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Alecia Van Atta, Assistant Regional Administrator
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Dear Lisa,

I am writing to comment on the draft negligible impact determination and the proposal to issue a permit for the incidental taking of endangered main Hawaiian Islands (MHI) false killer whales (hereafter false killer whales or MHI false killer whales) in the Hawai‘i deep-set and shallow-set longline fisheries. Authorization of incidental take of ESA-listed species can occur if a variety of conditions are met, including a "negligible impact determination", and the existence of an adequate monitoring program. The negligible impact determination for false killer whales was made under Criterion 3, which applies if 1) total fisheries-related mortality and serious injury (M&SI) is greater than 10% of the Potential Biological Removal (PBR) level but less than PBR, and 2) if the population is stable or increasing. In the case of false killer whales, evidence suggests that neither of these assumptions are met. In addition, the monitoring program in place is not adequate to produce reliable estimates of M&SI of MHI false killer whales, and not all sources of human-related mortality are considered. I address all of these factors below.

Total fisheries-related M&SI likely exceeds PBR for MHI false killer whales

There are several lines of evidence that suggest total fisheries-related M&SI exceed PBR. Results presented by McCracken (2014) indicate that M&SI in the longline fisheries likely exceeds PBR, and results presented by Baird et al. (2014) also suggest that false killer whales are interacting with other fisheries to an extent that may exceed PBR. McCracken (2014) reports the amount of longline effort inside the population boundary (140 km) from 2008 through 2012, as well as the reduced amount inside the population boundary that is now open to longline fishing after the Take Reduction Plan (TRP) was put in place (the "open area"). During the Take Reduction Team (TRT) we learned that longline vessels often fished as close to shore as possible due to economic reasons. This applies particularly to smaller vessels as well as to times of the year when demand is high (e.g., before holidays). In McCracken's (2014) analysis predicting future bycatch, she used two main effort scenarios, 600,000 hooks, close to the average amount of effort over the 2008-2012 period in the "open area" (mean = 635,620 hooks), and 1,000,000 hooks, close to the maximum amount of effort inside the "open area" during that period (1,014,775 hooks). The estimates are far below the amount of effort inside the 140 km population boundary during that period (mean = 1,308,039 hooks, maximum = 1,893,507 hooks). McCracken's (2014) predictions of "DSI" (equivalent to M&SI) for 600,000 hooks was 0.27 individuals per year, while her prediction of DSI for 1,000,000 hooks was ~0.45 individuals per year. Note both of these estimates do not account for unidentified cetaceans that are hooked and break away with gear attached, even though some proportion of these individuals are likely false killer whales. The estimate of 0.45 individuals per year exceeds the PBR of 0.3 for MHI false killer whales. Given that a large proportion of the effort that previously occurred inside the 140 km boundary but outside of the "open area" is likely to be shifted offshore into the "open area", McCracken's (2014) prediction of 0.45 individual DSIs per year is more relevant to assessing whether total fisheries-related M&SI exceeds PBR.

Furthermore, based on prevalence of scars consistent with fisheries interactions, Baird et al. (2014) provide evidence that the individual rate of fisheries interactions for MHI false killer whales may exceed that for pelagic false killer whales, where M&SI is known to exceed PBR[1]. In addition, there is a sex bias in fisheries-related scarring for MHI false killer whales; all sexed individuals with scars consistent with fisheries interactions were females. This bias suggests that estimates of M&SI may be negatively biased – if a female involved in a fatal fisheries interaction has a dependent calf, it is probable the calf may not survive, thus effectively resulting in two mortalities.

Evidence of fisheries interactions with non-longline fisheries comes from a MHI false killer whale that stranded in October 2013 with five fish hooks in the stomach, at least three of which were hook types not used in the longline fishery. Combined with observations of depredation in nearshore fisheries (reviewed in Oleson et al. 2010), this indicates that at least some proportion of fisheries interactions for this population are not with longline fisheries. While histopathology results did not implicate hook ingestion as a cause of death of that individual (K.L. West, unpublished data), Wells et al. (2008) noted that mortality of bottlenose dolphins from ingested fishing gear was not immediate, and may occur when animals attempt to regurgitate ingested gear that may then embed in the throat, mouth, or goosebeak. Thus whether the stranded animal did or did not die because of the hooks is not relevant to the issue of whether interactions with non-longline fisheries may lead to M&SI.

Under Criterion 3 of a negligible impact determination, it notes that "as M&SI approach the PBR level, NMFS must consider the importance of uncertainties in such elements as [ ] fisheries-related mortalities". The multiple lines of evidence noted above indicate that total fisheries-related M&SI likely exceeds PBR.

