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NATIONAL MARINE FISHERIES SERVICE  
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Michael Scott, Ph.D.  
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Dear Dr. Scott:

Thank you for your letter to Chris Oliver, NOAA Assistant Administrator for Fisheries, transmitting minutes and recommendations from the February 2017 meeting of the Pacific Scientific Review Group (SRG). Your letter was forwarded to me because the Office of Protected Resources within NOAA Fisheries is responsible for national programs under the Marine Mammal Protection Act (MMPA) and leads the agency's coordination of the SRGs.

The SRG has made a number of valuable comments and recommendations to help guide marine mammal science in NOAA Fisheries. We provide responses to the recommendations in the enclosure.

I appreciate the continued service and contributions by members of the Pacific SRG in providing advice and support to NOAA Fisheries in accordance with the MMPA. I look forward to our continued partnership to improve the science supporting the conservation of marine mammals.

Sincerely,

Donna S. Wieting  
Director, Office of Protected Resources

Enclosure



## **Responses to 2017 Recommendations of the Pacific Regional Scientific Review Group**

- (1) *The SRG recommends that the NOAA Fisheries continue funding for studies of movements and genetics of false killer whales and other cetaceans around Hawaii and U.S. waters in the Central Pacific to better understand stock structure, abundance and trends, ecology, distribution, and fishery interactions and survey bias.*

NOAA Fisheries Pacific Islands Fisheries Science Center (PIFSC) continues to conduct research on cetaceans in the central and western Pacific, including insular and pelagic populations around Hawaii, and provide support to Cascadia Research Collective (CRC) to continue field data collection efforts and deployment of satellite tags on Hawaiian odontocetes and all false killer whale stocks in Hawaiian waters. PIFSC is also currently conducting the Hawaiian Islands Cetacean and Ecosystem Assessment Survey for 2017, including additional survey effort in the main Hawaiian Islands and additional effort to deploy satellite tags on false killer whales throughout the archipelago. That survey continues through December 2017.

The State of Hawaii received Endangered Species Act (ESA) section 6 funding from NOAA Fisheries for a project to enhance conservation and management of false killer whales and other endangered cetaceans in Hawaii. This project began in October 2015 and is funded for three years. An objective of the project focuses on obtaining additional information about ESA-listed main Hawaiian Islands (MHI) insular false killer whale spatial use patterns, genetics, fishery interactions, and abundance. In spring of 2016 the State contracted CRC to help meet this objective. Fieldwork under this contract is expected to continue in 2017.

- (2) *The SRG recommends that NOAA Fisheries collaborate with the State of Hawaii to produce two reviews that can aid in future management:*
- a. *Expand upon the information presented at previous SRG meetings and the subsequent preliminary studies on the fisheries that operate in Hawaiian nearshore waters (such as the troll, handline, shortline, and other fisheries). In addition to the information that is currently collected from fishermen through self-reports, data should be collected on catch and bycatch amounts, season, location, and types of gear used, including regional gear variations. The SRG supports the collaborative NOAA Fisheries-funded research planned by the Hawaii Department of Land and Natural Resources, with its emphasis on scientific research and outreach to the fishing community and public.*
  - b. *Depredation of bait and fish catches by cetaceans is recognized as a serious problem for both fishermen and cetaceans in Hawaii. To better understand the dimensions and dynamics of this cetacean-fishery interaction, a review and problem analysis for each of the applicable fisheries could provide both a historical perspective and a current assessment of the problem.*

*The SRG would like to receive an update on these ongoing studies and reviews at its 2018 meeting. These reviews would be particularly valuable given the endangered status of the Hawaii insular stock of false killer whales and our current inability to identify causes for its decline.*

Information on catch, season, location, and gear type/method used is already being collected from State commercial fishermen through commercial fishing reports. However, the reports, as they are currently configured, limit our ability to glean the type of information needed to evaluate depredation of bait and fish catches and false killer whale interactions with State managed nearshore fisheries. Therefore, we will continue our dialogue with the State of Hawaii to encourage data collection that would be most helpful to address marine mammal bycatch mitigation for State managed nearshore fisheries.

In 2015, NOAA Fisheries Pacific Islands Regional Office (PIRO) funded a pilot study using social science methods to characterize interactions between cetaceans and small-boat fishing operations in the MHI. A final report is not yet available, but it is expected to provide some information on fishing methods from the areas and communities where the research was conducted on Oahu and the Big Island.

In response to a similar recommendation from the Pacific SRG in 2014, PIFSC conducted a preliminary analysis of marine mammal depredation information from State of Hawaii commercial fishery reports (<https://pifscwww.irc.noaa.gov/library/pubs/DR-15-006.pdf>). Dr. Erin Oleson summarized the results of this analysis at the Pacific SRG's 2015 meeting.

