

December 29, 2017

Susan Pultz
Protected Resources Division
National Marine Fisheries Service
Pacific Islands Regional Office
1845 Wasp Blvd., Bldg. 176
Honolulu, HI
96818

Dear Susan,

I am writing to provide relevant information and to comment on the main Hawaiian Islands (MHI) insular false killer whale (IFKW) Critical Habitat Proposed Rule as published in the Federal Register on November 3, 2017. As noted in the proposed rule and in the associated draft biological report, information on the spatial use and high-density areas of this population primarily comes from satellite tag data collected as part of a long-term research program on this species (Baird et al. 2010, 2012; Baird 2016). Satellite tag data has been used to define the range of this population around the main Hawaiian Islands (Bradford et al. 2015), an area of 188,262 km², and the proposed rule considered marine habitats between the depths of 45 and 3,200 m, an area of 56,821 km², representing 30% of the populations' range.

In order to assess the importance of areas that will be excluded from the proposed critical habitat, as well as areas that were yet to be considered under ESA section 4(b)(2) at the time of the proposal (Areas 1-6), a number of analyses of satellite tag data available from the endangered main Hawaiian Islands population were undertaken¹. This includes a larger sample size and several analyses in addition to those included in the draft biological report. We estimated the amount of time whales spent in each of the exclusion areas and Areas 1-6, following the approach published in Baird et al. (2012)². To allow for a comparison of areas of different sizes,

¹ Location data from 43 tag deployments from this population are available from August 2007 through August 2017. When there were multiple tags transmitting over the same period, an assessment was undertaken to exclude individuals that were acting in concert, following the methods of Baird et al. (2010), resulting in data being available from 30 individuals. This sample includes tag data from all the individuals considered in the draft biological report (n=27) as well as data from three additional individuals (one tagged in October 2016 and two tagged in March 2017) that were not available at the time of the drafting of the biological report. Importantly, the additional data from 2017 help to fill a seasonal gap in the spring (Mar-Jun). The dataset includes 20 tag deployments on individuals from Cluster 1, one from Cluster 2, seven from Cluster 3 and two from Cluster 4 (formerly considered Cluster 1b, see Baird 2016). Thus, the sample is strongly biased towards one of the four known social clusters in the population.

²Using GIS shapefiles provided by NOAA Fisheries we calculated the size and the amount of time spent in each area. Amount of time spent included a "late start" as outlined by Baird et al. (2012), to reduce tagging location bias, and also excluded any data for tags after duty cycling began with tags transmitting at greater than two-day intervals. These exclusions resulted in tag data being available for 1,488.8 days (4.1 years).

we normalized the resultant values for time spent by the size of each area, expressed as the number of days spent per 100 km². For each of the areas we calculated the size (in km²) and determined what proportion of the populations' range they represent. We also calculated what percentage of the tagged animals' time was spent in each area (using the time spent analysis noted above). Given the large size of some of the exclusion areas (e.g., the BOEM South Call Area - 1,341 km²) and some of Areas 1-6 (e.g., Area 6 - 4,381 km²), we also overlaid the tagged animal tracklines to assess spatial use within these areas. Finally, to identify important travel areas, we calculated the number of times tagged animals passed through each area, and normalized these values to account for differing area sizes, presenting results as the number of visits per 100 km². From these analyses, while some of the areas are not regularly used by MHI IFKWs, some of the areas do appear to be particularly important to the population and their exclusion should be reconsidered. Results of analyses are presented in Table 1 and details are provided below.

