

**Data Report**  
**Hawaii Longline Fishery 2019 Seabird and Sea Turtle Bycatch for the Entire Fishing Grounds, Within the IATTC Convention Area, and Seabird Bycatch for above 23°N and 23°N–30°S**

Marti McCracken<sup>1</sup> and Brett Cooper<sup>2</sup>

<sup>1</sup>Pacific Islands Fisheries Science Center, National Marine Fisheries Service

<sup>2</sup>Joint Institute for Marine and Atmospheric Research, University of Hawaii

The tables in this report include information on sea turtle and seabird bycatch requested by the following: (1) the Pacific Islands Regional Office (PIRO) for their annual review of seabird interactions, (2) the Southwest Regional Office (SWRO) for use in preparing their submission to the IATTC, and (3) the Pacific Islands Fisheries Science Center (PIFSC) for use in preparing their submission to the WCPFC.

Tables 1 through 4 provide the bycatch estimates for seabirds and sea turtles requested by PIRO and SWRO. Table 5 provides the bycatch estimates for seabirds above 23°N and 23°N–30°S requested by PIFSC. Tables 6 and 7 provide the requested information about fishing effort. The estimates and measures of effort are for all longline trips landing in 2019. When computing effort within the IATTC Convention Area for Tables 6 and 7, a fishing operation (set) was considered within the region if at least one of the recorded locations (begin set, end set, begin haul, or end haul) was within the region. The total number of trips within the IATTC Convention Area is the number of trips that had at least one fishing operation (set) in the region. The number of hooks hauled on a fishing operation assigned to the IATTC Convention Area was the number of hooks divided by the number of recorded locations within the area. For example, if the end set and begin haul were located within the area, and the begin set and end haul were located outside the area, the number of hooks hauled was divided by 2 to derive the number of hooks assigned to the area. The total number of hooks within the IATTC Convention Area is the sum of hooks assigned to the area. The methods used to sample the deep-set fishery and compute the point estimate for the fishery are described in McCracken (in prep. *b*), and methods used to estimate the standard errors are described in McCracken (in prep. *a*).

**Table 1. Estimates of the number of incidental interactions of sea turtles for the Hawaii deep-set longline fishery in 2019. Estimates are provided for all species with an observed interaction in 2019 and species of concern because of their endangered species status and history of previous interactions. Estimates are given for the entire fishing grounds and waters within the IATTC Convention Area.**

<b>Species of Sea Turtle</b>	<b>Observed Takes</b>	<b>Point Estimates</b>	<b>Standard Error</b>
<b>Total fishing grounds</b>			
Loggerhead	0	0	4.4
Leatherback	3	14	7.4
Olive Ridley	29	138	24.9
Green	2	12	7.4
<b>Within IATTC Convention Area</b>			
Loggerhead	0	0	1.3
Leatherback	0	0	2.6
Olive Ridley	2	6	4.1
Green	0	0	2.2

**Table 2. Estimates of the number of incidental interactions of seabirds for the Hawaii deep-set longline fishery in 2019. Estimates are provided for all species with an observed interaction in 2019. Estimates are shown for the entire fishing grounds and water waters within the IATTC Convention Area.**

<b>Species of Seabird</b>	<b>Observed Takes</b>	<b>Point Estimates</b>	<b>Standard Error</b>
<b>Total fishing grounds</b>			
Laysan Albatross	45	231	59.9
Black-footed Albatross	146	767	132.6
Brown Booby	1	4	3.9
<b>Within IATTC Convention Area</b>			
Laysan Albatross	0	0	4.5
Black-footed Albatross	27	146	74.7
Brown Booby	1	4	3.9

**Table 3. The number of observed incidental interactions of sea turtles for the Hawaii shallow-set longline fishery in 2019, where the Hawaii shallow-set longline fishery showed 100% observer coverage. Counts are provided for all species with an observed interaction in 2019 and species of concern because of their endangered species status and history of previous interactions. Counts are given for the entire fishing grounds and waters within the IATTC Convention Area.**

