

**False Killer Whale Take Reduction Team Meeting
April 29 – May 1, 2015: Honolulu, Hawaii**

KEY OUTCOMES MEMORANDUM

I. OVERVIEW

The National Marine Fisheries Service (NMFS or Agency) convened a meeting of the False Killer Whale Take Reduction Team (FKWTRT or Team) April 29-May 1, 2015, in Honolulu Hawaii. The meeting focused on the following objectives:

- Provide updates on recent False Killer Whale Take Reduction Plan (TRP or Plan) related information and actions, including stock assessment, observed interactions, fisheries management, and research initiatives
- Take stock of TRP implementation efforts to-date, including monitoring approach and initial results
- Consider the need for any potential TRP amendments and/or updates to research priorities
- Outline next steps

This meeting summary is presented in five main sections: Overview, Participants, Meeting Materials, Key Themes and Discussions, Consensus Recommendations, Public Comments and Next Steps. The Key Themes and Discussions section focuses on Plan Effectiveness, Non-Longline Fisheries, Research Exemptions and Research Priorities.

A copy of the agenda and all other meeting-related materials are available on the Team website at <http://www.nmfs.noaa.gov/pr/interactions/fkwtrt/>.

II. PARTICIPANTS

The meeting was attended by 16 of 19 Team members or their alternates. Participants included the following: Robin Baird, Hannah Bernard, Brendan Cummings, Paul Dalzell/Asuka Ishizaki, Roger Dang, Ann Garrett, Michael Jasny, John LaGrange, David Laist, Kristy Long, Alton Miyasaka/Jo-Anne Kushima, Paul Nachtigall, Tory O’Connell, Andy Read, Ryan Steen and Sharon Young. Clint Funderburg, Eric Gilman and John Hall were unable to attend.

Nancy Young, TRT Program Coordinator with the NMFS Pacific Islands Regional Office (PIRO), and Erin Oleson and Amanda Bradford, with the NMFS Pacific Islands Fisheries Science Center (PIFSC or Science Center) also joined the Team in its discussions. Karin Forney, with the NMFS Southwest Fisheries Science Center, participated via teleconference. William McLellan from the University of North Carolina Wilmington provided a presentation by teleconference on Day One, and Leila Madge, a social scientist contractor through PIFSC, provided a presentation on Day Three. As well, about 25 people, including staff from PIFSC, PIRO (Observer Program, Protected Resources Division, and Sustainable Fisheries Division), NOAA Office of General Counsel, NOAA Office of Law Enforcement, State of Hawaii, the U.S.

Coast Guard, and members of the public, including several non-longline fishermen, attended all or part of the meeting and provided input and guidance, as appropriate. Non-longline fishermen Phil Fernandez and Craig Severance participated on Day Three as invited experts. Scott McCreary with CONCUR, Inc. and Bennett Brooks with the Consensus Building Institute, served as the neutral facilitators.

III. MEETING MATERIALS

Meeting materials were provided to support the group's discussions. As possible, meeting materials were sent out ahead of time. However, some documents and nearly all presentation materials were distributed as handouts. All materials are available on the web at <http://www.nmfs.noaa.gov/pr/interactions/fkwtrt/>.

IV. KEY OUTCOMES

Below is a summary of the main topics and issues discussed. This summary is not intended to be a meeting transcript. Rather, it provides an overview of the main topics covered, the primary points and options raised in the discussions, and next steps.

A. Welcome and Introduction

The meeting began with brief welcoming remarks by PIRO Regional Administrator Mike Tosatto, who thanked Team members for their past and ongoing efforts and encouraged the Team to use the meeting to assess progress to-date and work collaboratively to maintain focus on meeting TRP goals. Following M. Tosatto's remarks (and Team member self-introductions), N. Young and S. McCreary reiterated the primary meeting objectives and provided an overview of the meeting agenda. K. Long next reviewed NMFS' new Take Reduction Team Operating Protocols, which expand previous ground rules and are meant to provide consistency across all Take Reduction Teams. B. Brooks then reminded participants of the Team's informal protocols intended to foster productive dialogue. There were no proposed revisions to either the agenda or operating protocols.