Based on these analyses, some of the areas proposed for a National Security Exclusion designation (i.e., Warning Area 187, Warning Area 188 A and B and PMRF Offshore Areas) are not regularly used by MHI IFKWs, based on either time spent (i.e., days per 100 km²) or on the number of visits relative to area size (i.e., visits per 100 km²). However, a number of the other areas that are proposed for exclusion are relatively high-use areas (e.g., the Fleet Operational Readiness Accuracy Check Site (FORACS) range) or appear to be important as transit areas. Of the 18 areas examined (Table 1), the FORACS range has the fourth-highest time spent relative to area size, and is also part of an important transit corridor, with the third-highest number of visits per area size of any of the areas considered. The Shipboard Electronics Systems Evaluation Facility (SESEF) range lies within the same important transit corridor off O'ahu as the FORACS area, and ranks as having the fifth-highest number of visits per area size of any of those considered. Two areas that are listed as not eligible for critical habitat designation, due to their coverage under the Joint Base Pearl Harbor-Hickam Integrated Natural Resource Management Plan (INRMP), also lie within the same important transit corridor off O'ahu, the Ewa Training Minefield and the Naval Defensive Sea Area (NDSA). Of all the proposed exclusion areas, these two both have the highest time spent relative to area size, and have the highest number of visits by MHI IFKWs relative to area size (Table 1). These two areas are deemed ineligible for inclusion as critical habitat due to purported benefits to the species under the INRMP. However, given their importance both in terms of the O'ahu transit corridor (Figure 1) and in terms of time spent, the benefits of exclusion should be reconsidered in terms of the costs of not including them as critical habitat.

Two BOEM areas are proposed for exclusion from critical habitat. The BOEM Northwest Call Area does not rank particularly high in terms of IFKW time spent relative to area size (Table 1). However, overlaying IFKW tracklines on the area indicates that the southern portions are regularly used as transit areas (see Figure 2). The BOEM South Call Area represents 0.71% of the total range of the MHI IFKW population, yet based on the satellite tag data 1.58% of their time is spent in that area, and the area has relatively high visit rates in relation to area size (Table 1). The eastern side of the BOEM South Call Area borders Penguin Bank, and the edge of Penguin Bank is relatively high-density for this population (Figure 3). Given the apparent importance of these areas to the MHI IFKWs, and the relatively small economic costs identified with including these areas as critical habitat³, their inclusion should be reconsidered.

³ Draft Economic Report MHI Insular False Killer Whale Critical Habitat Designation, Cardno. October 26, 2017

For the six areas which had not yet been considered under ESA section 4(b)(2) at the time of the proposal, only one (Area 1 - Kaulakahi Channel Portion of W-186) represents an area that is likely not particularly important for the population, with just 0.16% of their time spent in an area that represents 0.87% of their range (Table 1). For the other five areas, MHI IFKW's spent a disproportionate amount of time in these areas relative to their size. In four of the five areas (Areas 2, 3, 5 and 6), false killer whales spent from 1.7 to 2.1 times as much time in the areas as expected given their sizes (Table 1). This reflects the fact that these areas either border very high-use areas (Areas 3 and 5), or parts of them are high-use areas (Areas 2 and 6). Area 4, the Kaiwi Channel, represents just 1.25% of the population's range, yet almost 15% of the tagged animals' time was spent in this area (Table 1, Figure 4). The large size of some of these areas obscures the importance of parts of these areas for the population, in terms of the time spent analyses noted in Table 1, in particular Areas 2 and 6. For Area 2 (Area North and East of O'ahu), an examination of tracklines from tag data illustrate that the southern half of the area is very high-use (Figure 5). For Area 6 ('Alenuihāhā Channel), both the southeastern and northern portions are high-use areas, and the narrowest part of the channel is an important travel corridor, as shown in Figure 6. If, after completion of the 4(b)(2) analysis of these areas, NMFS is planning on excluding them from critical habitat, at the least these high-use portions of the areas should be included.

I hope this information and these comments are useful in finalizing critical habitat for this population.

Best regards,

A handwritten signature in black ink, appearing to read 'RW Baird', with a stylized flourish at the end.

Robin W. Baird, Ph.D.
Research Biologist
rwbaird@cascadiaresearch.org

Table 1. False killer whale spatial use in relation to proposed exclusion areas and areas yet to be considered under ESA section 4(b)(2) for critical habitat.

