

**Western  
Pacific  
Regional  
Fishery  
Management  
Council**

February 11, 2011

**VIA ELECTRONIC FILING AND EMAIL**

Lance Smith  
Regulatory Branch Chief  
Protected Resources Division  
National Marine Fisheries Service  
Pacific Islands Regional Office  
1601 Kapiolani Blvd., Suite 1110  
Honolulu, HI 96814  
Attn: Hawaiian insular false killer whale proposed listing

**Re: Proposal to List the Hawaiian Insular False Killer Whale Distinct Population Segment as Endangered (RIN 0648-XT37)**

Dear Lance:

The Western Pacific Regional Fisheries Management Council (the Council) appreciates this opportunity to provide comments to the National Marine Fisheries Service (NMFS) on the proposed listing of the Hawaiian insular false killer whale distinct population segment (DPS)<sup>1</sup>. The Council has serious concerns about the scientific basis and assumptions made to arrive at the proposed endangered listing of the Hawaiian insular false killer whale DPS, and our comments are focused on that issue.

**Overview**

Various features of NMFS's proposed rule regarding the Hawaiian insular false killer whale and the status review<sup>2</sup> conducted by the Biological Review Team (BRT) are likely to have resulted in exaggerated estimates of threats and risks to the population. In particular, the Council reiterates the following concerns expressed in our comment letter in response to the 90-day finding of the petition (February 3, 2010, Appendix A):

<sup>1</sup> See 75 Fed. Reg. 70169 (November 17, 2010).

<sup>2</sup> Oleson, E. M., C. H. Boggs, K. A. Forney, M. B. Hanson, D. R. Kobayashi, B. L. Taylor, P. R. Wade, and G. M. Ylitalo. 2010. Status review of Hawaiian insular false killer whales (*Pseudorca crassidens*) under the Endangered Species Act. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-PIFSC-22, 140 p. + Appendices.

- a) Biased interpretation of prey abundance and competition based on fishery-dependent CPUE data resulted in exaggerated threats to the proposed Hawaiian insular false killer whale DPS.
- b) Lack of critical evaluation of the historical abundance, particularly of the 1989 aerial survey, resulted in an inflated estimate of abundance prior to 1989. These estimates of historical abundance provided the baseline population in the Population Viability Analysis (PVA), thus resulting in almost all model projections leading to extinction.

Further, the Council expresses additional concerns regarding the NMFS status review and proposed rule:

- c) Interpretation of the level of extinction risk from interactions with commercial longline fisheries is inconsistent between the status review and proposed rule, with no justification provided for the higher risk attributed to commercial longline fisheries in the proposed rule than the status review.
- d) The status review and proposed rule uses a small number of unsubstantiated anecdotal reports to support the high risk rating of interactions with non-longline commercial fisheries.

For these reasons, the Council requests that NMFS reconsider the review and analysis conducted by the BRT, and in particular, the assumptions made and anecdotal information used in arriving at the conclusion that the Hawaiian insular false killer whale DPS is in danger of extinction throughout all of its range.

Additionally, the Council offers comments regarding the critical habitat designation rulemaking process.

### **Biased Interpretation of Prey Abundance and Competition**

The status review makes the assumption that trends in catch-per-unit effort (CPUE) reflect trends in abundance of the fish species (Oleson et al. 2010, p.51). Further, a similar assumption appears to be made in the discussion of prey size, which uses fishery-dependent data to imply the available prey sizes for false killer whales. The Council offered alternative explanations to variations in CPUE and prey size in our comment letter in response to the 90-day petition (Appendix A). In addition to the assumption made in the status review and proposed rule, changes in CPUE and prey size may reflect changes in the fishery dynamics such as the shift of target species depending on landed value of the time and changes in fishing techniques.

These alternative explanations of changes in CPUE and prey size were not considered or analyzed by NMFS. Further, NMFS does not include any independent analysis of prey abundance, yet concludes that competition with fisheries, reduced total prey biomass, and reduce prey size pose medium to high risk to insular false killer whales. The Council believes that such conclusions are merely speculative without further analysis and assessment of fish stocks, and that the risk placed on prey competition is exaggerated.

## **Lack of Critical Evaluation of Estimated Historical Abundance**

Given the unknown historical population of Hawaiian insular false killer whales, the BRT estimated the plausible historical abundance (point-estimate) around 769 based on the estimated density of false killer whales in the U.S. EEZ around Palmyra Atoll, where the highest density of the species has been reported (Oleson et al. 2010, p.49). The lower limit of the plausible population in 1989 was placed at 470 based on the estimated number of animals observed in the 1989 aerial surveys, and an upper limit was placed as 1,392 animals based on one standard deviation above the point-estimate of the density around Palmyra Atoll. The Council has several concerns regarding the methods used to estimate historical abundance.

### *Use of Palmyra Atoll Density Not Adequately Justified*

First, the use of estimated density around Palmyra Atoll to calculate plausible historical abundance of the Hawaiian insular DPS is not adequately justified. It appears that the Palmyra Atoll is used solely on the basis that it is the highest reported density of the species. Elsewhere in the status review, the BRT acknowledges that Palmyra Atoll is situated in more productive equatorial waters than the sub-tropical Hawaiian Islands, but makes no attempt to compare availability and abundance of prey species in the waters around Palmyra Atoll with those around the Hawaiian Islands. In addition, the density around Palmyra Atoll is uniformly applied to the entire 202,000 km<sup>2</sup> area within 140 km of the main Hawaiian Islands (MHI), even though a “core range” within 40 km of the MHI is acknowledged elsewhere in the status review and proposed rule. We believe that the simplified application of the Palmyra Atoll stock density resulted in an extremely inflated estimated historical abundance of Hawaiian insular false killer whales.

