited. As the predicted number of birds caught varied from year to year; the range of annual predicted totals are also included (Table 3). The actual number of bird mortalities detected during the EMS audits, and the number of birds reported in logbooks (LOG), by species, year and targeted fishery are presented in Tables 4 - 8. If a bycatch event that was detected by the EMS audit was also reported in the logbook, the number of birds in the event was included under both columns (EMS and LOG) of Tables 4 - 8. In addition, the species identification in Tables 3 – 8 represent the information reported, but not confirmed.

Table 3: Predicted Average Annual Mortality of Seabirds Caught in the Commercial Groundfish Fishery off the Pacific Coast (2006 -2009) and Range of Predicted Annual Mortality

SPECIES OF SEABIRDS CAUGHT	PREDICTED AVERAGE ANNUAL MORTALITY	RANGE OF PREDICTED ANNUAL MORTALITY
Albatrosses ¹	85	25-128
Gulls ²	118	34-281
Other Birds ³	39	0-139
Unidentified Birds	179	0-350
Total Birds	421	156-795

1. All Albatrosses in Table 3 were reported as Black-footed Albatross or as unidentified albatross.
2. All Gulls in Table 3 were primarily noted as unidentified gull as well as a low number reported as Sabine’s Gull, Herring Gull or Black-legged Kittiwake.
3. All Other birds in Table 3 were reported as Northern Fulmar or as unidentified cormorant.

Table 4: Annual Detected (EMS) or Reported (LOG) Numbers of Seabirds Caught in the Halibut Longline Fishery off the Pacific Coast (2006 - 2009)

SPECIES OF SEABIRDS CAUGHT	YEAR	EMS	LOG
Albatrosses ¹	2006	4	9
	2007	0	14
	2008	6	0
	2009	4	1
Gulls ²	2006	1	4
	2007	10	41
	2008	7	1
	2009	0	9
Other Birds ³	2006	0	0
	2007	3	1
	2008	0	1
	2009	0	0
Unidentified Birds	2006	0	7
	2007	4	4
	2008	4	1
	2009	6	11
Total		49	104
Bycatch Noted in Both EMS and LOG ⁴			2 (Gulls)

1. All Albatrosses in Table 4 were reported as Black-footed Albatross or as unidentified albatross.
2. All Gulls in Table 4 were primarily noted as unidentified gull as well as a low number reported as Sabine's Gull, Herring Gull or Black-legged Kittiwake.
3. All Other birds in Table 4 were reported as Northern Fulmar or as unidentified cormorant.
- 4 .Where the same bycatch event was noted in both the logbook and detected during the audit.

Table 5: Annual Detected (EMS) or Reported (LOG) Numbers of Seabirds Caught in the Rockfish Longline Fishery off the Pacific Coast (2006 - 2009)

SPECIES OF SEABIRDS CAUGHT	YEAR	EMS	LOG
Albatrosses ¹	2006	0	0
	2007	0	0
	2008	0	0
	2009	0	1
Gulls ²	2006	0	0
	2007	10	24
	2008	4	26
	2009	3	0
Other Birds ³	2006	0	0
	2007	0	0
	2008	0	0
	2009	0	0
Unidentified Birds	2006	0	0
	2007	4	5
	2008	4	0
	2009	6	0
Total		31	56
Bycatch Noted in Both EMS and LOG ⁴		9 (8 Gulls; 1 Unidentified)	

1. All Albatrosses in Table 5 were reported as Black-footed Albatross or as unidentified albatross.
2. All Gulls in Table 5 were primarily noted as unidentified gull as well as a low number reported as Sabine's Gull, Herring Gull or Black-legged Kittiwake.
3. All Other birds in Table 5 were reported as Northern Fulmar or as unidentified cormorant.
4. Where the same bycatch event was noted in both the logbook and detected during the audit.

Table 6: Annual Detected (EMS) or Reported (LOG) Numbers of Seabirds Caught in the Sablefish Longline Fishery off the Pacific Coast (2006 - 2009)

SPECIES OF SEABIRDS CAUGHT	YEAR	EMS	LOG
Albatrosses ¹	2006	1	1
	2007	2	4
	2008	0	7
	2009	2	0
Gulls ²	2006	0	0
	2007	2	0
	2008	0	2
	2009	0	0
Other Birds ³	2006	1	0
	2007	6	0
	2008	0	2
	2009	0	0
Unidentified Birds	2006	1	1
	2007	5	9
	2008	0	1
	2009	4	9
Total		24	36
Bycatch Noted in Both EMS and LOG ⁴		1 (1 Unidentified)	

1. All Albatrosses in Table 6 were reported as Black-footed Albatross or as unidentified albatross.
2. All Gulls in Table 6 were primarily noted as unidentified gull as well as a low number reported as Sabine's Gull, Herring Gull or Black-legged Kittiwake.
3. All Other birds in Table 6 were reported as Northern Fulmar or as unidentified cormorant.
4. Where the same bycatch event was noted in both the logbook and detected during the audit.

Table 7: Annual Detected (EMS) or Reported (LOG) Numbers of Seabirds Caught in the Combined Longline Fishery off the Pacific Coast (2006 – 2009)

SPECIES OF SEABIRDS CAUGHT	YEAR	EMS	LOG
Albatrosses ¹	2006	4	19
	2007	0	0
	2008	1	0
	2009	8	0
Gulls ²	2006	0	1
	2007	0	9
	2008	0	0
	2009	0	0
Other Birds ³	2006	0	0
	2007	2	0
	2008	0	0
	2009	2	0
Unidentified Birds	2006	0	1
	2007	9	1
	2008	5	2
	2009	5	1
Total		36	34
Bycatch Noted in Both EMS and LOG ⁴		5 (2 Albatrosses; 3 Unidentified)	

1. All Albatrosses in Table 7 were reported as Black-footed Albatross or as unidentified albatross.
2. All Gulls in Table 7 were primarily noted as unidentified gull as well as a low number reported as Sabine's Gull, Herring Gull or Black-legged Kittiwake.
3. All Other birds in Table 7 were reported as Northern Fulmar or as unidentified cormorant.
4. Where the same bycatch event was noted in both the logbook and detected during the audit.

Table 8: Annual Detected (EMS) or Reported (LOG) Numbers of Seabirds Caught in the Dogfish Longline Fishery off the Pacific Coast (2006 - 2009)

SPECIES OF SEABIRDS CAUGHT	YEAR	EMS	LOG
Albatrosses ¹	2006	0	0
	2007	0	0
	2008	0	0
	2009	0	0
Gulls ²	2006	0	0
	2007	3	3
	2008	0	0
	2009	0	2
Other Birds ³	2006	0	0
	2007	0	0
	2008	0	0
	2009	0	0
Unidentified Birds	2006	0	0
	2007	1	0
	2008	2	0
	2009	9	0
Total		15	5
Bycatch Noted in Both EMS and LOG ⁴			1 (1 Gull)

1. All Albatrosses in Table 8 were reported as Black-footed Albatross or as unidentified albatross.
2. All Gulls in Table 8 were primarily noted as unidentified gull as well as a low number reported as Sabine's Gull, Herring Gull or Black-legged Kittiwake.
3. All Other birds in Table 8 were reported as Northern Fulmar or as unidentified cormorant.
4. Where the same bycatch event was noted in both the logbook and detected during the audit.