Area Name	Area (km ²)	% of total range ¹	% of total time spent in area	Days spent/ 100 km ²	# visits/ 100 km ²
1. Kaulakahi Channel Portion of W-186	1,631	0.87	0.18	0.16	0.7
2. Area North and East of O‘ahu	2,472	1.31	2.74	1.65	5.6
3. Area to South of O‘ahu	1,803	0.96	2.05	1.69	7.8
4. Kaiwi Channel	2,355	1.25	14.93	9.44	14.8
5. Area North and Offshore of Moloka‘i	596	0.32	0.54	1.35	10.8
6. ‘Alenuihāhā Channel	4,381	2.33	4.75	1.61	6.2
BOEM South Call Area	1,341	0.71	1.71	1.89	11.9
BOEM Northwest Call Area	621	0.33	0.33	0.80	4.2
NDSA	23	0.01	0.07	4.62	143.9
SESEF	74	0.04	0.06	1.26	21.6
WA 196 and 191	730	0.39	0.45	0.92	6.0
WA 193 and 194	458	0.24	0.17	0.54	11.6
FORACS	74	0.04	0.15	3.09	57.3
WA 188AB	2,674	1.42	0.04	0.02	0.2
WA187	266	0.14	<0.01	<0.01	<0.1
Offshore PMRF	843	0.45	0.04	0.06	0.6
Kingfisher	14	0.01	0.02	1.83	45.2
Ewa Training Minefield	4	<0.01	0.02	6.97	877.7

¹Total area of range used in calculations of 188,262 km² from proposed rule.

Literature cited

- Baird, R.W. 2016. The lives of Hawai‘i’s dolphins and whales: natural history and conservation. University of Hawai‘i Press, Honolulu, Hawai‘i.
- Baird, R.W., G.S. Schorr, D.L. Webster, D.J. McSweeney, M.B. Hanson and R.D. Andrews. 2010. Movements and habitat use of satellite-tagged false killer whales around the main Hawaiian Islands. *Endangered Species Research* 10:107-121.
- Baird, R.W., M.B. Hanson, G.S. Schorr, D.L. Webster, D.J. McSweeney, A.M. Gorgone, S.D. Mahaffy, D. Holzer, E.M. Oleson and R.D. Andrews. 2012. Range and primary habitats of Hawaiian insular false killer whales: informing determination of critical habitat. *Endangered Species Research* 18:47-61.
- Bradford, A.L., E.M. Oleson, R.W. Baird, C.H. Boggs, K.A. Forney, and N.C. Young. 2015. Revised stock boundaries for false killer whales (*Pseudorca crassidens*) in Hawaiian waters. NOAA Technical Memorandum NMFS-PIFSC-47.

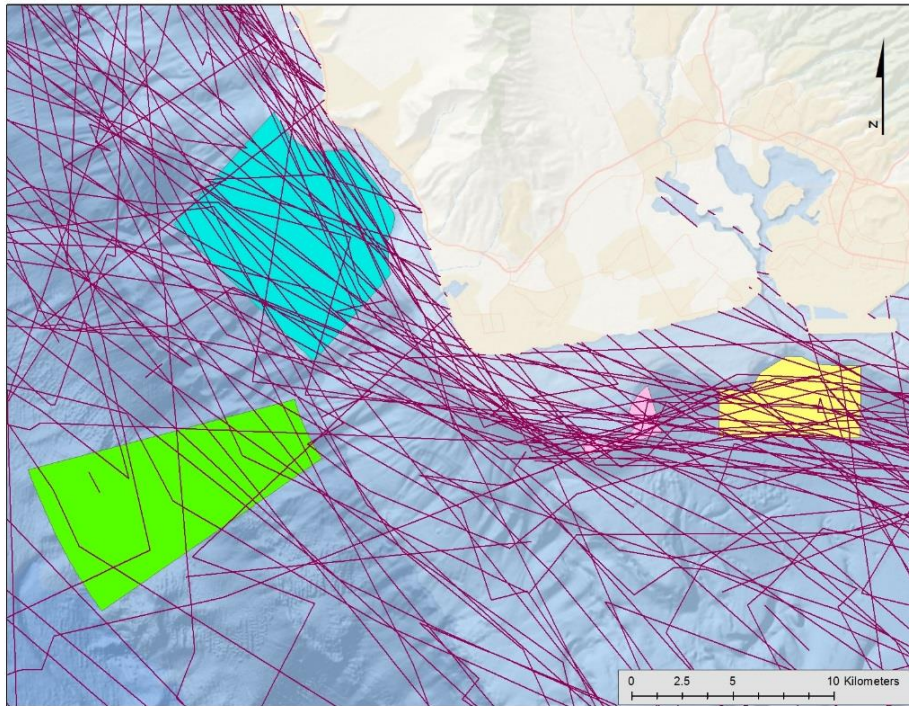


Figure 1. The area off the southwest side of O'ahu showing the FORACS area (light blue), SESEF area (green), Ewa Training Minefield (pink) and NDSA (yellow), with MHI IFKW tracklines (red lines), illustrating the importance of these areas in the O'ahu transit corridor.

