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**SEABIRD INTERACTIONS WITH LONGLINE FISHERIES: AREAS AND
MITIGATION TOOLS**

IATTC Resolution [C-05-01](#) recommends that Parties implement the [FAO International Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries](#), report on their National Plans of Action to the Commission, and report on incidental seabird bycatches from all fisheries under the purview of the IATTC. The Stock Assessment Working Group was also asked to provide an assessment of the impact of bycatches on seabird populations and identify areas of potential interactions. The Indian Ocean Tuna Commission (IOTC) and the Western and Central Pacific Fisheries Commission (WCPFC) have adopted requirements for mitigation measures. [IOTC Resolution 06/04](#) (English only) requires vessels operating south of 30°S to use bird-scaring lines (streamers, or tori lines, that keep seabirds away from the area where the bait is being set); other mitigation measures will be considered in 2007. [WCPFC Conservation and Management Measure 2006-02](#) (English only) requires that, by 2008/2009, vessels use at least one mitigation measure from a menu of options, with at least two being required when fishing north of 23°N or south of 30°S.

This document discusses a range of potential management actions that could be taken by the IATTC to address seabird bycatch. The [6th meeting of the IATTC's Bycatch Working Group](#), held in February 2007, recommended that “the Stock Assessment Working Group suggest areas where mitigation measures for reducing seabird mortality could be most effectively adopted (*i.e.*, where bird distributions and longline effort overlap), as well as suggest possible mitigation measures in these areas of vulnerability. The Commission should then consider mitigation measures at its June 2007 meeting.” Information on seabirds was presented in various documents prepared for the 7th and 8th meetings of the Stock Assessment Working Group, held in [May 2006](#) and [May 2007](#), respectively. Information on vulnerable areas (areas in which the distributions of seabirds and longline effort overlap) and mitigation gear available was summarized in [Document BWG-5-05a.i](#), prepared for the 5th meeting of the Bycatch Working Group.

1. AREAS OF VULNERABILITY

Albatrosses and petrels are the seabird species of greatest concern, being most likely to forage from baited hooks, and having life history characteristics that make them vulnerable to bycatch mortality. Of particular concern is the waved albatross, an endemic species that nests in the Galapagos Islands and forages only in the EPO (BWG-5-05a.i; Figure 1). In addition, the IATTC Area is important for species which predominantly breed outside the IATTC Area, but use the area extensively for foraging. This includes Laysan and black-footed albatrosses which breed in the Northwest Hawaiian Islands (BWG-5-05a.i; Figure 2), the black-browed albatross that breeds in southern Chile, and the Chatham, Buller's, and Salvin's albatrosses, which breed in New Zealand (BWG-5-05a.i; Figures 3-5). Areas where albatross distributions overlap with IATTC industrial longline fishing effort are presented in BWG-5-05a.i.

While industrial and artisanal fisheries appear to pose different bycatch risks for seabirds, defining what is an artisanal fishery is difficult because different definitions are used in different places. Some alternatives to consider are the vessel length, whether the vessels have decks or not, or the height of the vessels' freeboard. Reports to IATTC staff from observers placed aboard artisanal longliners in the EPO by regional sea-turtle programs (Figure 1) have suggested that seabird mortalities were minimal.

2. MITIGATION MEASURES TO REDUCE BYCATCHES OF SEABIRDS

While longline fisheries can pose a significant threat to some seabird populations, the extent of the threat depends greatly on the characteristics of the vessel, the degree of mechanization of the fishing operations, the setting techniques used, and whether seabird deterrent devices are used. Gear modifications are designed to keep seabirds away from the baited hooks as they are being set and retrieved, or to make the baited hooks sink more rapidly out of reach of the birds (see review and Table 3 in [SAR-7-05c](#); BWG-5-05a.i). Simple devices, such as bird-scaring lines (streamers or tori lines) or bird curtains, can keep seabirds from getting close to the bait. Side-setting deters birds from approaching the hooks until they reach the rear of the vessel and have had a chance to sink deeper underwater. Other methods, such as the use of blue-dyed bait, make it more difficult for diving seabirds to see the bait in the water. Setting and retrieving longlines only at night takes advantage of the fact that many seabirds (but not all) are less active at night. Management of offal discharge can either reduce the attraction of seabirds to the boat by avoiding the discard of fish parts and garbage while the line is being set, or can be used to distract seabirds away from the longline while it is being set. Area closures have also been used to reduce bycatches. Seabird bycatch reduction has been most effective when a suite of measures has been adopted, rather than just a single measure.

