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TO: The 2023 Biological Opinion for the Authorization of the Hawaii Deep-Set Longline Fishery Record Files

FROM: Sarah Malloy

Regional Administrator

DATE: February XX, 2025

SUBJECT: Correction to the Incidental Take Statement for insular false killer whales in the 2023 Hawaii Deep-set Longline Fishery Biological Opinion

The 2023 Hawaii Deep-set Longline Fishery (DSL) biological opinion contained the following term and condition (T&C) for Main Hawaiian Islands insular false killer whales (MHI IFKW):

T&C 2.a.5 “To improve NMFS' understanding of and estimates of interactions with MHI IFKW in the overlap area, within one year NMFS will determine the minimum level of observer coverage reliable for estimating MHI FKW interactions with the DSL vessels. If the current level of observer coverage is below this level, within two years provide observer coverage at the level determined reliable.”

The first part of this T&C was completed with a PIFSC report (Ahrens 2024) specifying that, given the small area of the overlap with corresponding low numbers of sets and the rare nature of false killer whale interactions in the DSL, observer coverage greater than 90% would be needed in the overlap for reasonable statistical reliability of the number of false killer whale captures. This contrasts with the minimum of 27% for FKW throughout the fishery estimated using a similar approach by Ahrens and Crigler (2024). All of the other ESA-listed species affected by the DSL and considered in the biological opinion are captured throughout the full area of the fishery and are captured in numbers high enough that the existing observer coverage as of the 2023 biological opinion (i.e., 20% coverage), while not ideal for rarer species, is reasonably adequate to assess total captures for the fishery (Ahrens and Crigler 2024). MHI IFKW, however, only occur in an area that represents 5% of the total fishing area (i.e., the overlap area) and there are only an estimated 144 to 187 individuals in the population, making interactions with the fishery extremely rare events that are difficult to detect without a very high level of observer coverage.

Achieving this level of coverage is not feasible because, with the current level of resources available for observers, NMFS anticipates an observer coverage of 7% for the entire fishery in



2025; diverting effort to cover 90% of overlap effort would weaken the statistical design for random observer coverage in the remaining fishery. Given that >90% observer coverage for the overlap is not feasible, we propose to use a surrogate for the amount of anticipated take which is consistent with the regulations implementing the ESA (50 CFR 402.14(i)(1)(i)). In this case, we propose to use the annual number of DSLL fishery sets that occur in the overlap. We define a fishery set to be the full cycle from the start of deploying the fishing gear (i.e., the set) to the end of retrieving the deployed gear (i.e., the haul). To use a surrogate, we must: 1) describe the causal link between the surrogate and take of listed species, 2) explain why it is not practical to express the amount of take or to monitor take in terms of individuals of the list species, and 3) provide a clear standard for determining when the level of anticipated take has been exceeded (50 CFR 402.14(i)(1)(i)). Above we explain that the level of observer coverage is not adequate to monitor take in terms of individuals. Below we specify how we are meeting the other two requirements.

The Causal Link Between Fishery Sets and the Take of MHI IFKW

Using observed FKW captures and observed sets, Ahrens (2024) calculated an interaction rate of 0.0025 (95% CI: 0.00195 to 0.0032) FKW captures per fishery set from August 2016 to 2022 for the full fishery¹. The overlap area is used by both pelagic FKW and MHI IFKW. In their annual stock assessment reports under the Marine Mammal Protection Act (Caretta et al., 2024), NMFS relies on density estimates of 0.09 whales per 100 km² for pelagic FKW (Bradford et al., 2020) and 0.10 whales per 100 km² for MHI IFKW (Bradford et al., 2018) to partition potential DSLL fishery captures between the two populations. In the biological opinion we used the values reported in the most recent stock assessment report (Caretta et al., 2022) to estimate MHI IFKW captures in the DSLL, hence the data presented in the biological opinion were based on these proportions. These proportions imply that 48% of FKW in the overlap are from the pelagic stock while 52% are IFKW. Using this information we can infer an MHI IFKW interaction rate of 0.0013 (0.0025*[52%/100]; 95% CI: 0.00195 to 0.0032) whales per fishery set in the overlap.

Based on annual fishery sets in the overlap, DSLL FKW interaction rates, and the ratio of pelagic FKW to IFKW in the overlap, we estimate there was a mean of 0.064 (95% CI: 0.031 to 0.095) MHI IFKW captures per year from 2017 to 2023 with a maximum 5-yr running annual average of 0.067 (95% CI: 0.052 to 0.086) captures (Tables 1 and 2).