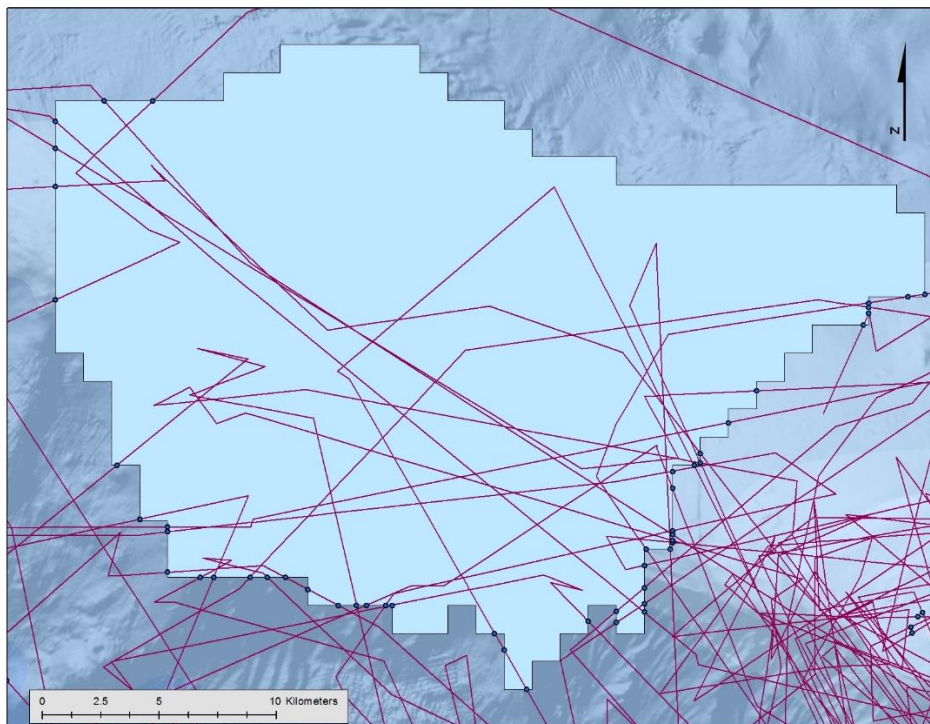


Figure 2. Map showing the BOEM Northwest Call Area (in light blue) and MHI IFKW tracklines (red lines). Blue points along the perimeter of the area represent points where tracklines intersect with the area boundary.