NOAA Fisheries continues to collaborate with the State of Hawaii to better understand and characterize State fisheries, understand the dimensions and dynamics of interactions with cetaceans in Hawaii, and further species recovery efforts. As noted above, the State of Hawaii received ESA section 6 funding from NOAA Fisheries in 2015 for a 3-year project related to the conservation and management of false killer whales and other endangered cetaceans. Part of the project aims to assess the spatial and temporal overlap between insular false killer whales and State fisheries in the MHI.

NOAA Fisheries is working cooperatively with the State for the ESA section 6 grants to identify further projects and initiatives that will enhance the conservation and management of marine mammals in Hawaii. Additionally, PIRO and PIFSC continue to coordinate with the State to provide education and outreach to Hawaii's fishermen about protected species, which helps improve relationships and build trust with Hawaii's sport and commercial fishing sectors.

Understanding fishery-related threats to the endangered insular false killer whale is also a priority for recovery planning for this stock. PIRO is currently developing a recovery plan for the main Hawaiian Islands insular false killer whale. Throughout the recovery planning process NOAA Fisheries will continue to work with the State of Hawaii and other partners to better understand and characterize fishery-related threats to this stock.

- (3) *A study (Harting et al. 2014) showed that about one-third of the current Hawaiian monk seal population is alive only because of the survival-enhancement efforts of NOAA Fisheries and its collaborators. Those efforts include rescuing sick or malnourished pups, translocating pups to areas where survivorship probabilities are greater, and mitigating mortality from male seal aggression, Galapagos shark predation, and entrapment. Not included in this total were the additional seals that would have become entangled in debris*

*were it not for net-debris removal efforts. To continue these vital conservation and recovery efforts, the SRG recommends that NOAA Fisheries:*

- a. Maintain sufficient resources to continue to operate the Northwestern Hawaiian Islands (NWHI) monk seal field camps and maintain rescue, rehabilitation, and survivorship-enhancement programs throughout the Hawaiian Archipelago. The field camps in the NWHI not only allow monitoring status of these subpopulations and research, but have been shown to play a critical part in survivorship-enhancement efforts*
- b. Restore the NOAA Fisheries net-debris removal program near monk seal haulout areas where entanglement occurs.*

The Hawaiian Monk Seal Assessment and Recovery Camps continue to be a high priority for both PIFSC and PIRO. During 2012-2014, diminished field effort resulted in degraded demographic information, which serves as the basis for many conservation activities. These reduced field seasons were due both to insufficient resources to deploy full camps and inclement weather shortening field seasons. PIFSC was able to deploy full field camps in 2015, 2016, and 2017. Some camps were affected by hurricanes in 2015, but overall there was sufficient effort to complete our stock assessment and undertake a large number of interventions to increase monk seal survival. PIFSC is also considering other ways to fund field camps including partnering with outside agencies and non-governmental organizations to ensure monk seal research and recovery efforts continue into the future as necessary.

From 2001 to 2005, with funding support of \$3M/year from the NOAA Fisheries Office of Habitat Conservation (OHC), the Marine Debris team of the PIFSC's Coral Reef Ecosystem Program (CREP) conducted large-scale, multi-agency, multi-vessel, multi-month marine debris survey and removal efforts across the shallow reef environments of the NWHI. During those efforts, 80-120 metric tons/year of derelict fishing gear and other large marine debris were removed and transported to Honolulu for proper disposal. In 2006, joint funding by the NOAA Coral Reef Conservation Program (CRCP), the NOAA Marine Debris Program (MDP), and the NOAA Papahānaumokuākea Marine National Monument (PMNM) was reduced to \$500K/year. This reduction in funding meant operations were scaled back to "maintenance-mode" levels aimed at keeping pace with new accumulation, estimated at 52 metric tons/year (Dameron *et al.* 2007) by resurveying areas historically shown to have high densities of derelict fishing gear. From 2009-2016, funding was further reduced to \$300-400K from NOAA MDP and PMNM, with occasional supplemental funds from the NOAA Damage Assessment, Remediation and Restoration Program (DARRP). These scaled-back debris removal efforts have not kept up with new accumulation. In 2016, efforts were scaled back to shoreline surveys and removals with no "in-water" effort, a substantial change from previous years when the in-water marine debris removal was the focus of the annual mission. In an effort to maximize the impact of this year's removal effort, the mission focused on reducing the amount of potential lethal entanglement hazards to the critically endangered Hawaiian monk seal by removing derelict fishing gear from islands and atolls where monk seal research field camps are stationed. The 15-day survey and removal operation removed a total of 11 metric tons of marine debris, primarily derelict fishing gear and plastics, from the shorelines of Midway Atoll, Kure Atoll, Pearl and Hermes Atoll, and Lisianski Island, including 1,843 derelict fishing nets or net fragments weighing 8.5 metric tons.

