



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
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June 30, 2023

Dr. Arnulfo Franco, Director
Inter-American Tropical Tuna Commission (IATTC)
8901 La Jolla Shores Drive
La Jolla, California 92037-1509

Subject: Submission of Annual Seabird Report on Implementation of Mitigation Measures and Bycatch Data

Dear Dr. Franco:

The United States is submitting this letter pursuant to Resolution C-11-02 (*Resolution to Mitigate the Impacts on Seabirds of Fishing for Species Covered by the IATTC*). Please find enclosed the final 2021 Annual Report on Seabird Interactions and Mitigation Efforts in Hawaii Longline Fisheries. This report contains information on the implementation of mitigation measures for U.S. vessels operating inside and outside of the IATTC Convention Area. Additionally, we have attached the estimated interaction rates with seabirds specific to the IATTC Convention Area for 2022.

Please contact Amanda Munro at (619) 407-9284 or amanda.munro@noaa.gov with any questions.

Sincerely,

Rachael Wadsworth

Rachael Wadsworth
Acting Highly Migratory Species Branch Chief

cc: C. Colin Brinkman, U.S. Department of State
Ryan J. Wulff, NMFS, West Coast Region
Keith Bigelow, NMFS, Pacific Islands Fisheries Science Center
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FISHERIES**

Seabird Interactions and Mitigation Efforts in Hawaii Pelagic Longline Fisheries 2021 Annual Report

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Please note: Data in this report are considered to be preliminary, and may be revised as better information becomes available. For the most current data, please contact the NMFS Pacific Islands Regional Office.

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1. INTRODUCTION

This annual report is required in the Terms and Conditions of the 2012 Biological Opinion of the U.S. Fish and Wildlife Service for the operation of Hawaii-based Pelagic Longline Fisheries (USFWS 2012).

The National Marine Fisheries Service (NMFS) Pacific Islands Regional Office (PIRO) is responsible for minimizing, as practicable, interactions between Hawaii pelagic longline fishing operations and seabirds. NMFS monitors the fisheries to determine the effectiveness of management measures implemented to minimize interactions and the severity of interactions. NMFS documents interactions and mitigation efforts aboard vessels at sea and reports annually on fishing effort, seabird interactions, and mitigation research. View this report and similar reports from previous years online at <https://www.fisheries.noaa.gov/pacific-islands/bycatch/seabird-interactions-pelagic-longline-fishery>.

1.1 Background

NMFS and the Western Pacific Fishery Management Council (WPFMC) manage two Hawaii pelagic longline fisheries under the Fishery Ecosystem Plan for Pelagic Fisheries of the Western Pacific (FEP) and implementing regulations. The deep-set longline fishery targets primarily bigeye tuna at depths to 400 meters (m) and operates mainly north-northeast and southwest of the main Hawaiian Islands. The shallow-set longline fishery targets swordfish at depths to 100 m and typically operates north and east of the Hawaiian Islands. In 2021 Hawaii longline vessels ranged between 49 and 98 feet in length. The FEP contains a detailed description of the two fisheries (WPFMC 2009, as amended).

Since 1994, the Hawaii longline fleet has been limited to 164 permits, which allow fishing in both the shallow- and deep-set fisheries. Beginning in 2004, vessels were required to declare if they would be shallow or deep fishing prior to departing on a fishing trip. Activity levels in any given year since 2004 range from 11 to 35 vessels in the shallow-set fishery, and 111 to 150 vessels in the deep-set fishery. Nearly all vessels in the shallow-set fishery also participate, to some degree, in the deep-set fishery during the year. In 2021, 146 vessels made 22,074 deep-sets in 1,679 trips and set 62,705,595 hooks, and 18 vessels made 665 shallow-sets in 55 trips and set 827,636 hooks (NMFS 2022a).

Laysan albatross, black-footed albatross, shearwaters, fulmars, boobies, and the endangered short-tailed albatross feed around the Hawaiian Islands in areas where the longline fisheries operate. During the deployment (setting) and retrieval (hauling) of longline fishing gear, hooks and line may occasionally hook or entangle seabirds that attempt to take bait or catch. Seabirds are more likely to drown when the interaction occurs during setting because the weight of the gear may pull the seabird underwater. Although some interactions are inevitable, fishermen take steps to avoid and minimize interactions.

In 2000, NMFS estimated 2,433 seabird interactions in the Hawaii longline fisheries. Beginning in 2001, NMFS implemented a series of seabird mitigation measures, including seabird-deterrent fishing gear and techniques that have reduced interactions. In this report, the statistics on seabird interactions are based on observations from NMFS fisheries monitors, also called observers. In 2021, there were 57 observed interactions in the shallow-set fishery, which has 100% observer coverage, and an estimated 789 interactions in the deep-set fishery, which has approximately 18% observer coverage (McCracken and Cooper 2022). Observer coverage in the deep-set fishery was reduced in 2021 from the usual 20% due to health, safety, and travel restrictions.

Please note that summaries throughout this report and elsewhere may vary slightly depending upon the data source, including revisions. For example, observers may report seabird interactions by date of trip (departure or arrival), set date, or haul date in a given year. NMFS typically bases observer coverage levels on the trip departure date. In 2021, NMFS Sustainable Fisheries Observer Program began accounting for protected species interactions in their [quarterly, semiannual, and annual reports](#) based on the date that the haul on which the interaction occurred began. In previous years, interactions were based on the vessel arrival date. NMFS also provides summary reports from mandatory logbook data reported by captains.

1.2 Seabird Mitigation Measures for the Hawaii Longline Fisheries

Most of the regulations for Hawaii longline fisheries are in Title 50, Code of Federal Regulations, [Parts 600 and 665](#) (50 CFR Parts 600 and 665). Regulations specific to the mitigation of seabird interactions and safe handling techniques are at [50 CFR 665.815](#). NMFS also provides a [regulation summary](#), a [compliance guide for reducing seabird interactions](#), and [seabird handling guidelines](#) to Hawaii longline fishermen and the general public.