<b>Species of Sea Turtle</b>	<b>Observed Takes</b>
<b>Total fishing grounds</b>	
Loggerhead	20
Leatherback	0
Olive Ridley	2
Green	0
<b>Within IATTC Convention Area</b>	
Loggerhead	4
Leatherback	0
Olive Ridley	0
Green	0

**Table 4. The number of observed incidental interactions of seabirds for the Hawaii shallow-set longline fishery in 2019, where the Hawaii shallow-set longline fishery had 100% observer coverage. Counts are provided for all species with an observed interaction in 2019. Counts are given for the entire fishing grounds and waters within the IATTC Convention Area.**

<b>Species of Seabirds</b>	<b>Observed Takes</b>
<b>Total fishing grounds</b>	
Laysan Albatross	15
Black-footed Albatross	19
<b>Within IATTC Convention Area</b>	
Laysan Albatross	0
Black-footed Albatross	1

**Table 5. Observed and estimated number of bycatch events of seabirds for the Hawaii longline fisheries, deep-set and shallow-set combined. Estimates are provided for all species with an observed bycatch event from 2019. Estimates are given for the entire fishing grounds (total), above 23°N, and 23°N–30°S. For the estimates of Laysan Albatross, the total not equaling the sum of the parts is a consequence of rounding error.**

<b>Species of Seabird</b>	<b>Observed Bycatch</b>			<b>Estimated Bycatch</b>		
	<b>&gt;23°N</b>	<b>23°N–30°S</b>	<b>Total</b>	<b>&gt;23°N</b>	<b>23°N–30°S</b>	<b>Total</b>
<b>Laysan Albatross</b>	57	3	60	231	16	246
<b>Black-footed Albatross</b>	137	28	165	642	144	786
<b>Brown Booby</b>	0	1	1	0	4	4

**Table 6. Number of trips, sets, and hooks recorded in the vessel logbook database (Pacific Islands Science Center 2020) and Longline Observer Data System (Pacific Islands Regional Office 2020) for the Hawaii deep-set longline fishery in 2019. Total counts are given for the entire fishing grounds and waters within the IATTC Convention Area.**

<b>Source of Counts</b>	<b>Trips</b>	<b>Sets</b>	<b>Hooks</b>
<b>Total fishing grounds</b>			
Number recorded in logbooks	1,678	22,220	62,975,309
Number recorded in LODS	347	4,697	12,948,077
<b>Within IATTC Convention Area</b>			
Number recorded in logbooks	390	3,790	10,793,769
Number recorded in LODS	81	884	2,535,689

**Table 7. The number of trips, sets, and hooks recorded in the Longline Observer Data System (Pacific Islands Regional Office 2020) for the Hawaii shallow-set longline fishery in 2019, the fishery had 100% observer coverage. Total counts are given for the entire fishing grounds and waters within the IATTC Convention Area.**

<b>Source of Counts</b>	<b>Trips</b>	<b>Sets</b>	<b>Hooks</b>
<b>Total fishing grounds</b>			
Number recorded in LODS	28	312	374,487
<b>Within IATTC Convention Area</b>			
Number recorded in LODS	10	108	140,277

## References

- Pacific Islands Fisheries Science Center. 2020. Hawaii Longline Logbook. <https://inport.nmfs.noaa.gov/inport/item/2721>.
- Pacific Islands Regional Office. 2020. Longline Observer Data System. <https://inport.nmfs.noaa.gov/inport/item/9027>.
- McCracken ML. (in prep. *a*). Interval estimation of annual bycatch in the Hawaii deep-set longline fishery. U.S. Department of Commerce. NOAA Technical Memorandum NMFS-PIFSC.
- McCracken ML. (in prep. *b*). Sampling the Hawaii deep-set longline fishery and point estimators of bycatch. U.S. Department of Commerce. NOAA Technical Memorandum NMFS-PIFSC.