Further, the proposed rule notes that the data from Palmyra is viewed as a “conservative estimate for pristine density” on the basis that longline fishery is known to occur in the Palmyra area and may have had an impact on the false killer whale density over time. This is an unsubstantiated claim with no reference to actual data or evidence suggesting the impacts of longline fishery on the population of false killer whales in the waters surrounding Palmyra Atoll. In fact, the draft 2010 Stock Assessment Report (SAR)<sup>3</sup> estimated the mean annual takes as 0.3 animals in the Palmyra Atoll stock, which is substantially lower than the Potential Biological Removal (PBR) of 6.4 animals per year in a stock with an estimated population of 1,329. As such, the draft 2010 SAR suggests that the impact of the longline fishery on the Palmyra Atoll stock is minimal, and the likelihood that the current Palmyra Atoll stock is not a “pristine density” is low. It is likely that the Palmyra Atoll historically has had higher densities of false killer whales than the MHI, and thus the Palmyra Atoll density is likely not the appropriate density to use in estimating historical abundance of the Hawaiian insular false killer whales.

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<sup>3</sup> Carretta, J.V., K.A. Forney, M.S. Lowry, J. Barlow, J. Baker, D. Johnston, Brad Hanson, Robert L. Brownell Jr., Jooke Robbins, David. K. Mattila, Katherine Ralls, M.M. Muto, Deanna Lynch, and Lilian Carswell. 2010. U.S. Pacific Marine Mammal Stock Assessments: 2009. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-453. 336p.

### *Large Groups Observed in the 1989 Aerial Surveys Questionable*

Second, the Council continues to be skeptical of the 1989 aerial survey results, as described in our earlier comment letter dated February 3, 2010 (Appendix A). Specifically, we cautioned the use of the 1989 aerial survey results for the following reasons:

- a) Inability to confirm the species of sighted animals due to lost photographic records;
- b) Lack of genetic or other evidence to conclude that the documented large groups of FKW were associated with the insular population; and
- c) Lack of replicated results supporting the existence of large groups of FKW in 1989.

The proposed rule acknowledges that the large groups seen during the 1989 surveys may have been a short-term influx of pelagic animals, and that the lack of photographic or genetic evidence makes it uncertain these animals belonged to the insular group. Nevertheless, the proposed rule concludes that “because of the location of the sightings and lack of evidence of pelagic animals occurring that close to the islands, it is most likely that this group did consist of insular animals.” What is not acknowledged or considered, however, is the possibility of these large groups observed in the 1989 surveys to be other species, particularly melon-headed whales.

At the most recent meeting of the Council’s Scientific and Statistical Committee on October 6-8, 2010, a question was raised to Erin Oleson, the lead scientist on the BRT, regarding this issue. Oleson responded that one of the BRT members who was involved in the 1989 survey claimed that the large groups were false killer whales, and the issue was not investigated any further. However, the Council has also received anecdotal information from its Marine Mammal Advisory Committee member Paul Nachtigall that two individuals who were involved in the survey claim that the large groups were in fact melon-headed whales. Given the lack of photographic or genetic evidence, both claims are equally anecdotal as well as contradictory. The Council suspects that the BRT incorporated anecdotal information convenient to confirm the decline of the Hawaiian false killer whale, but did not do their best in critically examining evidence in a scientific manner.

### *Point-Estimate of Historical Abundance Unrealistic*

Finally, we believe that the point-estimate of 1989 is unrealistic, when considering the population estimate of 121 animals in the Hawaiian insular range based on the 1993-1997 aerial surveys (Mobley et al. 2000). In the status review, the BRT includes discussion regarding the 1993-1997 abundance estimate of 121 animals, but only in the context of current abundance. In this discussion, the BRT notes that the 1993-1997 estimate is considered out-of-date by NMFS standards, and references the 2005 Revisions to Guidelines for Assessing Marine Mammal Stocks (GAMMS II) (Oleson et al. 2010, p.51). According to GAMMS II, current abundance estimates based on surveys older than 8 years are considered out-of-date (NMFS 2005<sup>4</sup>, p.6):

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<sup>4</sup> NMFS. 2005. Revisions to Guidelines for Assessing Marine Mammal Stocks. 24 pp.

Clearly, projections of current abundance estimates become less dependable with time after a survey has occurred. When abundance estimates become many years old, at some point estimates will no longer meet the requirement that they provide reasonable assurance that the stock size is presently greater than or equal to that estimate. Therefore, unless compelling evidence indicates that a stock has not declined since the last census, the minimum population estimate of the stock should be considered unknown if 8 years have transpired since the last abundance survey of a stock.

GAMMS II does not, however, dismiss the use of abundance estimates from old surveys as a measure of historical abundance. Nevertheless, the 1993-1997 survey estimate of 121 animals never appears in the BRT's discussions regarding historical abundance or trends in abundance, and appears to be simply ignored. When the 1993-1997 survey estimate is considered, this places an abundance of minimum of 121 animals<sup>5</sup> as early as 1993, suggesting a dramatic decline of nearly 600 animals in the 4-year period from 1989 (based on the point-estimate of 769). This type of dramatic decline would suggest a large-scale mortality even in a very short time frame, for which no concrete evidence is provided in the proposed rule.