The ways that fishermen implement required seabird mitigation measures depend on how and where fishermen fish. Mitigation measures to reduce seabird interactions differ between the two options of stern-setting and side-setting. The following sections describe each of the main gear and operation requirements. The 2012 Biological Opinion (USFWS 2012) also describes these measures.

Stern-Setting versus Side-Setting

Stern-setting is the most common method of deploying longline fishing gear. Crewmen employ a line shooter to set baited hooks from the back of the vessel. Crews that set gear using this method must bait hooks with thawed, blue-dyed bait; attach a weight of at least 45 g within 1 m of the hook on each branch line; strategically discharge fish, fish parts, or spent bait (together known as “offal”); and remove all hooks from offal discharge as seabird mitigation measures.

In side-setting, the crew sets baited hooks forward and close to the side of the vessel’s hull where seabirds are unable or unwilling to pursue the hooks. With required branch line weighting, the baited hooks will have sunk to a depth where seabirds cannot reach them by the time the vessel stern passes the location where baited hooks have been set (Gilman and Brothers 2006; Gilman et al. 2005, 2007a, 2007b). Additionally, deploying a required bird curtain aft of where crew is deploying the gear inhibits seabirds from landing on the water along the side of the vessel where baits are accessible.

Table 1 summarizes the number of Hawaii deep- and shallow-set vessels observed to set from the stern and from the side in 2021, with some vessels operating in both deep- and shallow-set longline fisheries. In 2021, most vessels in the deep-set fishery and all vessels in the shallow-set fishery chose to stern-set.

Table 1: Number of observed Hawaii longline vessels that side- and stern-set in 2021.

Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 09/15/2022

Fishery	Deck setting position	Vessels
Deep-set	Stern-setting	113
Deep-set	Side-setting	20
Shallow-set	Stern-setting	15
Shallow-set	Side-setting	0

Weighted Branch Lines

Fishermen place weights close to the hook on branch lines so baited hooks sink quickly and help prevent foraging seabirds from becoming hooked or entangled in longline gear. When deep-setting north of 23° N (either stern- or side-setting), or shallow- and side-setting anywhere, Hawaii fishermen must attach a weight of at least 45 g within 1 m of the hook to sink the branch line quickly. Fishermen commonly use weights from 45–80 g.

Thawed and Blue-dyed Bait

Dyeing bait to a specific blue color decreases visibility of the bait by reducing its contrast with the sea surface. Fishermen thaw the bait to increase sink rates and to allow a more effective penetration of the blue dye. Almost all bait used in the Hawaii longline fisheries consists of the fishes mackerel (saba), sardines, and saury (sanma). NMFS prohibits the use of squid bait in the shallow-set fishery to reduce sea turtle interactions. While fishermen may still use squid in the deep-set fishery, the squid bait costs more than some fish bait and is, thus, less preferred.

Strategic Offal Discharge

Fishermen developed the technique of strategically discharging offal on the opposite side of the vessel from fishing operations to distract seabirds from attempting to steal baits. NMFS observers in the mid-1990s noted that this technique reduced incidental hooking or entanglement of albatrosses, though recent experience is raising the question of whether offal discharge can have the unintended effect of attracting more seabirds. Further analysis is ongoing. Strategic offal discharge is currently required when stern- and deep-setting north of 23° N, or stern- and shallow-setting anywhere.

Night-Setting

Night-setting as a seabird mitigation measure in the shallow-set fishery is based on the premise that seabirds cannot see baited hooks in the dark and, thus, do not attack them. The measure requires shallow-set fishermen, when stern-setting, to start deploying gear no earlier than one hour after local sunset and complete the set no later than the following sunrise. The measure also requires using the minimum lighting necessary to conform to navigation rules and best safety practices. Night-setting has been a very effective seabird mitigation measure, reducing seabird interactions by as much as 98% (McNamara et al. 1999, Boggs 2003).

Table 2 summarizes the seabird mitigation requirements.

Table 2: Seabird mitigation requirements for the Hawaii longline fleet.

What you need to do	Stern-setting		Side-setting	
	Shallow-set Anywhere	Deep-set North of 23° N	Shallow-set Anywhere	Deep-set North of 23° N
Deploy mainline from port or starboard side at least 1 m forward of stern corner			Yes	Yes
If line shooter is used, mount it at least 1 m forward from stern corner			Yes	Yes
Use a specified bird curtain aft of the setting station during set			Yes	Yes
Deploy gear so that hooks do not resurface			Yes	Yes

What you need to do	Stern-setting		Side-setting	
	Shallow-set Anywhere	Deep-set North of 23° N	Shallow-set Anywhere	Deep-set North of 23° N
Attach 45 g or heavier weights within 1 m of hook of each hook		Yes	Yes	Yes
Use a line shooter to set the mainline		Yes		
Keep two 1-pound containers of blue-dye bait on boat	Yes	Yes		
Use completely thawed and blue-dyed bait	Yes	Yes		
Keep fish parts and spent bait with all hooks removed for strategic offal discard	Yes	Yes		
Cut all swordfish heads in half, and use heads and livers for strategic offal discard	Yes	Yes		
Night set – Begin set 1 hour after local sunset and finish 1 hour before next sunrise and keep lighting to a minimum	Yes			

1.3 Protected Species Workshops

In addition to gear and operational mitigation measures to deter or reduce seabird interactions, owners and operators of pelagic longline vessels must complete a protected species workshop each year (50 CFR 665.814). The workshop includes training in identification, safe handling, and release techniques for sea turtles, marine mammals, and seabirds. The workshop also reviews regulatory and compliance requirements. A valid workshop certificate is necessary to obtain or renew Federal longline fishing permits, and operators must keep a copy of the certificate on board the vessel while fishing. In 2021, NMFS PIRO provided protected species workshop training for 270 Hawaii-based and 40 American Samoa-based longline vessel owners, operators and crew, and other interested individuals.