3. MANAGEMENT AND RESEARCH OPTIONS

The following are potential options that can be adopted to reduce seabird bycatch.

3.1. Information and research needs

- 1) Basic information about how the industrial and artisanal longline fisheries currently operate is required. Data should be collected on vessel numbers, types, setting operations (*e.g.*, time of day, setting methods, gear used), target species, and gear for each industrial and artisanal longline fishery under the purview of the IATTC.
- 2) Observers should collect seabird bycatch data from both industrial and artisanal longliners. The data could include species identification, disposition of bycatch, condition of bycatch upon release, collection of life-history samples and data, photographs, sightings of species of interest during set/haul, tags, and a description of the seabird deterrents used. Observer data would provide a better estimate of the magnitude of the bycatch, a survey of the types of gear and mitigation measures used in the various fleets, and an opportunity to monitor the effectiveness of the mitigation measures. A significant observer program, run for a sufficient period of time, that demonstrated that there are no impacts caused by fishing operations, could preclude further mitigation measures.
- 3) CPCs should encourage continued research for reducing seabird bycatch in pelagic longlines.

3.2. Gear and fishing operations requirements

- 1) All industrial longline vessels fishing in the IATTC Area could be required to adopt measures to reduce seabird bycatch. Following the approach of the WCPFC, all such vessels would be required to use at least one of the mitigation measures described in the Appendix and listed in section A of Table A-1. When fishing within the shaded area shown in Figure A-1 (*i.e.* north of 23°N, south of 30°S, or within the area off the coast of South America), at least two measures would be required, a combination of one measure from section A and one or more measures from section B of Table A-1. Since not all combinations of measures are likely to be effective - for example, blue-dyed bait may not be very useful in combination with night setting - the combination of measures used should be one of those marked with an “x” in Table A-1. Adopting the WCPFC approach would provide consistency for those vessels that operate in both the eastern and western Pacific.