Based on the BRT's evaluation of threats, one possible cause of the dramatic decline would have been the expansion of longline fishery in the insular false killer whale range from the late 1980s until the 50 nm longline exclusion zone was implemented in 1992. Based on information provided in the BRT's status review or otherwise by NMFS, and making several simple assumptions, one could estimate the maximum number of false killer whales taken in the commercial longline fishery in the 4-year period from 1989 to 1993:

- According to the data on total number of hooks set in the longline fishery over time (Oleson et al. 2010, p.61), total hooks set annually in the entire Hawaii longline fleet between 1988-1993 is around 7-13 million hooks, as opposed to the recent 2003-2008 total hooks set annually inside the U.S. EEZ around the MHI (Hawaii logbook data) of 10-15 million hooks. In other words, the number of hooks set within the Hawaii insular false killer whale range from late 1980s to early 1990s (the period when the longline effort was increasing) was similar to or less than the recent effort around the MHI.
- The current mean estimated annual takes (mortalities and serious injuries, which do not necessarily result in the removal of animal from the population) in the Hawaii pelagic and insular stock combined is 7.9 animals (draft 2010 SAR).
- Assuming that interaction rates have not substantially changed over time, a simple extrapolation would suggest that the estimated number of insular and pelagic false killer whales taken by longline fisheries in the U.S. EEZ around the Hawaiian Islands during the 4-year period from 1989 to 1993 would be no greater than 31.6 animals.

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<sup>5</sup> The BRT also notes that the "estimate was likely negatively biased because the survey aircraft did not allow detection of cetaceans directly below the plane, and no adjustment was made for availability bias", suggesting that the estimated population for 1993-1997 could be higher.

The result of this estimate (which we believe is equally simplistic and no less scientific than the method used to estimate historical abundance based on the Palmyra Atoll density) is substantially less than the nearly 600 animals that supposedly disappeared between the 1989 and 1993 aerial surveys. Neither the BRT nor the proposed rule offers any convincing evidence that the Hawaii insular false killer whales experienced a significant decline between 1989 and 1993, other than to provide scientifically questionable estimates of historical abundance.

The Council expresses these concerns because the assumptions made to estimate historical abundance largely influenced the Population Viability Analysis (PVA), as the historical abundance was used as the starting population size in 1989 in the models. The analyses resulted in most models “indicating a probability of greater than 50 percent likelihood of the DPS declining to fewer than 20 individuals within 75 years.” We believe that the results of these PVA models would have been less pessimistic had the BRT provided more realistic estimates of historical abundance, and had critically reviewed the aerial survey results from 1989 and 1993-1997. Further, if the 1993-1997 aerial survey estimate is considered, the Hawaiian insular false killer whale population has remained stable for the last 18 years despite its small population size and existence of other threats described by NMFS.

### **Inconsistent Risk of Interactions with Commercial Longline Fisheries**

In reviewing the proposed rule and the BRT’s status review, we found inconsistencies in the risk evaluation of interactions with commercial longline fisheries. In the status review, the BRT rated interaction with commercial longline fisheries as a medium level severity, moderate spread in geographic scope, low level of certainty that species is affected, and low overall threat level currently and into the future (Oleson et al. 2010, p.100). In the proposed rule, however, interactions with commercial longline fisheries “was rated as a high level of current and/or future risk to Hawaiian insular false killer whales” (emphasis added). There is a discrepancy between the BRT’s conclusion and what is stated in the proposed rule, and no explanation or justification is made regarding this change.

The BRT did rate, however, “hooking, entanglement, or intentional harm”, including those from commercial longlines, troll, handline, shortline, and kaka line, as well as with aquaculture facilities, to have a “high” overall ranking of limiting factor. However, taken individually, interactions with commercial longline fisheries were clearly rated to have low overall threat level currently and into the future, whereas interactions with troll, handline, shortline, and kaka-line fisheries were rated to have a high overall threat level currently and into the future.

We believe that NMFS unjustifiably placed higher risk on the commercial longline fishery in the proposed rule. As noted elsewhere in the proposed rule, commercial longline fishery has been largely excluded from the Hawaiian insular false killer whale range since the early 1990s, with additional exclusions likely to be implemented as a result of the Take Reduction Plan produced in 2010 under the Marine Mammal Protection Act (MMPA).

## Use of Anecdotal Reports to Assign High Risk to Non-Longline Commercial Fisheries

Interactions with troll, handline, shortline, and kaka-line fisheries is the only threat rated by the BRT to have a high overall threat level currently and into the future (Oleson et al. 2010, p.100). However, this rating is based on a limited number of anecdotal reports and no actual confirmed takes. Most of the anecdotal reports of fishery interactions with false killer whales as referenced in the proposed rule<sup>6</sup> are in the form of depredation on bait or catch, and not of false killer whale take or bycatch by the fisheries.

In addition, reports of interactions are from troll fisheries, and NMFS acknowledges in the proposed rule that “it is unknown whether animals get hooked or entangled in troll gear (as they do in longline gear).” Incidents where fishermen reported shooting at animals to protect bait, catch, or gear also do not confirm whether these were warning shots fired or resulted in injury or mortality. Further, the frequency in which interactions with non-longline commercial fishery occur are unknown, and the conclusion that such activities pose a high risk to the Hawaiian insular false killer whale DPS is highly speculative at best. Therefore, the Council believes that NMFS does not have adequate scientific or commercial evidence to assign a high risk to non-longline commercial fisheries.