2. INTERACTIONS

2.1 Species

NMFS observers have recorded the following bird species being hooked or entangled in the longline fisheries since 1994, when NMFS began deploying observers: Laysan albatross (*Phoebastria immutabilis*), black-footed albatross (*P. nigripes*), sooty shearwater (*Puffinus griseus*), unidentified shearwaters, brown booby (*Sula leucogaster*), red-footed booby (*S. sula*), Northern fulmar (*Fulmarus glacialis*), glaucous winged gull (*Larus glaucescens*), and an unidentified gull. None of these species is listed under the Endangered Species Act (ESA). Both Hawaii longline fisheries have low levels of interactions with these species. Based on the population estimates, the fisheries likely have very little effect on these populations.

Some seabirds, especially shearwaters, are difficult to identify. Table 3 provides a summary of seabird specimens that NMFS observers collected for identification and biological study after capture in the Hawaii longline fisheries in 2021. Under normal circumstances, NMFS observers retain as specimens the first dead Laysan and black-footed albatrosses recovered from each trip, any banded Laysan and black-footed albatrosses, and all other non-Laysan and black-footed albatross species recovered dead from fishing operations. Seabird specimens are frozen and shipped to the Marine Wildlife Veterinary Care and Research Center in Santa Cruz, California. Since 2007, staff with the organization Oikonos have been collecting morphometric data on shipped specimens. However, in April 2020, NMFS suspended collection of seabird specimens because of pandemic related shipping disruptions and infrastructure modifications. Other than a few specimens in 2021, consistent collection has not yet resumed.

Table 3: Summary of collected seabirds from the Hawaii longline fisheries, 2021.

Note: Not all dead seabirds are collected as specimens.

Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 9/15/2022.

Species	Number retained
Black-footed albatross	2
Laysan albatross	3
Shearwater	0

2.2 Location and Date of Interactions

Figures 1 and 2 show the spatial distribution of observed seabird interactions in 2021 in the deep- and shallow-set fisheries, respectively. Most of the interactions occur north of 20° N, where seabirds are typically more abundant and fishing effort is more concentrated. Figures 3 and 4 show the quarter of the year during which observed seabird interactions occurred in 2021 and cumulatively since 2004 in the deep- and shallow-set fisheries, respectively. Most of the interactions occurred in the first and second quarters (January through June) in 2021 and since 2004, with few interactions occurring in the third quarter.

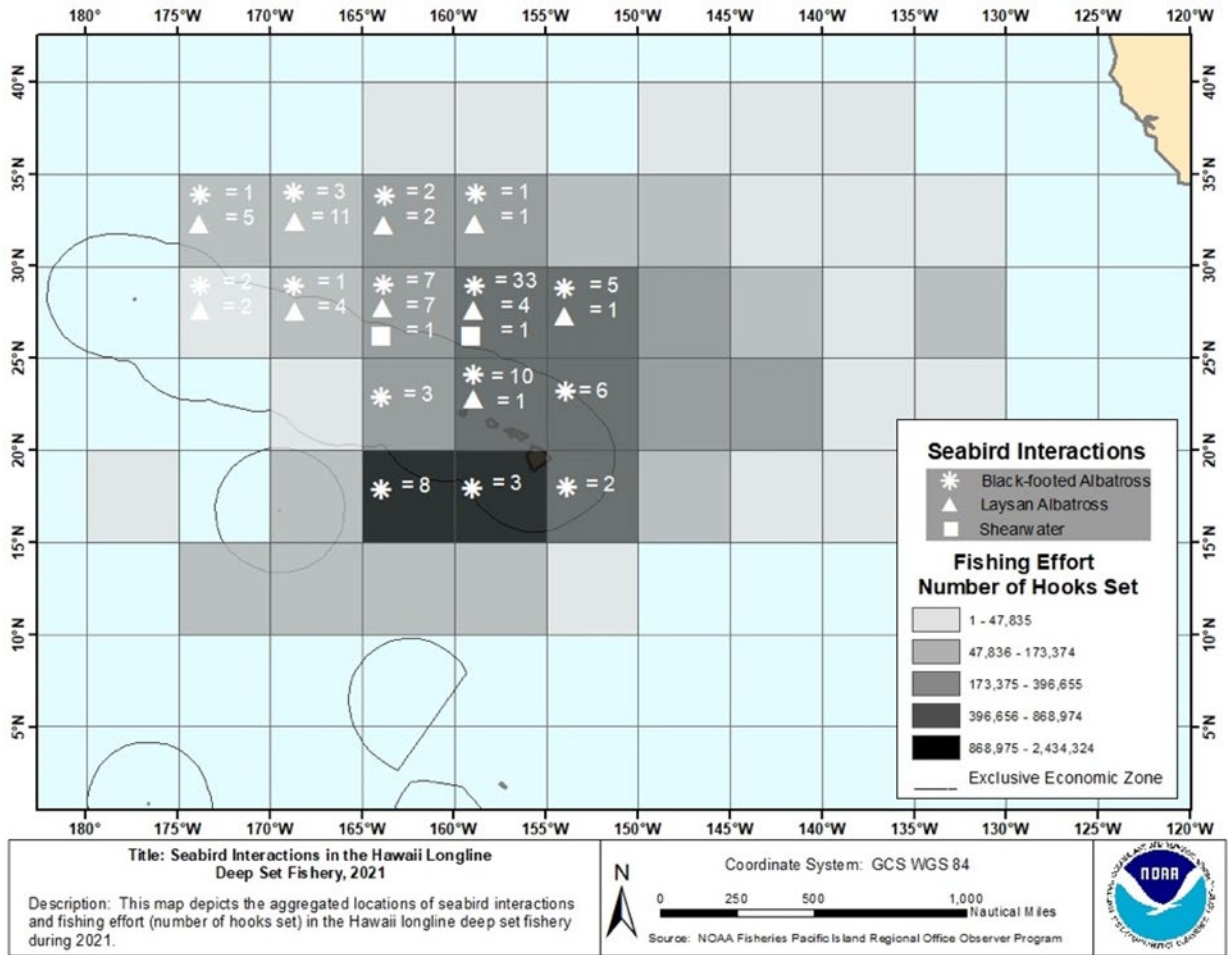


Figure 1: Locations of seabird interactions observed in Hawaii deep-set longline fishery, 2021.

Note: NMFS deployed observers on 17.84% of deep-set trips in 2021

Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 08/11/2022.

