

## **Hawaii Longline Fishery Seabird and Sea Turtle Bycatch Within the IATTC Convention Area<sup>1</sup>**

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The tables in this report include information requested by the NOAA Fisheries Southwest Regional Office for their submission to the IATTC for use in preparing reports concerning seabird and sea turtle bycatch within the IATTC Convention Area.

Tables 1 through 4 provide the requested bycatch estimates for seabirds and sea turtles. Tables 5 and 6 provide the requested information about fishing effort. The estimates and measures of effort are for all longline trips landing in the specified years, 2015 or 2016. When computing effort within the IATTC Convention Area for Tables 5 and 6, 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 that region. The total number of hooks within the IATTC Convention Area is the sum of hooks hauled on fishing operations within the region. The methods used to sample the deep-set fishery and compute the point estimate for the fishery are described in McCracken (in prep.*c*), estimate the standard errors are described in McCracken (in prep.*b*), and compute the estimated bycatch within IATTC Convention Area are described in McCracken (in prep.*a*).

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<sup>1</sup> PIFSC Data Report DR-17-028  
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**Table 1.** Estimates of the number of incidental interactions of sea turtles for the Hawaii deep-set longline fishery in 2015 and 2016. Estimates are provided for all species with an observed interaction in 2015 and 2016, plus species of concern because of their endangered species status and history of past interactions. Estimates are given for the entire fishing grounds and for waters within the IATTC Convention Area.

<b>Species of Sea Turtle</b>	<b>Year</b>	<b>Observed Takes</b>	<b>Point Estimates</b>	<b>Standard Error</b>
<b>Total fishing grounds</b>				
Loggerhead	2016	2	7	6.31
	2015	2	9	6.08
Leatherback	2016	3	15	10.07
	2015	4	18	8.32
Olive Ridley	2016	31	162	25.73
	2015	13	69	15.30
Green	2016	1	5	4.44
	2015	1	4	3.81
Unidentified Hard Shell	2016	1	5	4.55
	2015	0	0	4.36
<b>Within IATTC Convention Area</b>				
Loggerhead	2016	0	0	2.48
	2015	1	3	2.62
Leatherback	2016	0	0	2.82
	2015	0	0	3.69
Olive Ridley	2016	1	5	4.19
	2015	1	3	2.62
Green	2016	0	0	2.06
	2015	0	0	2.34
Unidentified Hard Shell	2016	0	0	2.06
	2015	0	0	1.67

**Table 2.** Estimates of the number of incidental interactions of seabirds for the Hawaii deep-set longline fishery in 2015 and 2016. Estimates are provided for all species with an observed interaction in 2015 or 2016. Estimates are given for the entire fishing grounds and for waters within the IATTC Convention Area.

<b>Species of Seabird</b>	<b>Year</b>	<b>Observed Takes</b>	<b>Point Estimates</b>	<b>Standard Error</b>
<b>Total fishing grounds</b>				
Laysan Albatross	2016	34	166	57.71
	2015	24	119	36.67
Black-footed Albatross	2016	104	485	81.78
	2015	107	541	95.67
Shearwaters	2016	4	21	14.40
	2015	5	21	8.84
Red-footed Booby	2016	2	12	7.59
	2015	1	6	5.72
Unidentified Albatross	2016	1	7	6.08
	2015	0	0	4.36
<b>Within IATTC Convention Area</b>				
<b>Area</b>				
Laysan Albatross	2016	0	0	8.43
	2015	0	0	8.35
Black-footed Albatross	2016	3	12	7.08
	2015	29	153	42.83
Shearwaters	2016	1	5	4.44
	2015	0	0	4.08
Red-footed Booby	2016	0	0	2.48
	2015	0	0	2.34
Unidentified Albatross	2016	0	0	2.06
	2015	0	0	1.67

**Table 3.** Number of observed incidental interactions of sea turtles for the Hawaii shallow-set longline fishery in 2015 and 2016, where the Hawaii shallow-set longline fishery had 100% observer coverage. Counts are provided for all species with an observed interaction in 2015 or 2016, plus species of concern because of their endangered species status and history of past interactions. Counts are given for the entire fishing grounds and for waters within the IATTC Convention Area.