## Rulemaking Process for Critical Habitat Designation

NMFS also requested comments on the critical habitat designation of the proposed Hawaiian insular false killer whale DPS, undertaken as a separate rulemaking process. The Council does not believe that a critical habitat designation for the proposed DPS is warranted at this time, as “physical and biological features that are essential to the conservation” of Hawaii insular false killer whales, aside from the general features such as range and prey, are unknown. Any critical habitat, if proposed, should consider the potential significant socioeconomic impacts to non-longline commercial and recreational fisheries in Hawaii. We request that NMFS work with the Council in gathering and reviewing fisheries-related information prior to the publication of the proposed critical habitat designation.

NMFS requested comments concerning “potential peer reviewers for a proposed critical habitat designation, including persons with biological and economic expertise relevant to the species, region, and designation of critical habitat. We offer the following recommendations for reviewers with expertise in socioeconomic impacts and non-longline commercial fisheries:

### *Socioeconomic Impacts*

- Michael Mahmmnett, University of Hawaii, Manoa
- Craig Severance, University of Hawaii, Hilo (retired)
- David Fluharty, University of Washington

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<sup>6</sup> These include:

Shallenberger, E. W. 1981. The status of Hawaiian cetaceans. Marine Mammal Commission Report No. MMC-77/23.

Zimmerman, B. 1983. Hawaii- Kona log. Hawaii Fishing News 8(3): 25.

Nitta, E. T. and J. R. Henderson. 1993. A review of interactions between Hawaii's fisheries and protected species. Marine Fishery Review 55(1): 83-92.

*Non-longline Commercial Fisheries*

- Kim Holland, Hawaii Institute of Marine Biology
- David Itano, Pelagic Fisheries Research Program
- Lindsay Chapman, Secretariat of the Pacific Community, Coastal Fisheries Program

**Conclusions**

As outlined above, the Council has serious concerns regarding the scientific basis and assumptions made by NMFS to arrive at the conclusion that the proposed Hawaiian insular false killer whale DPS is in danger of extinction throughout all of its range. We believe that the BRT conducted the review and analysis with the preconceived assumption that the DPS has in fact declined, instead of critically examining the evidence. The ESA Section 4(b)(1) requires that the listing determination be based solely on the best scientific and commercial data available, but we believe that much of the conclusions were based on anecdotal and unsubstantiated non-scientific information. The Council therefore requests that NMFS revisit the analysis conducted by the BRT, and in particular, the assumptions made in arriving at estimated historical abundance of Hawaiian insular false killer whales, and consider the results prior to decision-making and publication of the final rule.

Please feel free to contact Asuka Ishizaki, Protected Species Coordinator at (808) 522-8224 if you have any questions concerning the comments.

Sincerely,



Kitty M. Simonds  
Executive Director

Cc: Michael Tosatto, Regional Administrator, NMFS Pacific Islands Regional Office  
Alecia Van Atta, Assistant Regional Administrator, NMFS Pacific Islands Regional Office  
Manuel Duenas, Chair, Western Pacific Regional Fishery Management Council  
Sean Martin, President, Hawaii Longline Association  
Ryan Steen, Stoel Rives LLP

Enclosure:

Appendix A – Council Comment Letter in Response to the 90-Day Finding on a Petition to List the Insular Population of Hawaiian False Killer Whales as an Endangered Species (February 3, 2010)



# APPENDIX A



**Western  
Pacific  
Regional  
Fishery  
Management  
Council**

February 3, 2010

## VIA ELECTRONIC SUBMISSION

Ms. Lisa Van Atta  
Assistant Regional Administrator  
Protected Resources Division  
NMFS Pacific Islands Regional Office  
1601 Kapiolani Boulevard Suite 1110  
Honolulu, HI 96814

Re: Public Comment Following the 90-Day Finding on a Petition to List the Insular Population of Hawaiian False Killer Whales as an Endangered Species (RIN 0648-XT37)

Dear Lisa:

The Western Pacific Regional Fishery Management Council (Council) offers the following information in response to the public information solicitation period on the National Marine Fisheries Service ("NMFS") 90-day finding on a petition to list the insular population of Hawaiian false killer whales (FKW) as an endangered species<sup>1</sup>.

Specifically, we provide comments on two major issues: (1) Claims regarding prey reduction and its suggested impacts to FKW based on inaccurate interpretation of fishery data; and (2) historical estimate of FKW population based on the 1989 aerial survey that may lack scientific reliability.

### **I. Abundance of Prey Species**

In their petition, the Natural Resource Defense Council ("NRDC") lists overfishing and prey reductions as a potential factor impacting the insular population of Hawaiian FKW, and references several published reports to support their claims. Additionally, a recent report to the Marine Mammal Commission (Baird 2009)<sup>2</sup> makes similar claims regarding the changes in prey base of FKW and suggests potential impacts to the FKW population. We reviewed the referenced reports and provide additional interpretation of the data used to support the claims made by NRDC and in the report by Baird (2009).

<sup>1</sup> See 75 Fed. Reg. 316 (January 5, 2010).

<sup>2</sup> Baird, R.W. 2009. A review of false killer whales in Hawaiian waters: Biology, status, and risk factors. Report prepared for the U.S. Marine Mammal Commission under Order No. E40475499.



***Issue 1: Bigeye tuna is currently overfished in the Pacific (NMFS 2009)<sup>3</sup>***

NRDC makes the claim in reference to the NMFS Status of U.S. Fisheries report (2009). However, the cited report classifies the Pacific bigeye tuna as being currently experiencing *overfishing*, but does not classify the species as being *overfished* or approaching overfished condition. Overfishing means that the biomass of the stock has not declined below the biomass which would generate Maximum Sustainable Yield (MSY), but that the biomass is being fished at a fishing mortality which is greater than that which would generate MSY. The most recent stock assessment (Harley et al. 2009)<sup>4</sup> shows that the stock is subject to overfishing but is not overfished. However, regardless of the condition of Pacific bigeye tuna, this species is not a major component of FKW diets, and are not included in the list of prey species documented for FKW in Hawaiian waters (Baird 2009). In addition, the insular population of the Hawaiian FKW is found primarily in the coastal zone where bigeye tuna are not typically abundant.