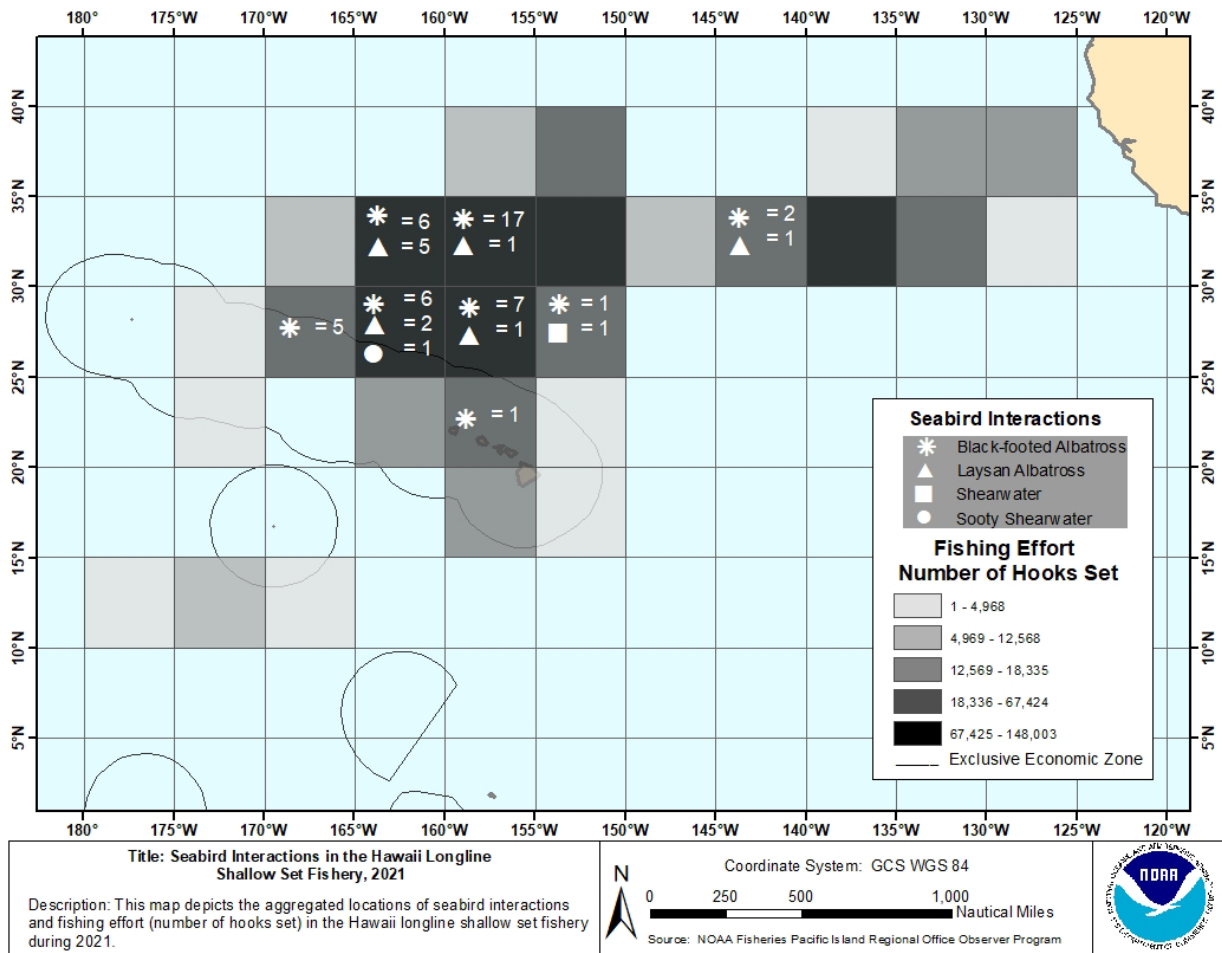


Figure 2: Locations of seabird interactions observed in Hawaii shallow-set longline fishery, 2021

Note: NMFS deployed observers on every shallow-set trip in 2021.

Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 08/10/2022.

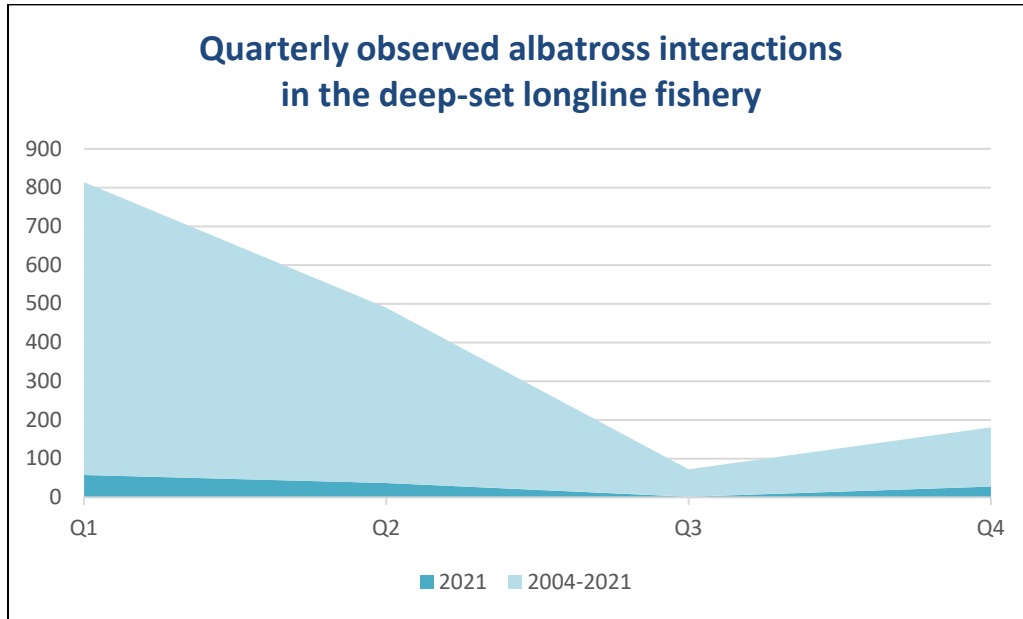


Figure 3: Number of observed seabird interactions in the deep-set longline fishery, 2004-2021 and 2021, in each date by quarter (Q).