Over time, the decreasing funding and increasing operational costs have forced the program to operate in an ad-hoc nature where annual mission goals and objectives were often driven by availability of funds and ship-time. Moreover, there are significant costs associated with any removal mission to the NWHI regardless of scale and scope due to the remote location and the significant and time-consuming efforts to hire and train temporary staff to safely conduct small boat and diving operations needed for in-water debris removal operations.

The partner agencies (MDP, PMNMP, DARRP, and CREP) recognize that in the face of reduced budgets and sustained or even increased debris accumulation, a more strategic approach is necessary to maintain ongoing operations at a meaningful scale. Therefore, the partners have begun developing a 5-year strategic plan that pools resources over consecutive years to allow for more substantive and impactful removal efforts than are currently possible under the scenario of annual missions. The plan will include goals and objectives that focus on efforts that positively impact protected species, such as Hawaiian monk seals, sea turtles, and sea birds that are most at risk to entanglement and ingestion, as well as important habitats like coral reefs. The PIFSC Protected Species Division will be involved in developing the strategic plan, to ensure it is focusing on islands and habitats where these impacts are most likely to occur. With a strategic plan in place, the next step is to develop new partnerships and collaborations with other NOAA line offices, federal/state agencies, and non-governmental organizations to generate additional funding sources that leverage current funding and allow for more robust, sustained, and effective removal efforts that keep pace with annual accumulation rates.

- (4) *The SRG has recommended that NOAA Fisheries develop a multi-year allocation of ship time for marine mammal surveys and increase the priority and funding for these surveys, which are necessary to obtain the abundance estimates used to calculate the potential biological removal (PBR) and thereby enable fisheries to meet the required Marine Mammal Protection Act (MMPA) standards. A multi-year survey plan for all U.S. waters was developed but has not been implemented. In the Pacific, a West Coast survey was completed that provided new abundance estimates and a Hawaii survey is planned for 2017. The lack of operational funds threatens to delay the Hawaii survey. The SRG again recommends implementation of the national survey plan to allocate both ship time and operational funding to obtain new abundance estimates for marine mammal populations in a timely and systematic manner.*

The national survey plan (now [Ballance et al. 2017](#)) is being implemented in the Pacific Ocean through a multi-agency partnership between NOAA Fisheries (Alaska, Northwest, Pacific Islands, and Southwest Fisheries Science Centers) and the Bureau of Ocean Energy Management (BOEM), United States Navy, and U.S. Fish and Wildlife Service, entitled PacMAPPS - Pacific Marine Assessment Program for Protected Species.

The goal of PacMAPPS is to conduct surveys to assess the abundance of multiple species and their ecosystem (Multispecies Cetacean and Ecosystem Assessment Surveys - MCEAS) based on [Ballance et al. 2017](#). PacMAPPS has a 5-year survey schedule. One geographic area will be surveyed annually, with surveys collectively encompassing up to approximately 180 sea days per

year. NOAA Fisheries will provide the vessel and ship time for these proposed surveys. HICEAS - Hawaiian Islands Cetacean and Ecosystem Assessment Surveys (<https://www.pifsc.noaa.gov/hiceas/>) is the first survey being conducted as part of PacMAPPS. More information on PacMAPPS can be obtained at the following link:

[https://swfsc.noaa.gov/uploadedFiles/Divisions/PRD/Projects/Research\\_Cruises/PacMAPPS/PacMAPPS-DevelopingAStrategicPlan.pdf](https://swfsc.noaa.gov/uploadedFiles/Divisions/PRD/Projects/Research_Cruises/PacMAPPS/PacMAPPS-DevelopingAStrategicPlan.pdf)

*(5) The False Killer Whale Take Reduction Plan instituted for the Hawaii-based deep-set longline fishery included operational changes to such things as branchline strength, hook shapes and strengths, and set procedures. The effectiveness of these changes has bearing on the comparison of mortality and PBR and, at its 2017 meeting, the SRG reviewed the effectiveness of these changes in reducing the mortality and serious injury of false killer whales. Preliminary information suggests that lines were breaking or being cut and hooks were not straightening as anticipated, and that the approach to reduce serious injuries is not working as hoped. NOAA Fisheries should continue efforts to work with the Take Reduction Team to improve the approach to reduce serious injury of false killer whales.*

*The SRG recommends that the NOAA Fisheries provide, along with current mortality and effort data, an analysis on the effectiveness of the Take Reduction Plan measures, particularly with regard to 1) the interaction between the branchline strength and weak hook effectiveness, 2) potential differences in fishing practices and location for trips with and without observers, and update its testing of hook breakage and straightening for new hooks that have come onto the market since the original NOAA Fisheries hook study.*

Following the 2017 Pacific SRG meeting, PIRO began an in-depth review of false killer whale interactions to evaluate effectiveness of the Take Reduction Plan (TRP) and trends in false killer whale interactions, including gear outcomes. Preliminary results were presented to the False Killer Whale Take Reduction Team (FKWTRT) during a webinar in June 2017. During the June 2017 FKWTRT webinar PIRO discussed the current status of the TRP and specifically addressed general results and observations which indicate that the TRP is not meeting goals and objectives of the plan. PIRO is continuing to evaluate the data and will present it at a FKWTRT meeting in 2018.