***Issue 2: Biomass of yellowfin tuna in the Pacific in general has declined (Sibert et al. 2006)<sup>5</sup>***

The report by Sibert and colleagues (2006), referenced by NRDC in their petition, is now considered to be out of date. The new stock assessment (Langley et al. 2009)<sup>6</sup> shows that yellowfin tuna is not overfished or subject to overfishing at this time.

***Issue 3: Catch-per-unit-effort (CPUE) data from the Main Hawaiian Islands (MHI) troll and handline fishery for yellowfin tuna from 1987-2006/2007 show a significant declining trend (WPRFMC 2007, 2009)<sup>7,8</sup>***

Both NRDC and Baird (2009) make similar claims regarding the declining yellowfin tuna CPUE in the Hawaii troll and handline fishery using data included in the Council's Pelagic Fisheries Annual Reports (WPRFMC 2007, 2009). However, their interpretation of these fishery data ignores the pattern of the apparent decline in CPUE and do not take into consideration data for other species or fisheries.

The observed decline in the troll fishery CPUE data is not a steady decrease during the time period. The large decline in the troll CPUE occurred between 1987 and 1991, when the CPUE decreased from about 80 lb/day fished to 20 lb/day fished (Figure 1). After 1991, the CPUE is remarkably stable. Further, the high CPUE recorded in 1987 could be indicative of an

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<sup>3</sup> National Marine Fisheries Service. 2009. 2009 Status of U.S. Fisheries. Second quarter update.

[http://www.nmfs.noaa.gov/sfa/statusoffisheries/2009/secondquarter/fssi\\_non\\_fssi\\_stock\\_status\\_cy\\_q2\\_2009.pdf](http://www.nmfs.noaa.gov/sfa/statusoffisheries/2009/secondquarter/fssi_non_fssi_stock_status_cy_q2_2009.pdf)

<sup>4</sup> Harley, S.S. Hoyle, A. Langley, J. Hampton, and P. Kleiber. 2009. Stock assessment of bigeye tuna in the Western and Central Pacific Ocean. Western & Central Pacific Fisheries Commission Scientific Committee Fifth Regular Session August 10-21 2009, Port Vila, Vanuatu WCPFC-SC5-2009/SA-WP-4.

<sup>5</sup> Sibert, J., J. Hampton, P. Kleiber, and M. Maunder. 2006. Biomass, size and trophic status of top predators in the Pacific Ocean. *Science* 314:1773-1776.

<sup>6</sup> Langley, A., S. Harley, S. Hoyle, N. Davies, J. Hampton, P. Kleiber. 2009. Stock assessment of yellowfin tuna in the western and central Pacific Ocean. Fifth Regular Session August 10-21 2009, Port Vila, Vanuatu WCPFC-SC5-2009/SA-WP-03.

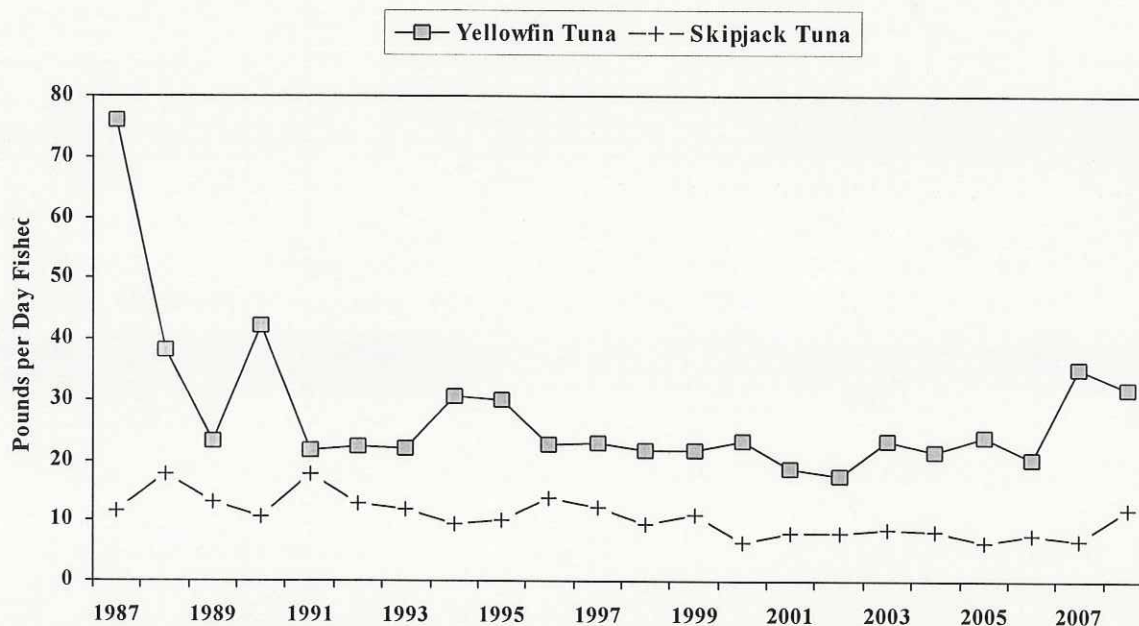
<sup>7</sup> Western Pacific Regional Fishery Management Council. 2007. Pelagic fisheries of the western Pacific Region. 2006 Annual report. Western Pacific Regional Fishery Management Council, Honolulu, HI.