In the biological opinion, we analyzed the maximum 5-yr running average of 0.085 captures per year or 0.427 total captures over 5 consecutive years. The jeopardy analysis determined that the DSLL fishery will not appreciably reduce the likelihood of the survival or recovery of MHI IFKWs in the wild by reducing their reproduction, numbers, or distribution at that level of capture. Based on the best scientific and commercial data available today, with an interaction rate of 0.0013 MHI IFKW per set, 0.085 captures would be reached at 65 fishery sets and 0.427 captures over 5 years would be reached at 328 fishery sets. Therefore, if the 5-yr running sum of fishery sets in the overlap remains at or below 328 fishery sets, the effects of the action do not affect listed species or critical habitat in a manner or to an extent not previously considered and our conclusions in the 2023 biological opinion remain valid. This is because for 328 fishery sets

¹ This does not constitute new information; NMFS (2023) did not address captures in terms of interaction rates in the 2023 biological opinion. While there is a general lack of correlation between fishery effort and the annual number of captures (McCracken 2019, NMFS 2023), interaction rates (i.e., captures per set) for FKW are relatively consistent over time, making this an appropriate metric to use for this analysis.

in the overlap, we anticipate the capture of 0.82 FKW (328×0.0025), 52% of those will be MHI IFKW or the capture of 0.4264 MHI IFKW over 5 years which is equivalent to, though slightly less than, what was analyzed in the biological opinion. Two key components of this analysis justifying 328 fishery sets over 5 years as a surrogate are 1) the fishery interaction rate with FKW and 2) the density of FKW in the overlap area. If new information arises indicating that these values have changed to an extent that our analysis is no longer valid, we would consider this new information revealing effects of the action that may affect MHI IFKW to an extent not previously considered which may be a reinitiation trigger.

Table 1. Observed and total sets in the overlap from 2017 to 2023 with the subsequent estimates of FKW captures based on an interaction rate of 0.0025 whales per set and 52% of FKW in the overlap being MHI IFKW.

Year	Sets in Overlap	5-yr Running Sum of Sets	Observed Sets in Overlap	Observer Coverage	Est FKW Captures	MHI IFKW Captures	5-yr Running Average of MHI IFKW Captures
2017	57	- ¹	13	22.8%	0.143	0.074	- ¹
2018	92	- ¹	25	27.2%	0.230	0.120	- ¹
2019	2	- ¹	1	50%	0.005	0.003	- ¹
2020	15	- ¹	4	26.7%	0.038	0.020	- ¹
2021	91	257	15	16.5%	0.228	0.118	0.067
2022	35	236	7	20%	0.088	0.046	0.061
2023	53	197	8	15.1%	0.133	0.069	0.051

¹Cells empty because there cannot be a 5-year running average until 2021, which represents the average of 2017-2021.

Table 2. Annual average with lower (LCI) and upper (UCI) 95% confidence intervals for metrics relating to the number of sets and FKW captures in the overlap area from 2017 to 2023 (using data presented in Table 1).

	Sets in Overlap	Observed Sets in Overlap	Observer Coverage	Est FKW Captures	MHI IFKW Captures
Average	49.3	10.4	25.5%	0.123	0.064
LCI	23.5	4.5	16.7%	0.059	0.031
UCI	72.8	14.9	42.2%	0.182	0.095

Monitoring to Determine if Anticipated Take Levels are Exceeded.

Monitoring the number of sets in the overlap area can be done in a timely manner using the existing logbook program. Ahrens (2024) used five geographic points to determine if a set occurred in the overlap. Four of these points are from the logbook data and are the beginning and end locations of the set and the haul. The centroid of a polygon created from these four points is the fifth geographic point. A fishery set is considered to have occurred in the overlap if any one of these five points falls within the boundaries of the overlap. PIFSC will share computer code with SFD that will automate the identification of overlap sets from the logbook data using the same method as Ahrens (2024). SFD will set up quarterly data requests with one month delay for the logbook data and track sets in-year, producing a final value once the logbook data are finalized, generally in March of the following year.

Changes to the 2023 ITS:

IFKW will be removed from Table 54 of the 2023 ITS, with the following language inserted into Section 7.2:

“Where it is not practical to monitor take-related impacts in terms of individuals of the listed species, a surrogate (e.g., similarly affected species or habitat or ecological conditions) may be used to express the amount or extent of anticipated take [50 CFR 402.14(i)(1)(i)]. When using a surrogate, we must describe the causal link between the surrogate and take of the listed species, explain why it is not practical to monitor take in terms of individuals of the listed species, and set a clear standard for determining when the level of anticipated take has been exceeded.

Take of IFKW caused by incidental captures cannot be practicably monitored because diverting observer coverage to meet the required level of observer coverage in the overlap area (>90%) would negatively impact the statistical study design for observer coverage in the full fishery, potentially invalidating the ability to make inferences about estimated total captures for the remaining protected species.. The best available surrogate for incidental captures of IFKW is the 5-yr running sum of sets in the overlap area (328). This surrogate is connected causally to the amount of take that will occur because increasing the number of sets in the overlap area translates into a proportional increase in the probability of incidental capture. This number of sets can also be easily monitored, allowing the surrogate to serve as a clear reinitiation trigger. As the biological opinion was signed in 2023, the first 5-yr term of the ITS will be from January 1, 2023, to December 31, 2027.”

T&C 2.a.5. Will be replaced with:

“To improve NMFS' understanding of and estimates of interactions with MHI IFKW in the overlap area, NMFS SFD will report the number of sets and the 5-yr running sum of sets within the IFKW overlap area each year as part of the annual report described in 2b.”

References

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