Note: Q1 = January 1st-March 31st, Q2 = April 1st-June 30th, Q3 = July 1st-September 30th, and Q4 = October 1-December 31st.

Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 09/26/2022.

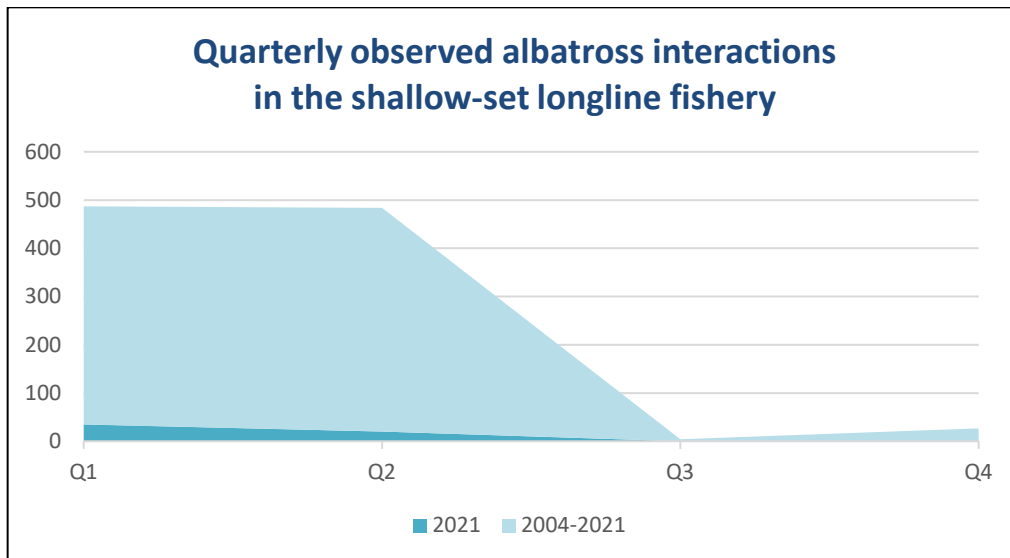


Figure 4: Number of observed seabird interactions in the shallow-set longline fishery, 2004-2021 and 2021, in each date by quarter (Q)

Note: Q1 = January 1st-March 31st, Q2 = April 1st-June 30th, Q3 = July 1st-September 30th, and Q4 = October 1-December 31st.

Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 09/26/2022.

2.3 Number of Interactions and Effort

Seabirds can be hooked, entangled, or both, but are most commonly hooked only. Regulations require fishermen to remove as much gear as is safely possible from any captured seabirds before releasing them. Albatross interactions are relatively rare events in the Hawaii longline fisheries. In 2021, there were no albatross interactions on 87% of observed deep-set trips and 73% of observed shallow-set trips. Table 4 summarizes the number of observed seabird interactions, the condition of the seabirds upon release, and fishing effort in both fisheries from 2004–2021.

During that period, NMFS deployed observers on 100% of shallow-set fishing trips; therefore, the number of interactions shown in Table 4 represents the fishery-wide totals. NMFS deployed observers on about 18% of deep-set trips in 2021, so we expanded the observed interactions using the observer coverage rate to estimate total interactions (Table 5). Figure 5 shows the seabird interaction rate from 2004–2021 based on the data from Table 4.

Table 4: Numbers of observed seabird catch levels, fishing effort, and interaction rates in the combined Hawaii longline fisheries, 2004–2021.

Source: Sustainable Fisheries Observer Program data (unpublished, 8/11/2021 and 9/26/2021) and from the Sustainable Fisheries Observer Program annual reports (NMFS 2022b and NMFS 2022c)

Note: Observed seabird catch and effort are based on the date and time of the beginning of the haul. Interaction rates are calculated and rounded to the nearest thousandths (third decimal) place.

Deep-set Fishery

Year	Laysan albatross	Black-footed albatross	Sooty shearwater	Other or unidentified bird species	Total birds observed caught	Birds released injured and alive	Birds released dead	Total observed effort (hooks)	Seabird interaction rate (birds per 1,000 hooks observed)
2004	2	5	-	2	9	-	9	4,013,212	0.002
2005	6	11	-	1 ¹	18	-	18	9,328,681	0.002
2006	1	17	5	-	23	-	23	7,434,798	0.003
2007	7	18	-	-	25	-	25	7,728,502	0.003
2008	14	30	14	2 ²	60	4	56	8,747,946	0.007
2009	18	23	4	-	45	-	45	7,872,668	0.006
2010	39	17	1	-	57	1	56	8,161,800	0.007
2011	32	13	3	-	48	2	46	8,328,872	0.006
2012	31	36	6	-	73	5	68	8,845,848	0.008
2013	48	49	8	-	105	5	100	9,296,069	0.011
2014	12	38	1	-	51	6	45	9,556,918	0.005
2015	25	101	4	2 ⁴	132	19	113	9,309,682	0.014

Year	Laysan albatross	Black-footed albatross	Sooty shearwater	Other or unidentified bird species	Total birds observed caught	Birds released injured and alive	Birds released dead	Total observed effort (hooks)	Seabird interaction rate (birds per 1,000 hooks observed)
2016	33	104	4	3 ⁵	144	7	137	9,901,279	0.015
2017	38	103	-	1 ⁶	142	13	129	10,190,504	0.014
2018	35	190	9	2 ⁸	236	28	208	11,907,869	0.020
2019	43	145	-	1 ⁹	189	8	181	12,739,655	0.015
2020	59	95	1	1 ¹⁰	156	13	143	8,849,665	0.018
2021	38	87	-	2 ¹²	127	10 ¹⁴	117	11,460,814	0.011