<sup>8</sup> Western Pacific Regional Fishery Management Council. 2009. Pelagic fisheries of the western Pacific Region. 2007 Annual Report. Western Pacific Regional Fisheries Management Council, Honolulu, HI.



exceptionally good fishing year. The Council urges NMFS to review troll CPUE data prior to 1987 as part of the status review for the insular population of Hawaiian FKW.

In addition, the MHI handline yellowfin tuna CPUE does show a gradual decline over the period of 1987-2007 (WPRFMC 2009). However, CPUEs of albacore and bigeye tuna show an increasing trend over the same time period (WPRFMC 2009), which may be indicative of a change in targeting by MHI handline fishermen for species with a higher landed value.



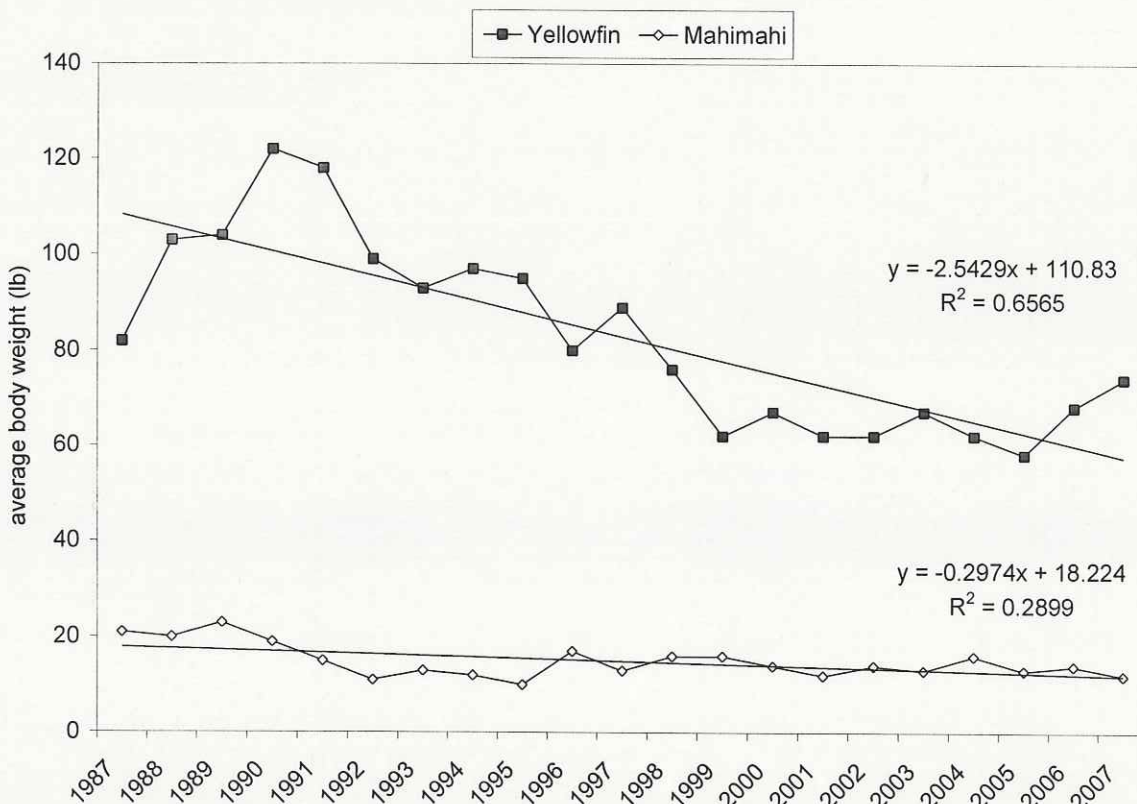
**Figure 1: Main Hawaiian Islands troll tuna CPUE (in landings per day fished), 1987-2008.**  
Source: 2008 Pelagic Fisheries Annual Report (presented at the WPRFMC Pelagic Plan Team Meeting, April 29-May 1, 2010).

**Issue 4: Mean body weight of yellowfin tuna declined from an average of 48kg from 1987 to 1991 to 30kg from 2003 to 2007 (WPRFMC 2009); Average body weight of mahimahi caught in the Hawaiian longline fishery has declined since 1987 (WPRFMC 2007)**

Both NRDC and Baird (2009) make similar claims regarding the reduced average body weight of yellowfin tuna and mahimahi caught in the Hawaii longline fishery. As with the CPUE data presented in the previous section, the declines in average body weight of yellowfin tuna and mahimahi in the longline fishery are not steady declines. The decrease in average weight occurred when the fishery was changing from a sampan-style, wooden vessel near-shore tuna fishery to a large steel-hulled vessel fishery primarily targeting swordfish. For yellowfin tuna, the decline ceases in 1999 (Figure 2), when the longline fishery was subject to a battery of management changes, culminating with the complete cessation of swordfish fishing between 2001 and 2004. Despite the large increase in the tuna fishery in response to the reduced swordfish fishery, the average body weight of yellowfin tuna has remained relatively stable since 1999 and is not showing signs of decline (Figure 2).

For longline-caught mahimahi, majority of the decline in average body weight occurred between 1987 and 1993, again as a result of the shift in the fishery from sampan-style near-shore

tuna fishery to a swordfish fishery. After the peak of the swordfish fishery in 1993, the average size of mahimahi landed in the longline fishery has been stable (Figure 2).