NOAA Fisheries Southwest Fisheries Science Center (SWFSC) recently updated the effectiveness analysis of the TRP, comparing pre-TRP and post-TRP mortality and serious injury rates. These results were presented at the June 2017 TRT webinar and will also be revisited during the 2018 FKWTRT meeting. PIFSC is currently analyzing data to assess whether an “observer effect” is biasing data. Results are expected by the end of 2017 and will be presented at the 2018 FKWTRT meeting. Testing gear, including hook straightening and breaking points, has been discussed during recent FKWTRT teleconferences and webinars, and is planned for further discussion during the 2018 FKWTRT meeting.

As noted in the above comments, PIRO and PIFSC are coordinating with the FKWTRT to evaluate existing take reduction measures (e.g., within the context of outcomes from

interactions) and will be conducting additional analyses in the coming months. The results from these analyses and a comprehensive review of the TRP effectiveness will be presented and discussed during a FKWTRT meeting in the spring of 2018. At that meeting, the FKWTRT will consider the effectiveness of the TRP and new take reduction measures.

- (6) *The SRG recommends that NOAA Fisheries implement a multi-year plan and provide funding for conducting U.S. West Coast pinniped surveys on a 3-5-year schedule. These surveys are necessary to obtain abundance estimates required to calculate PBR and thus enable fisheries to meet the standards required by the MMPA and place an undue burden on those fisheries. Abundance estimates are required to meet assessment needs and conduct multi-species ecosystem modeling.*

For the past many years, the SWFSC has conducted annual (summer) aerial surveys for California sea lions (rookeries and pup counts) and other pinnipeds in the Channel Islands with support from the U.S. Navy, who require information about pinniped use on military bases in the region for their permitting requirements. SWFSC has a multi-year plan for surveying pinnipeds in the Channel Islands on a 3-year rotational schedule (e.g., elephant seals, harbor seals). NOAA Fisheries Alaska Fisheries Science Center (AFSC) conducts annual demographic studies of California sea lions and northern fur seals in the California Channel Islands with support from the West Coast Regional Office. AFSC and SWFSC have conducted Steller sea lion pup counts from central California through Washington State as part of the post-delisting process and with support from the Alaska Regional Office. There has not been sufficient funding for the science centers to conduct west coast harbor seal surveys over the past decade.

- (7) *With the Endangered Species Act relistings of many humpback whale breeding populations, the Washington (WA)/Oregon (OR)/California (CA) stock will need to be restructured. Regardless of the stock structure adopted, more research will be required to implement the management of these new stocks. The SRG recommends that photo-identification, surveys, telemetry, and genetics studies be reviewed and expanded as necessary to a) identify the proportion of different breeding populations that comprise the CA/OR and WA/British Columbia feeding populations, b) estimate the abundance of these feeding populations, and c) assign breeding population of origin for whales taken in fisheries or stranded. Because certain newly recognized populations are listed as endangered or threatened, the SRG supports NOAA Fisheries' efforts to move forward expeditiously with the designation of MMPA stocks.*

As part of the planned 2018 U.S. West Coast survey (CalCurCEAS), there will be targeted effort to obtain photographs and biopsy samples for humpback whales. SWFSC will also continue to engage in collaborative efforts with other researchers conducting studies of U.S. West Coast humpback whales. MMPA stock structure is currently under review by NOAA Fisheries and proposed stocks will be presented to the SRG when available.

- (8) *The SRG recommends that the 2002 and 2010 Hawaiian Islands Cetacean and Ecosystem Assessment Survey (HICEAS) data be reanalyzed after the completion of the 2017 HICEAS survey to apply consistent abundance analysis methods to all three survey years.*

2017 HICEAS is ongoing through December 2017. In 2018 we will be examining analytical approaches and plans to update density and abundance estimates based on the data collected during the 2017 survey. We will aim to update 2002 and 2010 estimates using the same analytical methods developed for 2017 to the extent feasible. There are species for which the data collection protocols have changed since 2002, or even during each of the 3 surveys, including false killer whales. While such changes in survey design likely prevent robust comparison of abundance estimates among survey years, such changes were needed to account for new information on the biology and ecology of the species, and updating data collection will allow for higher confidence in abundance estimates going forward.

## References

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