Shallow-set Fishery

Year	Laysan albatross	Black-footed albatross	Sooty shearwater	Other or unidentified bird species	Total birds caught	Birds released injured and alive	Birds released dead	Total observed effort (hooks)	Seabird interaction rate (birds per 1,000 hooks observed)
2004	1	-	-	-	1	1	-	115,718	0.009
2005	62	7	-	-	69	47	22	1,358,247	0.051
2006	8	3	-	-	11	5	6	676,716	0.016
2007	40	8	-	-	48	40	8	1,353,761	0.035
2008	33	6	-	-	39	24	15	1,460,042	0.027
2009	81	30	1	-	112	88	24	1,694,550	0.066
2010	40	38	-	1 ³	79	61	18	1,835,182	0.043
2011	49	19	-	-	68	53	15	1,505,467	0.045
2012	62	37	-	-	99	78	21	1,476,969	0.067
2013	45	28	2	-	75	48	27	1,074,909	0.070
2014	39	32	1	-	72	56	16	1,470,683	0.049
2015	43	38	-	-	81	65	16	1,274,805	0.064
2016	25	40	-	-	65	50	15	796,165	0.082

Year	Laysan albatross	Black-footed albatross	Sooty shearwater	Other or unidentified bird species	Total birds caught	Birds released injured and alive	Birds released dead	Total observed effort (hooks)	Seabird interaction rate (birds per 1,000 hooks observed)
2017	6	53	-	1 ⁷	60	38	22	1,083,216	0.055
2018	2	7	-	-	9	7	2	486,013	0.019
2019	15	19	-	-	34	26	8	374,487	0.091
2020	26	5	-	1 ¹¹	32	32	-	624,579	0.051
2021	10	45	1	1 ¹³	57	45 ¹⁴	12	1,026,373	0.056

Footnote: ¹brown booby; ²red-footed booby and unidentified seabird; ³northern fulmar; ⁴red-footed booby and unidentified shearwater; ⁵two red-footed boobies and one unidentified albatross; ⁶unidentified gull; ⁷glaucous-winged gull; ⁸one brown booby and one red-footed booby; ⁹brown booby; ¹⁰brown booby; ¹¹northern fulmar; ¹²unidentified shearwater; ¹³unidentified shearwater; ¹⁴None of the seabirds released alive in 2021 had any gear attached

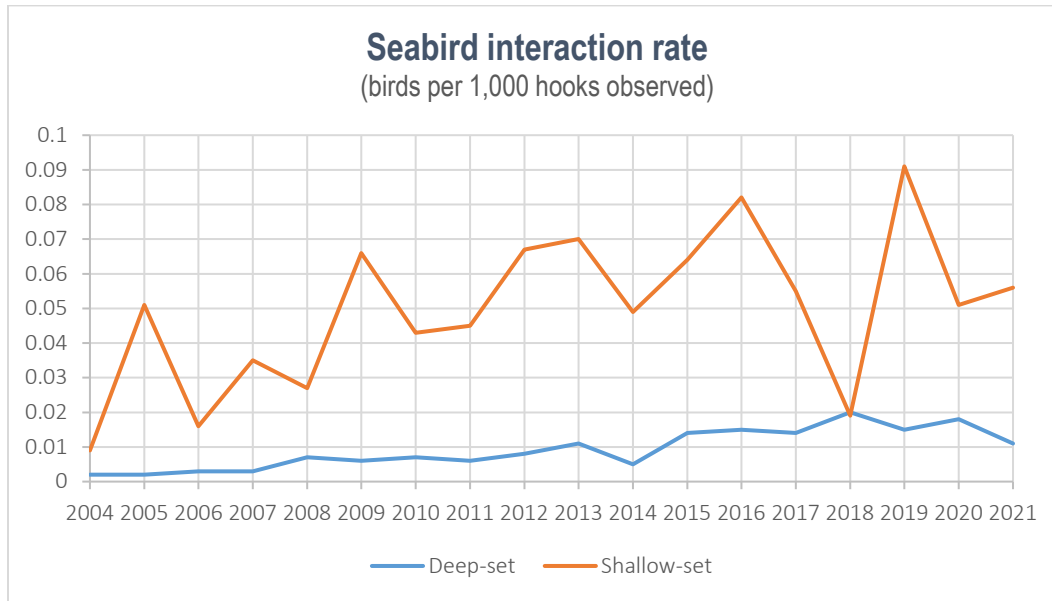


Figure 5: Seabird interaction rates in the deep-set and shallow-set longline.

Almost all interactions in the deep-set fishery occur when fishermen set gear during the day while seabirds are actively feeding. Seabirds may be hooked or entangled and then drown while the gear sinks. Because most seabirds are inactive at night, very few interactions occur when fishermen typically haul deep-set gear. In 2021, in the deep-set fishery, observers documented interactions with 38 Laysan albatrosses, 87 black-footed albatrosses, and 2 unidentified shearwaters (Table 4). Nearly all of the seabirds observed to interact with the deep-set fishery were dead at the vessel (92%). Of those that were released alive, none had any gear left

attached. Table 5 contains the total estimated number of interactions with Laysan albatrosses, black-footed albatrosses, and shearwaters based on observer records for the deep-set fishery in 2021.

Table 5: Estimated total seabird interactions in the Hawaii deep-set longline fishery, 2021.

Note: Table lists point estimates and standard error of the total number of incidental interactions by species in the Hawaii deep-set longline fishery based on observed interactions during 2021. Point estimates are based on the trip arrival date rather than haul date. Source: McCracken and Cooper 2022.

Species	Total annual estimate	Standard error
Black-footed albatross	536	132.3
Laysan albatross	244	99.6
Shearwater	9	6.9

The shallow-set fishery typically sets at night and hauls the gear during the day; therefore, most of the interactions occur when fishermen retrieve the gear and birds are actively feeding. In 2021, the shallow-set fishery interacted with 10 Laysan albatrosses, 45 black-footed albatrosses, 1 sooty shearwater, and 1 unidentified shearwater (Table 4). Nearly all of the seabirds observed to interact with the shallow-set fishery were alive at the vessel (79%). None of the seabirds released alive had any gear attached. These numbers reflect the total catch due to there being 100% observer coverage for this fishery.