**Figure 2: Average weight of yellowfin tuna and mahimahi in the Hawaii-based longline landings, 1987-2007.**

Source: 2007 Pelagic Fisheries Annual Report (WPRFMC 2009)

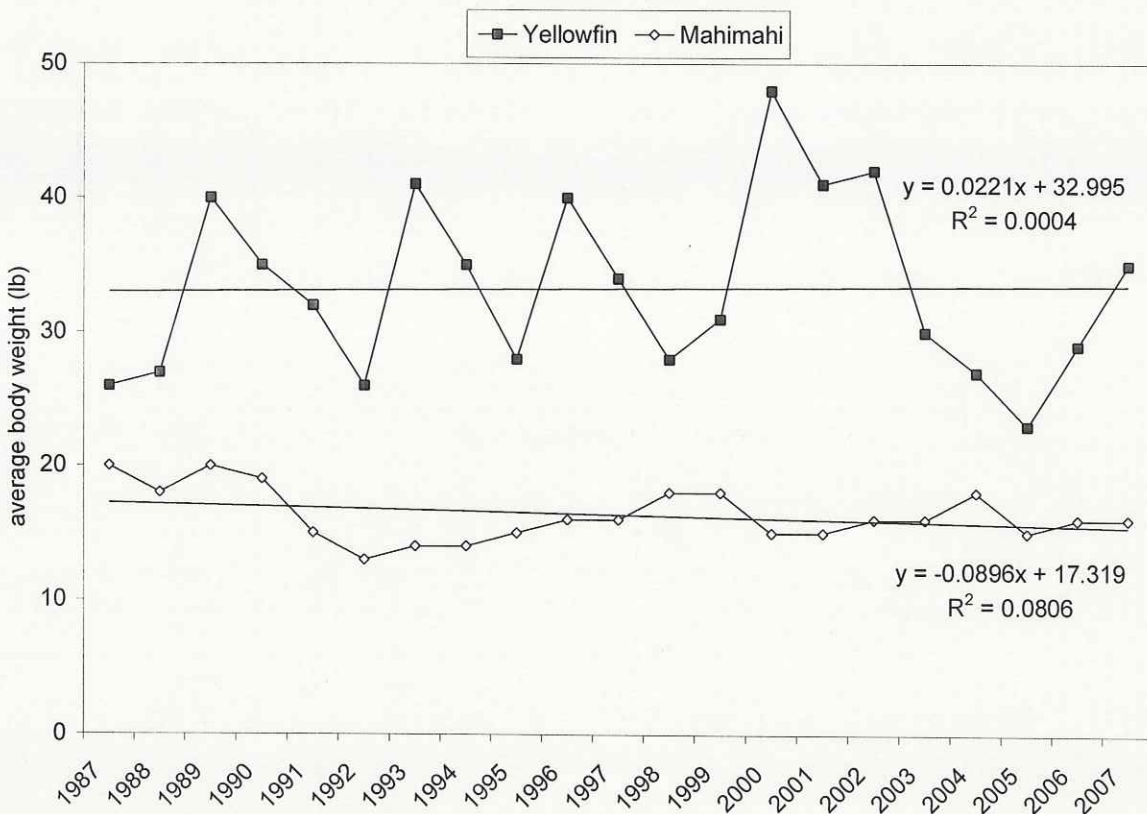
Regardless of the average body weight of yellowfin and mahimahi landed in the longline fishery, it may be more appropriate to consider average weight data for these species from troll and handline fisheries. The stock segments targeted by troll and handline fisheries are more likely to represent those preyed upon by the insular population of Hawaiian FKW, as longline fishing has been prohibited within 75 nm of the MHI (with some boundaries extending to 50 nm) since 1992. According to the data included in the 2007 Pelagic Fisheries Annual Report (WPRFMC 2009), there are no significant declines in the average body weight of yellowfin and mahimahi landed by the Main Hawaiian Islands troll and handline fishery (Figure 3).

Further, Polovina and colleagues (2009)<sup>9</sup> reported that catch rates for the 13 most abundant species caught in the Hawaii deep-set longline fishery over the past decade (1996–2006) provide evidence of a change among the top predators of the subtropical North Pacific. Catch rates for apex predators such as blue shark, bigeye and albacore tunas, shortbill spearfish, and striped marlin declined by 3% to 9% per year, while catch rates for mid trophic species such as mahimahi, sickle pomfret, escolar, and snake mackerel increased by 6% to 18% per year. The

<sup>9</sup> Polovina, J.J., M. Abecassis, E.A. Howell and P. Woodworth. 2009. Increases in the relative abundance of mid-trophic level fishes concurrent with declines in apex predators in the subtropical North Pacific, 1996-2006. *Fishery Bulletin* 107:523-531.



mean trophic level of the catch for these 13 species declined 5%, from 3.85 to 3.66. A shift in the ecosystem to an increase in midtrophic-level, fast-growing and short-lived species is indicated by the decline in apex predators in the catch (from 70% to 40%) and the increase in species with production to biomass values of 1.0 or larger in the catch (from 20% to 40%). Considering that mahimahi is one of the important prey species of FKW, such a shift may be beneficial as it would increase foraging opportunities for them, or at minimum compensate for any reduction in apex predator species such as albacore tuna that have also been documented as FKW prey. In their petition, NRDC does not reference this study nor its implications analyzed from a trophic perspective with respect to FKWs. Further, Baird (2009) only notes the reduction of catch rates for bigeye and albacore tunas from this study, and fails to acknowledge the increased catch rates of mahimahi and other midtrophic species from the same study.