<b>Species of Sea Turtle</b>	<b>Year</b>	<b>Observed Takes</b>
<b>Total fishing grounds</b>		
Loggerhead	2016	16
	2015	15
Leatherback	2016	5
	2015	6
Olive Ridley	2016	0
	2015	1
Green	2016	0
	2015	0
<b>Within IATTC Convention Area</b>		
Loggerhead	2016	14
	2015	11
Leatherback	2016	2
	2015	2
Olive Ridley	2016	0
	2015	0
Green	2016	0
	2015	0

**Table 4.** Number of observed incidental interactions of seabirds for the Hawaii shallow-set longline fishery in 2015 and 2016, where the Hawaii shallow-set longline fishery had 100% observer coverage. Counts are provided for all species with an observed interaction in 2015 and 2016. Counts are given for the entire fishing grounds and for waters within the IATTC Convention Area.

<b>Species of Seabirds</b>	<b>Year</b>	<b>Observed Takes</b>
<b>Total fishing grounds</b>		
Laysan Albatross	2016	26
	2015	45
Black-footed Albatross	2016	40
	2015	41
<b>Within IATTC Convention Area</b>		
Laysan Albatross	2016	17
	2015	7
Black-footed Albatross	2016	29
	2015	4

**Table 5.** Number of trips, sets, and hooks recorded in the vessel logbook database (Fisheries Monitoring and Analysis Program, 2017) and Longline Observer Data System (Pacific Islands Regional Observer Program, 2017) for the Hawaii deep-set longline fishery in 2015 and 2016. Total counts are given for the entire fishing grounds and for waters within the IATTC Convention Area.

<b>Source of Counts</b>	<b>Year</b>	<b>Trips</b>	<b>Sets</b>	<b>Hooks</b>
<b>Total fishing grounds</b>				
Number recorded in logbooks	2016	1,419	19,315	50,873,134
	2015	1,385	18,409	47,331,741
Number recorded in LODS	2016	283	3,880	9,872,439
	2015	283	3,725	9,393,436
<b>Within IATTC Convention Area</b>				
Number recorded in logbooks	2016	358	4,325	11,924,491
	2015	443	5,287	14,013,240
Number recorded in LODS	2016	62	749	1,984,712
	2015	88	1,065	2,732,152

**Table 6.** Number of trips, sets, and hooks recorded in the Longline Observer Data System (Pacific Islands Regional Observer Program, 2017) for the Hawaii shallow-set longline fishery (fishery has 100% observer coverage) in 2015 and 2016. Total counts are given for the entire fishing grounds and for waters within the IATTC Convention Area.

<b>Source of Counts</b>	<b>Years</b>	<b>Trips</b>	<b>Sets</b>	<b>Hooks</b>
<b>Total fishing grounds</b>				
Number recorded in LODS	2016	43	778	849,681
	2015	67	1,177	1,286,628
<b>Within IATTC Convention Area</b>				
Number recorded in LODS	2016	26	417	447,627
	2015	43	707	770,887

## References

Fisheries Monitoring and Analysis Program (2017), Hawaii Longline Logbook, PIFSC, National Marine Fisheries Service, Honolulu, Hawaii.

<https://inport.nmfs.noaa.gov/inport/item/2721>

Pacific Islands Regional Observer Program (2017), Longline Observer Data System, Pacific Islands Regional Office, Honolulu, Hawaii.

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McCracken, M. L. (in prep.*b*), Interval estimation of annual bycatch in the Hawaii deep-set longline fishery, Technical report, PIFSC, NOAA, U.S. Department of Commerce.

McCracken, M. L. (in prep.*c*), Sampling the Hawaii deep-set longline fishery and point estimators of bycatch, Technical report, PIFSC, NOAA, U.S. Department of Commerce.