There is no evidence the MHI false killer whale population is stable or increasing

Oleson et al. (2010) summarize a variety of evidence that indicate that the MHI false killer whale population declined between the late 1980s and the early 2000s. Subsequent to that review, Silva et al. (2013) analyzed sighting data from Maui County from 1995 through 2011. They report that "the number of sightings per hour of effort across all three methods of data collection suggest that the rate of encounter of false killer whales in leeward Maui County waters in 1995 was over five times greater than in 2011. Despite some variation through the years, our data strongly supports the hypothesis of a population decline". While our understanding of population size for

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[1]Statistical analyses subsequent to the preparation of the Baird et al. (2014) document show that MHI individuals have significantly higher levels of scarring consistent with fisheries interactions than either pelagic or NWHI false killer whales (Fisher's exact test, $p = 0.032$). In addition, the sex bias in individuals with scarring consistent with fisheries interactions is also significant (Sign test, $p = 0.016$). A copy of a manuscript submitted for publication with these analyses (Baird et al. submitted) is provided as an attachment.

MHI false killer whales is improving over time as continued research has identified the existence of strong social groupings within the population (Baird et al. 2012), it cannot be concluded from preliminary mark-recapture abundance estimation based on photo-identification (Baird et al. 2013) that the population is either stable or increasing.

The monitoring program in place is inadequate for estimating M&SI of MHI false killer whales

In terms of the existence and adequacy of a monitoring program, the Federal Register notice for the proposal notes that "levels of observer coverage vary over time but are adequate to produce reliable estimates of M&SI of ESA-listed species". While this statement is likely true for other ESA-listed species considered in the proposal (e.g., humpback whales, sperm whales), this statement is incorrect in regards to MHI false killer whales. With species whose distribution broadly overlaps the area of longline fishing (e.g., humpback whales, sperm whales), and with relatively large values for PBR (humpback whales 61.2; sperm whales 10.2) the 20% observer coverage in the deep-set longline fishery should be sufficient to assess whether takes are close to or exceed PBR with reasonable confidence. However, as the size of the area of overlap between the fishery and the population in question shrinks, the total amount of effort decreases and the likelihood of sufficient observer coverage to provide reasonably precise estimates of bycatch also decreases. Given the small PBR for MHI false killer whales (0.3 individuals per year), and the relatively small overlap between the fishery and the populations' range, there is insufficient observer coverage within the "open area" to produce a reliable estimate of longline M&SI for the MHI population. An assessment of the amount of observer coverage within the "open area" relative to the amount of fishing effort is required, as is an analysis to determine the sample size of observer coverage required within that area to have a reasonable probability of detecting bycatch that may approach or exceed PBR for the MHI false killer whale population. In addition, given the evidence for interactions with nearshore fisheries outlined above, efforts should be made to monitor bycatch in nearshore fisheries.

All other potential sources of human-related M&SI are not considered

The draft negligible impact determination notes that "the total human-related M&SI calculated to make a negligible impact determination for this authorization include all human sources, such as commercial fisheries and ship strikes". One additional source of human-related mortality is not considered however, i.e., mortality from impacts of persistent organic pollutants. Bachman et al. (2014) present results from analyses of a MHI false killer whale that stranded in 2010; at the time of their analyses the only MHI false killer whale that had been necropsied. This individual, a 24 year-old female, was considered "highly contaminated", with "concentrations of ∑PCBs and ∑DDTs well above the range of other free-ranging adult females" from the same population (Ylitalo et al. 2009). This individual had ∑PCBs of 26,200 (ng/g lipid), which exceeds the "safe upper PCB threshold concentration of 17,000 ng/g, lipid for PBCs in blubber based on a number of studies" (Ylitalo et al. 2009). Bachman et al. (2014) note that this individual was "emaciated and showed signs of adrenal pathologies", and "the cause of stranding was described as adrenocortical dysfunction leading to chronic debilitation." Furthermore, they note "It is plausible that the high contaminant exposure may have contributed to the health issues … since enlarged adrenal glands and increased corticosterone production have been seen in laboratory studies exposing animals to PBCs … and altered adrenal physiology in marine mammals exposed to high organochlorine levels". Of the nine individuals from the MHI false killer whale population analyzed by Ylitalo et al. (2009), three individuals, all males, had ∑PCBs exceeding the safe threshold concentration noted above. Since Ylitalo et al.'s (2009) analysis, samples from

31 additional individuals from this population have been analyzed, with mean ∑PCBs of 30,186 ng/g lipid (Foltz et al. in press). Of these, 23 individuals, including 11 females, have been documented with ∑PCBs exceeding the threshold of 17,000 ng/g lipid (Ylitalo et al. unpublished). Mean levels of ∑PCBs in these 23 individuals were 37,636 ng/g lipid (maximum = 108,596). As noted by Bachman et al. (2014) and numerous other authors, such high levels of persistent organic pollutants may have health impacts and thus potentially contribute to mortality. As such, this source of human-related mortality should be considered in the negligible impact determination.

In summary, information outlined above indicates that a negligible impact determination for MHI false killer whales is not supported by available data.

Thank you for the opportunity to provide comments.

Best regards,

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