When albatross interactions do occur, it is common for more than one albatross interaction to occur per trip, resulting in a large percentage of the annual albatross interactions occurring on a small number of trips. In 2021, 125 albatross in the deep-set fishery were caught over 39 individual trips, and 55 of those albatross (44%) were caught on just 4 individual trips. In the shallow-set fishery, 55 albatross were caught over 16 individual trips, and 23 of those albatross (42%) were caught on just 3 individual trips.

Table 6: Number of observed deep-set and shallow-set longline trips by the number of albatross interactions per trip, 2021. The total number of observed trips in this period was 298 for deep-set and 60 for shallow-set.

Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 10/04/2022.

Deep-set longline			Shallow-set longline		
Number of albatross per trip	Number of trips ¹	% of total albatross caught	Number of albatross per trip	Number of trips ¹	% of total albatross caught
0	259	0	0	44	0
1	18	14.4	1	5	9.1
2	7	11.2	2	3	10.9
3	5	12.0	3	1	5.5
4	2	6.4	4	2	14.5
5	3	12.0	5	2	18.2
>5	4	44.0	>5	3	41.8

Footnote: ¹based on begin haul date

3. ESA-LISTED SEABIRDS

There have been no observed interactions (hooking or entanglement) between the fisheries and any ESA-listed seabirds. The distributions of three seabird species that are protected under the ESA—the endangered short-tailed albatross, the Hawaiian dark-rumped petrel (*Pterodroma sandwichensis*), and the threatened Newell’s shearwater (*Puffinus newelli*)—overlap with the areas where the Hawaii longline fisheries operate. There were five sightings of short-tailed albatross on shallow-set trips in 2021 and one sighting on observed deep-set trips. Figures 6 and 7 show the locations of these sightings compared to the observed fishing effort.

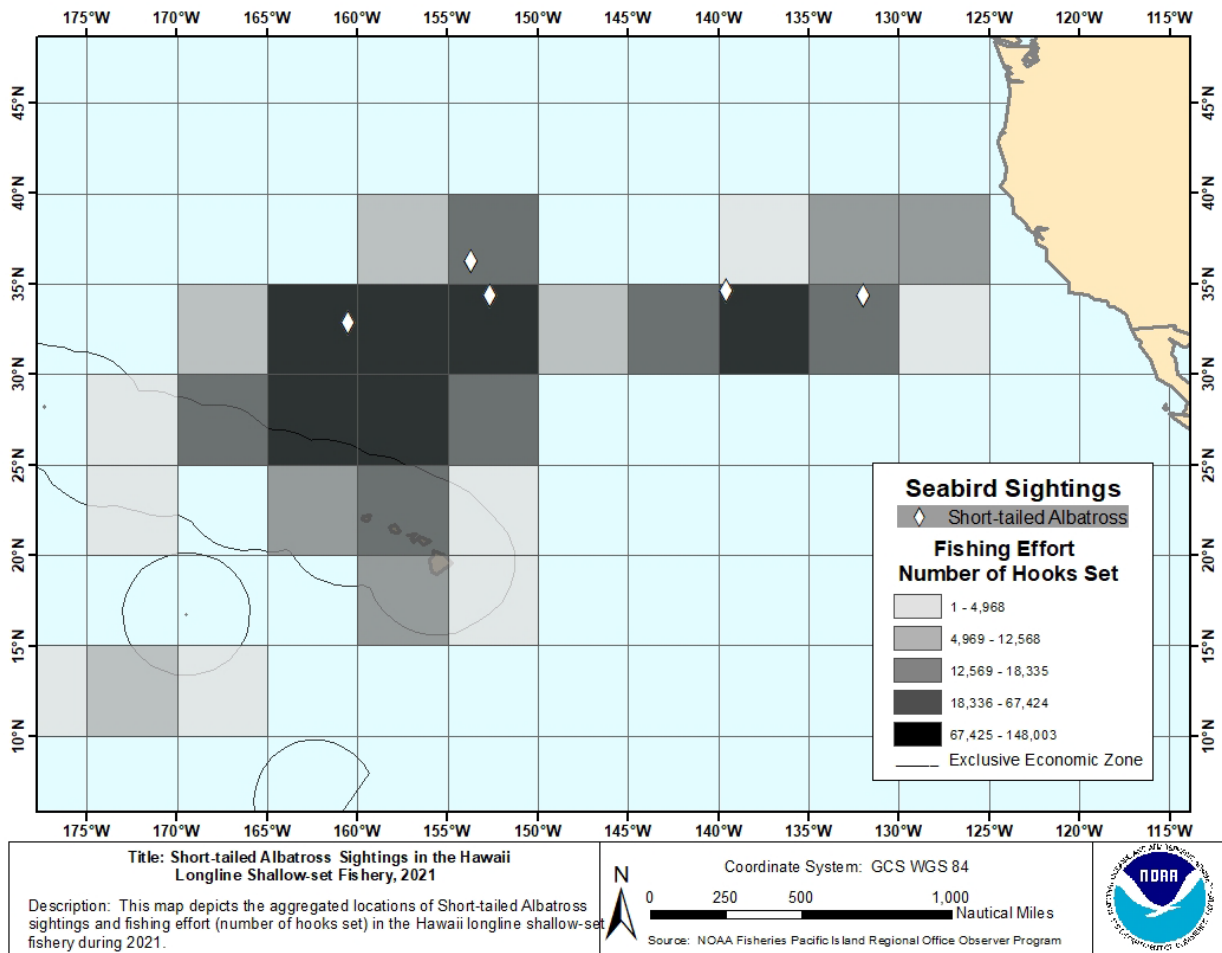


Figure 6: Short-tailed albatross sightings and fishing effort in the Hawaii shallow-set fisheries, 2021.

Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 07/27/2022.