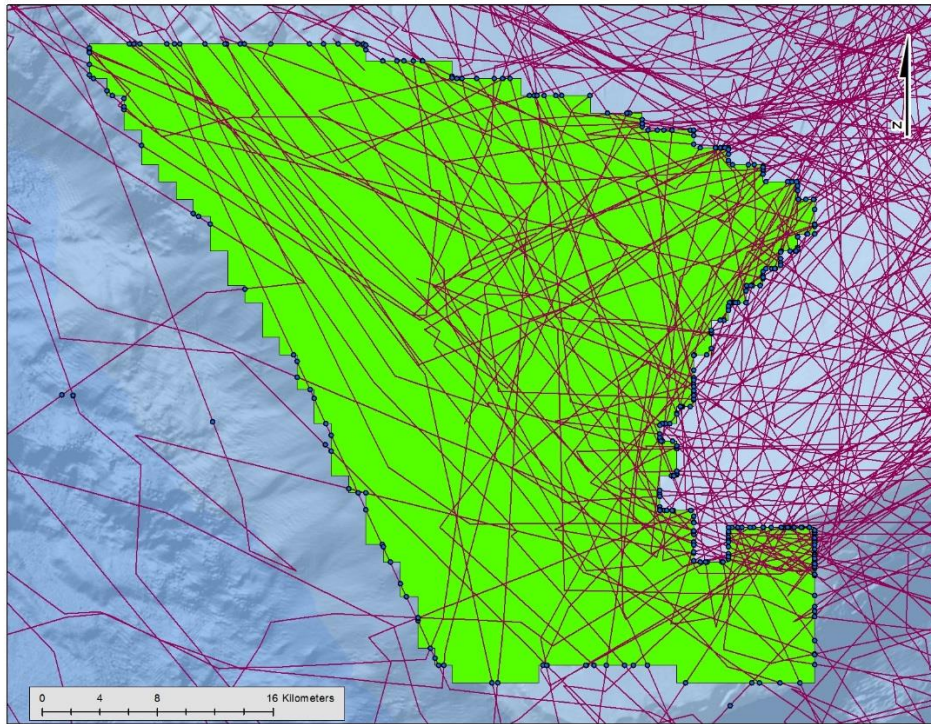


Figure 3. Map showing the BOEM South Call Area (in green) and MHI IFKW tracklines (red lines). Blue points along the perimeter of the area represent points where tracklines intersect with the area boundary.

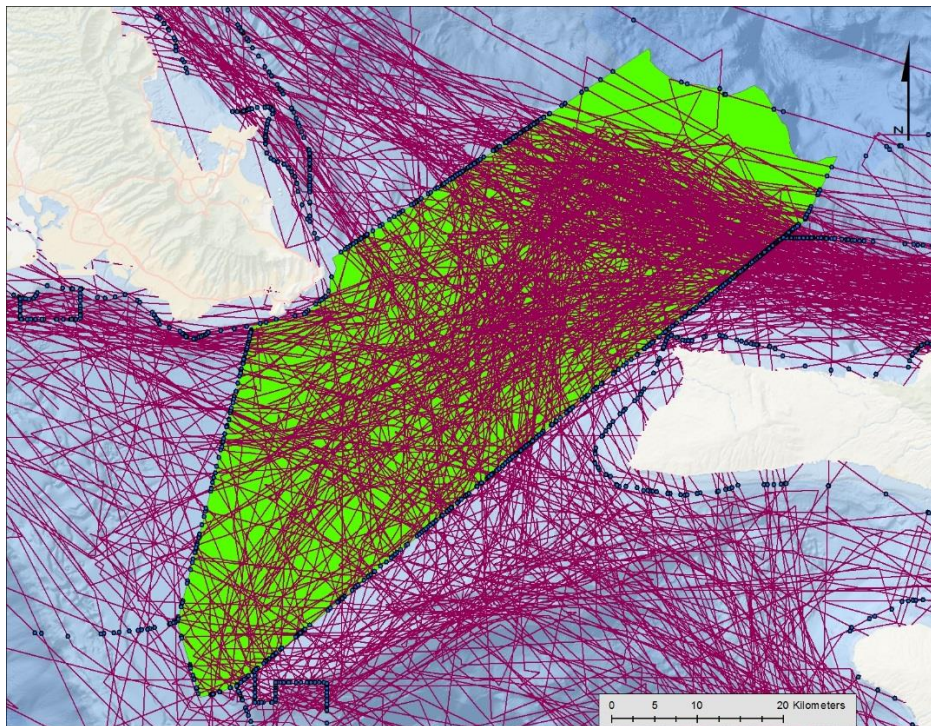


Figure 4. Map showing Area 4 (Kaiwi Channel) in green, in relation to MHI IFKW tracklines (red lines). Blue points along the perimeter of the area represent points where tracklines intersect with the area boundary.