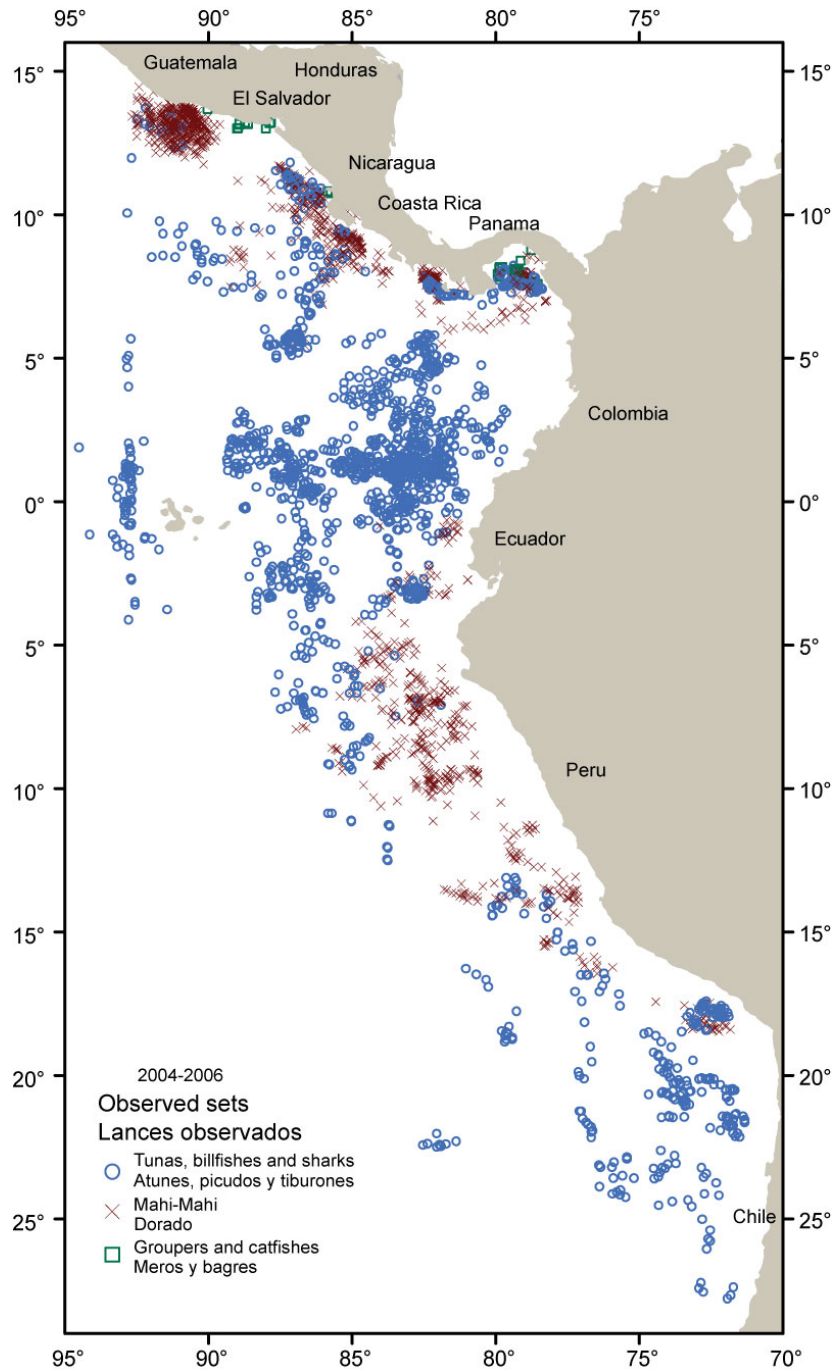


FIGURE 1. Locations of longline sets by vessels from Costa Rica, Ecuador, El Salvador, Guatemala, Panama, and Peru, for which observers recorded data on the catches using different type of hooks.
FIGURA 1. Posición de lances palangreros por buques de Costa Rica, Ecuador, El Salvador, Guatemala, Panamá, y Perú, para los cuales observadores registraron datos de las capturas con distintos tipos de anzuelo.

Appendix

MITIGATION MEASURES TO REDUCE SEABIRD BYCATCH

All industrial longline vessels would be required to use at least one of the measures listed below when fishing in the IATTC Area.

Mitigation measures	Description
<i>Side setting</i>	Side setting reduces the seabirds’ ability to take the baited hooks.
<i>Night setting with minimum deck lighting</i>	Setting and retrieving the gear at night shifts fishing operations to a time when the seabirds are less active, and reduces the visibility of the bait.
<i>Bird-scaring lines</i>	A system of streamers is deployed to keep seabirds away from the area where the longline enters the water.
<i>Weighted branch lines</i>	Weighted lines sink the baited hooks more rapidly.
<i>Bird curtains</i>	Bird curtains keep the seabirds away from baited hooks.
<i>Blue-dyed bait</i>	Coloring bait reduces contrast with the water, making it more difficult for the seabirds to see.
<i>Underwater setting devices</i>	Devices such as line shooters, underwater chutes, and deep-setting capsules set the baited hooks deep enough to reduce the seabirds’ access to the bait; several of these methods are under development.
<i>Management of offal discharge</i>	Fishermen avoid discarding offal while the longline is being set to reduce the attraction by seabirds or used to distract seabirds away from the longline while it is being set.

When fishing within the shaded area shown in Figure A-1, at least two measures would be required. The first must be one of the obligatory measures in section A of Table A-1; the others may be any of the complementary measures in section B of Table A-1 ((in combinations marked with an “x”).

TABLE A-1. Combinations of mitigation measures to reduce seabird bycatch to be applied when fishing in the shaded areas in Figure A-1

A. Obligatory measures	B. Complementary measures						
	Side setting	Night setting	Bird-scaring lines	Weighted branch lines	Bird curtain	Blue-dyed bait	Offal discharge control
<i>Side setting</i>		x	x	x	x	x	x
<i>Night setting with minimum deck lighting</i>	x			x			x
<i>Bird-scaring lines</i>	x			x	x	x	x
<i>Weighted branch lines</i>	x	x	x		x	x	x