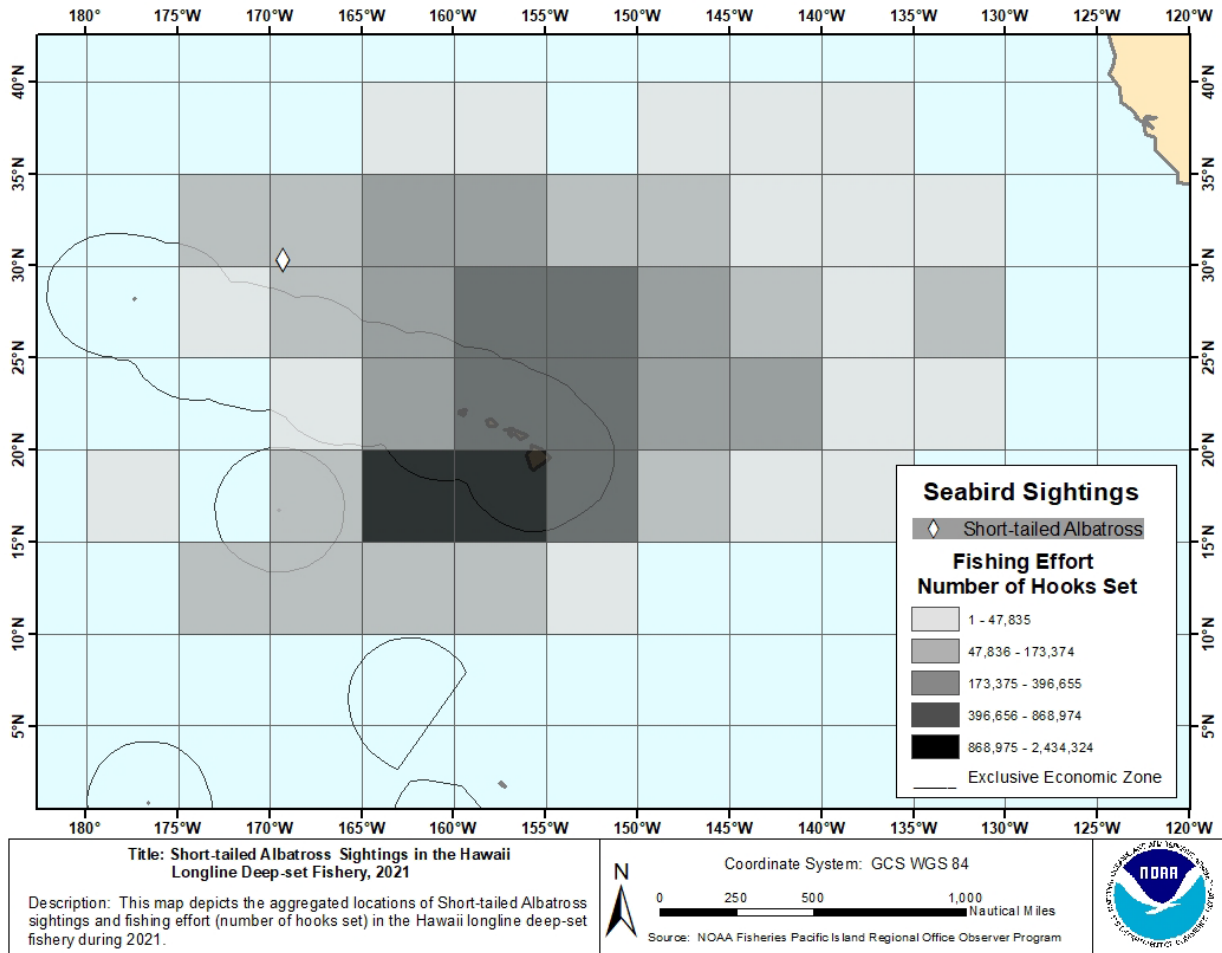


Figure 7: Short-tailed albatross sightings and fishing effort in the Hawaii deep-set fisheries, 2021.
Source: NMFS PIRO Sustainable Fisheries Observer Program, unpublished data, 07/27/2022.

4. RESEARCH AND COUNCIL ACTIONS

Since NMFS introduced seabird regulations to the Hawaii deep-set fishery in 2001, the overall seabird catch rate has declined, with the exception of black-footed albatross catch rates. These rates have been increasing over the past decade. The WPFMC held workshops in 2017 and 2018 to explore the causes of higher black-footed albatross interactions as well as review seabird mitigation requirements and the best scientific information available for the Hawaii longline fishery. The workshops identified certain mitigation measures, including tori lines (bird-scaring streamers), as a high priority for further research and development due to their potential to provide an effective alternative to blue-dyed bait.

In spring 2019, the WPFMC, the Hawaii Longline Association, NMFS Pacific Islands Fisheries Science Center (PIFSC), and PIRO initiated a joint cooperative research project to design and test tori lines in the deep-set longline fishery. The statistically significant results from a 2020 study indicated that tori lines, when used in conjunction with blue-dyed bait and strategic offal discard practices, significantly reduce albatross feeding attempts and contact with longline gear. Project results also indicated that discharging offal and spent bait during setting might exacerbate rather than mitigate seabird catch risk (Gilman et al. 2021).

The WPFMC identified the need for additional research to test the effectiveness of tori lines without blue-dyed bait and offal discharge (WPFMC 2021). This research was conducted under a NMFS experimental fishing permit pursuant to regulations at 50 CFR 556.17 from February to June 2021. The 2021 study conducted a direct comparison of blue-dyed bait and tori lines on Hawaii deep-set longline trips, with offal withheld during the set. The results showed that albatross attempts are 1.5 times less likely, contacts are 4 times less likely, and captures are 14 times less likely on tori line sets compared with blue-dyed bait sets (Chaloupka et al. 2021). Based on the results from these studies, NMFS met with USFWS to discuss how to incorporate the findings into the regulatory process.

At its 189th meeting on December 7–9, 2021, the Council took final action and recommended regulatory amendments to improve the overall operational practicality and mitigation efficacy of required measures for the Hawaii deep-set longline fishery. Specifically, the Council recommended replacing blue-dyed thawed bait and strategic offal discharge measures required for stern-setting deep-set longline vessels with a new tori line requirement. In lieu of a regulatory requirement for a strategic offal discharge measure, the Council recommended implementing best practices training on offal management as part of the annual protected species workshop. The Council additionally recommended tori line regulatory specifications to ensure the tori lines will produce similar results to the lines tested in the two studies. The regulatory package is currently under development.

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