

Data Report
Estimation of Bycatch with Bony Fish, Sharks, and Rays in the 2020 Hawaii Permitted Shallow-set Longline Fishery

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The attached Excel Workbook (pir.hllss.fish.2020.xlsx) includes annual bycatch estimates for 2020. The workbook includes a worksheet labeled “key” that provides definitions of the column headings and the items being estimated. Species with no observed bycatch in 2020 are excluded from the report, other than species of rays. The observed and estimated numbers were derived using the Hawaii Longline Logbook Data Set (Pacific Islands Fisheries Science Center, 2021) and the Longline Observer Data System (Pacific Islands Regional Office, 2021).

Although there was 100% observer coverage in the Hawaii Permitted Shallow-set Longline Fishery for 2020, the observer records for one of the trips were stolen before being entered into the database. The observer confirmed that there was no bycatch of mammals, seabirds, or sea turtles on this trip, so in another report those species’ bycatch totals are considered known with no standard error (McCracken and Cooper, 2021). However, the totals and standard errors for sharks, rays, and bonyfish have been estimated for the missing trip.

To create these estimates, the bycatch team found 5 trips, among 4 unique permit numbers, that fished within approximately 300 miles and within a timeframe of 1.5 months before and after the trip to be estimated. All other shallow-set trips occurred farther out in either distance or time. The fish bycatch for these 5 proxy trips was averaged to estimate the bycatch for the trip with missing data, and the standard error was calculated as the standard deviation for the bycatch to the 5 proxy trips. If a species was not bycatch on one of these 5 proxy trips, then its point estimate for the missing trip is zero and its standard error is recorded as NA.

Adding these estimates to the observed totals provides the point estimates and standard errors for the bycatch of the entire fishery for 2020.

References

McCracken, M. and Cooper, B. (2021). Hawaii Longline Fishery 2020 Seabird and Sea Turtle Bycatch for the Entire Fishing Grounds, Within the IATTC Convention Area, and Seabird Bycatch to the North of 23°N and 23°N–30°S. Pacific Islands Fisheries Science Center. PIFSC Data Report DR-21-005.

Pacific Islands Fisheries Science Center, 2021: Hawaii Longline Logbook, <https://www.fisheries.noaa.gov/inport/item/2721>.

Pacific Islands Regional Office, 2021: Longline Observer Data System, <https://www.fisheries.noaa.gov/inport/item/9027>.