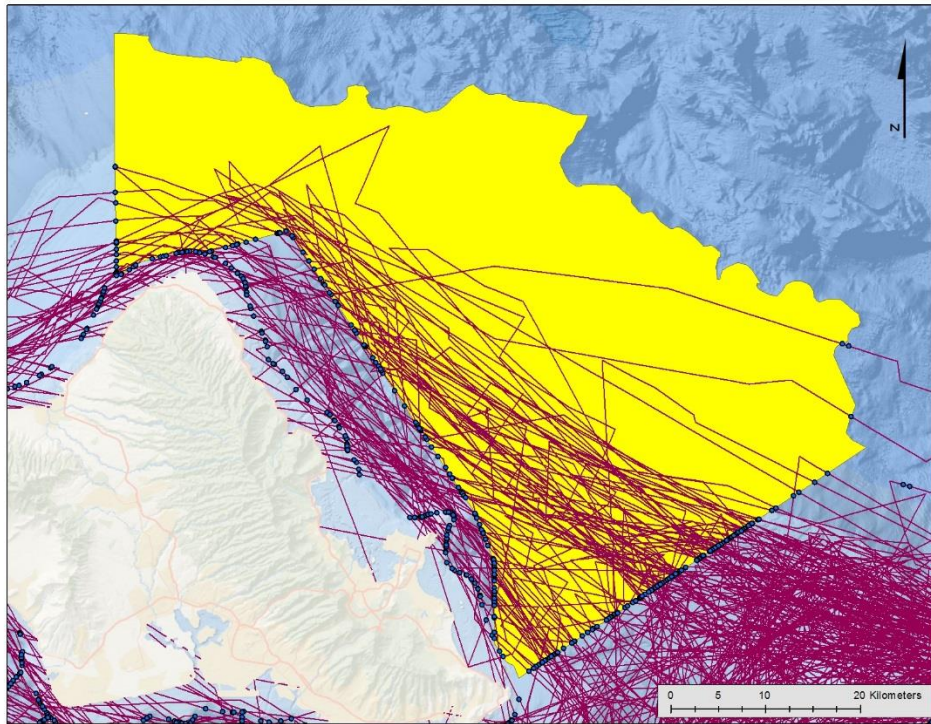


Figure 5. Map showing Area 2 (Area North and East of O'ahu) in yellow, in relation to MHI IFKW tracklines (red lines). Blue points along the perimeter of the area represent points where tracklines intersect with the area boundary.

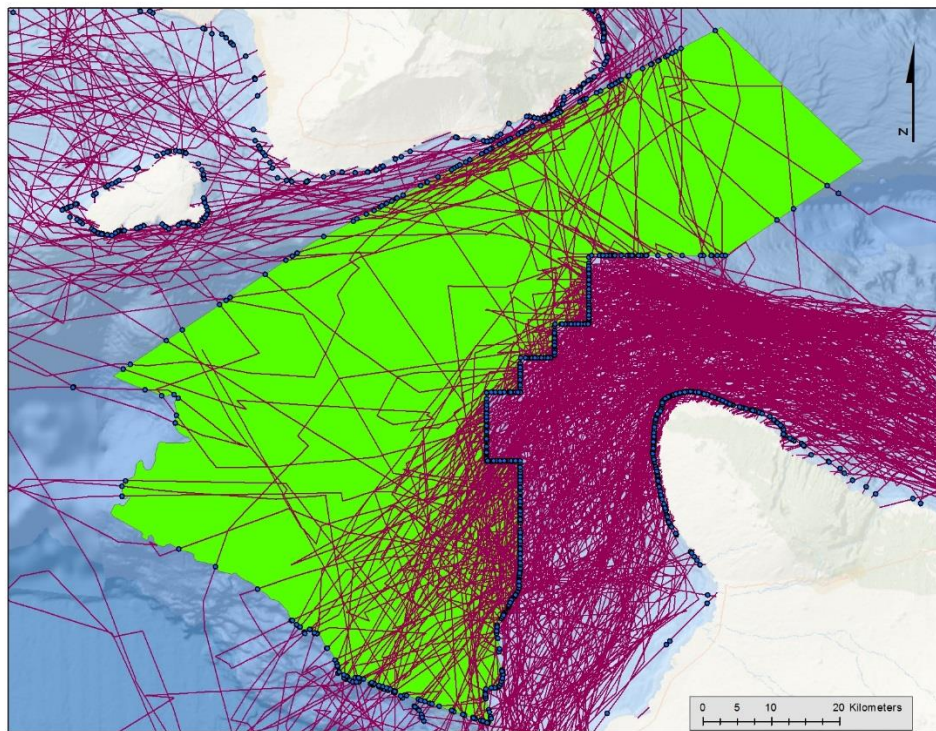


Figure 6. Map showing Area 6 ('Alenuihāhā Channel) in green in relation to MHI IFKW tracklines (red lines). Blue points along the perimeter of the area represent points where tracklines intersect with the area boundary.