**Figure 3: Average weight of yellowfin tuna and mahimahi in the Main Hawaiian Islands troll and handline landings, 1987-2007.**

Source: 2007 Pelagic Fisheries Annual Report (WPRFMC 2009)

## II. Population Estimate of 1989

The greatest piece of evidence supporting the claim of substantial decline in the insular population of the Hawaiian FKW is based on an eight-day, 30-hour aerial survey conducted in June-July 1989. Of the nine sightings of FKW produced from directed surveys off the island of Hawaii, three sightings produced large group estimates of 380, 460, and 470 individuals located on the western side of Kohala Peninsula, with distance from shore ranging between 4.5-11 km



(Reeves et al. 2009). The results of this 1989 aerial survey, published for the first time in 2009, is the only case of large groups of FKW ever to be documented in the Hawaiian waters. We suggest that the results from this survey be interpreted with great caution for the following reasons:

- *Inability to confirm the species of sighted animals due to lost photographic records:*  
Authors of the published article summarizing the 1989 aerial survey (Reeves et al. 2009) discussed the possibility of the large groups of odontocetes documented being misidentified as FKW when they may have been melon-headed whales, which are similar to FKW but are known to occur in large groups in the area. The authors dismiss this possibility by citing the observers' extensive experience in identifying tropical odontocetes. However, the authors also note that the photographs from the 1989 aerial survey have been lost since the principal observer's death in 1997. The lack of photographic records makes it impossible for the aerial survey results to be reanalyzed today, creating great uncertainty for interpreting the results.
- *Lack of genetic or other evidence to conclude that the documented large groups of FKW were associated with the insular population:*  
The large groups of FKW documented in the 1989 survey are assumed to be associated with the insular population solely on the basis of their documented location (4.5-11 km from shore), as no genetic samples were taken from these large groups of FKW. While individuals of the pelagic population have only been documented as close as 42 km from shore in recent vessel-based surveys, little is known about the movements and ranges of the pelagic population (Baird 2009). As such, the possibility of these documented large groups being associated with the pelagic population should not be eliminated on the basis of location and currently available information.
- *Lack of replicated results supporting the existence of large groups of FKW in 1989:*  
No other aerial or vessel-based survey in the Hawaiian waters have ever documented large groups of FKW. Annual aerial surveys conducted in 1993-1998 produced a mean group size of 5.1 individuals based on 14 sightings (Mobley et al. 2000)<sup>10</sup>, whereas the 1989 survey produced a median group size of 195 individuals (range = 11-470 individuals) based on nine sightings (Reeves et al. 2009). More recent vessel-based surveys conducted between 2000 and 2006 produced a median group size of 15 individuals (range = 3-41 individuals) based on 369 survey days (Baird et al. 2008)<sup>11</sup>. Further, systematic aerial surveys conducted in 1993, 1995, and 1998 produced an abundance estimate for FKW likely corresponding to the now known insular population of 121 individuals (CV = 0.45; Mobley et al. 2000), which is not substantially different than the most recent estimate of the insular population of 123 individuals (CV = 0.72; Baird et al. 2005)<sup>12</sup>. These differences in observed group sizes and population estimates

<sup>10</sup> Mobley, J.R., S.S. Spitz, K.A. Forney, R.A. Brotenfend, and P.H. Forestell. 2000. Distribution and abundance of odontocete species in Hawaiian waters: preliminary results of 1993-1998 aerial surveys. US Natl Mar Fish Serv SWFSC Admin Rep LJ-00-14C.

<sup>11</sup> Baird, R.W., A.M. Gorgone, D.J. McSweeney, D.L. Webster, D.R. Salden, M.H. Deakos, A.D. Ligon, G.S. Schorr, J. Barlow and S.D. Mahaffy. 2008a. False killer whales (*Pseudorca crassidens*) around the main Hawaiian Islands: long-term site fidelity, inter-island movements, and association patterns. *Marine Mammal Science* 24:591-612.

<sup>12</sup> Baird, R.W., A.M. Gorgone, D.L. Webster, D.J. McSweeney, J.W. Durban, A.D. Ligon, D.R. Salden and M.H.



between the 1989 survey and subsequent surveys are interpreted in the NRDC's petition as evidence of decline. However, considering that all other surveys conducted in the Hawaiian waters have produced relatively small group size estimates, and that FKW are typically known to occur in groups of 10-20 (Baird 2009), coupled with the relatively stable population estimate in the last 10-15 years, the results of the 1989 survey may be considered an outlier caused by misidentification or unusual conditions resulting in large temporary aggregations.

### III. Conclusions

The Council recommends that NMFS critically examine all FKW prey base information from a fisheries science perspective, and also reexamine the scientific reliability of the 1989 aerial survey results upon which most claims regarding the declining insular population are based. Information we have provided here indicate that NRDC's interpretations of fishery data are inaccurate, and that available fishery data do not suggest a decline in FKW prey base. Furthermore, we suggest that the large groups of FKW documented in the 1989 may not be the most reliable scientific data to estimate historical population size and to imply a dramatic decline in the insular population over the last 20 years.

The Council appreciates this opportunity to provide information upon the public information solicitation period in response to the 90-day finding. Please feel free to contact Asuka Ishizaki, Protected Species Coordinator at (808) 522-8224 or Paul Dalzell, Senior Scientist at (808) 522-6042 if you have any questions concerning the information discussed in this letter.

Sincerely,

A handwritten signature in dark ink, reading "Kitty M. Simonds". The signature is fluid and cursive, with the first name "Kitty" being the most prominent.

Kitty M. Simonds  
Executive Director

Cc: Bill Robinson, Pacific Islands Regional Administrator