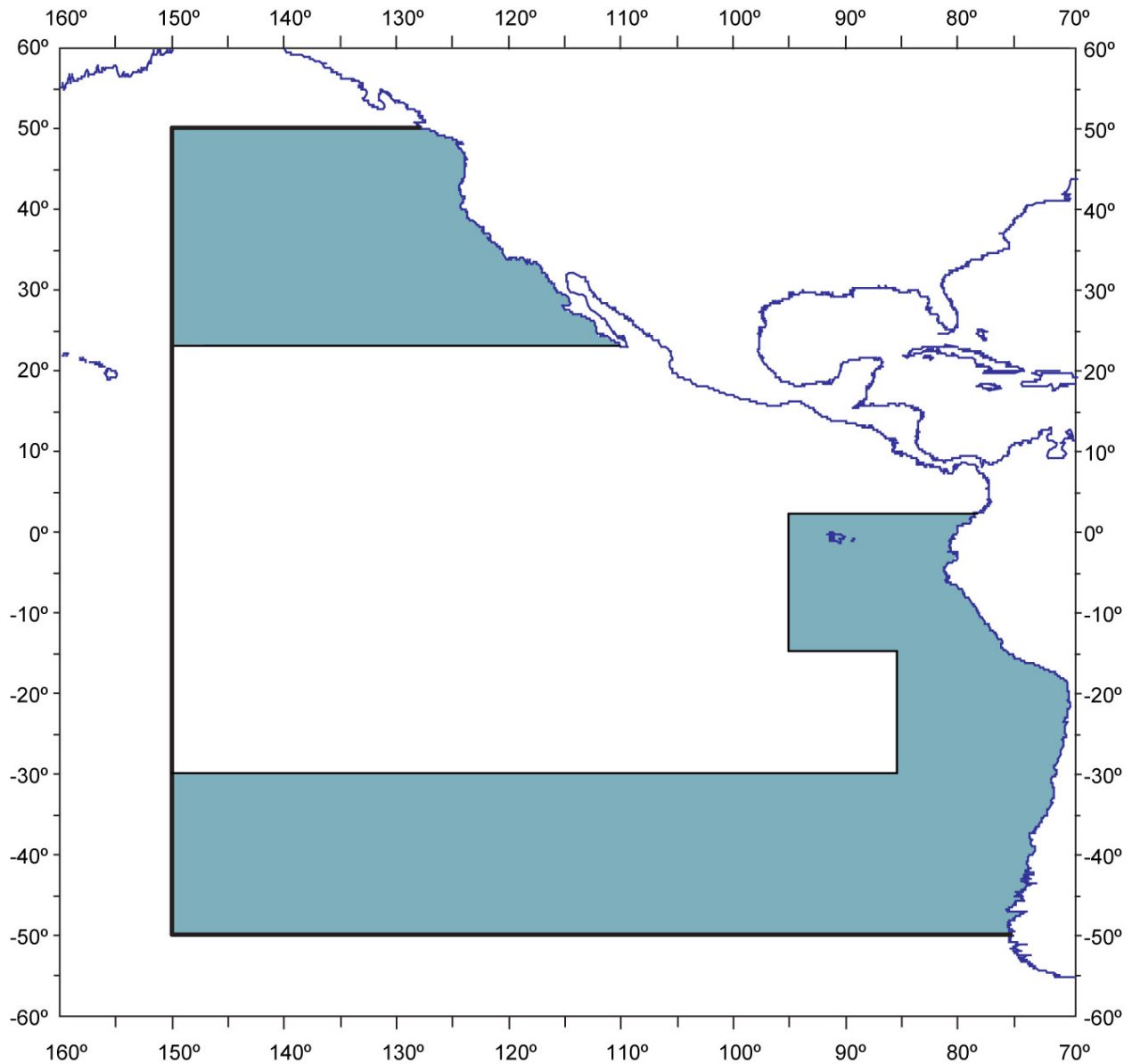


FIGURE A-1. Areas (shaded) within the IATTC Area in which the use of at least two mitigation measures for reducing seabird bycatch would be required. They include waters north of 23°N (except the Gulf of California) and south of 30°S, plus the area bounded by the coastline at 2°N, west to 2°N-95°W, south to 15°S-95°W, east to 15°S-85°W, and south to 30°S.