B. Background Briefings and Updates

To inform Team discussions, the deliberations included a series of updates and information related to the Take Reduction Plan. Below is a brief synopsis of the various updates; more detailed materials (presentations and handouts) are available on the Team website (see link provided earlier). Team member comments related to the various briefings and updates are captured in the Team discussion summary below.

- **General Updates.** N. Young noted recent or planned additions to the Team, which includes M. Jasny (for conservation representative William Aila) and A. Garrett (for NMFS Lisa Van Atta). She further noted that additional fisheries representation may be needed to account for fishermen members (and alternates, if applicable) unable to attend Team deliberations due to fishing obligations. (J. Hall, C. Funderburg, and C. Funderburg's alternate Frank Crivello were unable to attend due to last-minute work obligations.) Additionally, K. Long provided a brief overview of the NMFS workshop

held February 2015 to identify safe methods for deterring marine mammals from damaging fishing gear and catch, and damaging personal or public property. K. Long briefly reviewed workshop purpose, intended work product (e.g., possible prohibitions and guidelines), and likely timeline for any associated rule-making. Team members asked to be kept apprised of any rule-making and receive copies of the workshop summary.

- **False Killer Whale Stock Assessment Update.** A. Bradford provided an update on revised stock boundaries for false killer whales in Hawaiian waters. A. Bradford first reviewed the methods and data used by a Science Center-convened working group to take stock of areas used by the three false killer whale stocks (Main Hawaiian Islands (MHI) Insular; Hawaii Pelagic and Northwest Hawaiian Islands (NWHI)) and develop criteria to guide any boundary revisions. Based on the Working Group's deliberations, A. Bradford noted that stock boundaries were somewhat revised for all three stocks, leading to new overlap zones among the stocks. She noted that the new boundaries have only minor implications for abundance estimates for all three stocks. These changes will be reflected in the draft 2015 Stock Assessment Report (SAR), which was reviewed by the Pacific Scientific Review Group in March and will be made available for public review and comment after the final 2014 SARs are published.

E. Oleson followed up with a presentation explaining the Center's new approach for prorating false killer whale bycatch in the longline fishery to take into account: (1) bycatch occurring within range of all three stocks, rather than only MHI insular and pelagic stocks; (2) the revised stock boundaries described by A. Bradford, and (3) account for data constraints. The new approach first prorates annual Hawaii Economic Exclusion Zone (EEZ) take among stock areas (including overlap zones) based on the distribution of fishing effort (by set) within those areas, and then, within overlap zones, apportions takes among stocks based on the ratio of their average densities within the zones. (One important caveat: When an observed take occurs in an overlap area, the observed take is assigned to that area.) Based on the new methodology, annual mortalities and serious injuries (M&SI) inside the Hawaii EEZ in 2013 are estimated as follows: 0 for NWHI and MHI insular stocks, and 4.1 for the pelagic stock. Additionally, there were an estimated 6.6 M&SI outside the EEZ in 2013.

- **Interaction Data.** N. Young provided an overview of recent (2013-present) observed false killer whale interactions and injury determinations, as well as other observed protected species interactions (marine mammals, sea turtles, and seabirds). The presentation, developed with Jamie Marchetti of the PIRO Observer Program, highlighted the following: (1) observer coverage of the deep-set longline fishery has held fairly steady at roughly 20% each year; the shallow-set fishery continues to be at 100% coverage; (2) since Plan implementation, there have been 16 total observed false killer whale takes in the deep-set fishery (4 in 2013, 11 in 2014 and 1 thus far in 2015) and 1 in the shallow set fishery (2014 only, inside the EEZ); and (3) in 2014, observed false killer whale takes in the deep-set fishery included 2 inside the EEZ and 9 outside the EEZ. N. Young noted that the Observer Program has improved its ability to identify false killer whales and, as a result, has had no unidentified cetaceans still characterized as

“blackfish” in 2013, 2014, or 2015 to-date. She also noted that 2013 figures included bycatch for several months prior to full implementation of all Plan elements (i.e., 3 of the 4 false killer whale takes observed in 2013 occurred before the TRP’s deep-set fishery gear requirements went into effect). Comments based on N. Young’s presentation included the following:

- P. Dalzell noted that a *center of mass* study conducted by Jeff Polovina shows a shift of fishing effort to the northeast, a factor that may impact Plan strategy. A graphic of the shift was shared with the Team later in the meeting, which showed strong seasonal fluctuations in center of mass.
 - Some Team members expressed interest in better understanding the likelihood and potential ramifications of changes in oceanographic conditions on the distribution of fishing effort and marine mammals and, as a result, any corresponding possible impact on Plan effectiveness.
- **Fisheries Management Updates.** The meeting included a series of fisheries management updates related to the TRP. This included the following:
 - Russ Ito with the Science Center provided the following updates on longline fishing effort in 2014 based on vessel logbook data: (1) the number of deep-set longline vessels increased from 124 in 2010 to 140 in 2014; (2) the number of trips has held relatively steady over the same period; (3) the overall number of hooks set outside the EEZ has increased dramatically over the past 20-plus years, comprising 75% of the hooks set by the deep-set and shallow-set fisheries combined in 2014; and, (4) bigeye tuna catch has increased significantly (with more vessels heading farther out and more north and east consistent with oceanographic trends), while albacore and yellowfin have held fairly steady or decreased slightly. R. Ito also reviewed trends in other catches, noting the increase in thresher and mako shark catch. T. O’Connell noted that the relationship between hooks in the water and false killer whale takes does not appear to be a simple straight-line relationship.
 - P. Dalzell and A. Ishizaki provided updates on both Amendment 7 implementation (2015 & 2016 Territory bigeye catch limit specification) and new catch limits for striped marlin, but noted that neither is expected to change the nature of the Hawaii longline fishery (e.g., fishing effort). It was further noted that allocation of participating U.S. Territories’ catch limits to the U.S. longline fleet effectively extends the season past October (when the U.S. typically reaches its limit) so the fishery can continue to operate year-round. Other Council updates included: (1) informing the Team that the SSC is undertaking a review of the false killer whale boundaries and bycatch proration methodology; (2) the Council is supporting a project to devise an alternative tier system for establishing PBR (Potential Biological Removal); (3) collaboration with Hawaii Longline Association (HLA), PIFSC, and others to obtain funding to test a catch-triggered device to prevent depredation (more details under the research section); and (4) provided support for HLA’s development of a training video on releasing hooked false killer whales.

- N. Young provided two updates: (1) NMFS issued a non-jeopardy Endangered Species Act (ESA) Section 7 Biological Opinion on the Hawaii deep-set longline fishery in September 2014; and (2) NMFS is considering a revised Community Development Plan proposal (the Ohai proposal, now undergoing environmental review). The vessel fishing under the proposal would be deep-set only and would need to abide by the regulations as the rest of the fleet, including the TRP. N. Young is to alert the TRT of the public comment opportunity.
- **Research Activities.** The meeting provided updates on a number of research activities. N. Young first provided an overview of the Team’s current research priorities, along with a reminder of the process used by the Team to identify priorities. E. Oleson then provided an overview of research activities to-date related to each of the four priority topics (false killer whale biology, longline gear, state fisheries, and false killer whale assessment). The meeting also included updates on a series of recent TRP-related research efforts, each of which is briefly summarized below.
 - *Hook Study.* W. McLellan presented via teleconference their most recent mouth hooking studies on pilot whales using four hooks common to Hawaii’s deep-set longline fishery. Hook measurements and mean straightening tests indicated that two of the four hook types tested were likely the same hook type. Key takeaways from the study included the following: (1) a more systematic nomenclature for hook types is needed, for clarity in reference and testing; (2) none of the hooks tested had a large enough gape and/or bite to hook around the jaw in the two adult pilot whales tested (no juvenile whale heads were tested); (3) all hooks tested deformed sufficiently to expose the barb and point, which cut through tissue and released the hook; pilot whale lip tissues resisted up to 330 pounds of force, which was the force required to straighten the hooks (the larger Korean carbon hooks referenced in McLellan *et al.* 2014¹ required forces up to nearly 600 pounds to pull through pilot whale lip, demonstrating that this tissue can withstand large forces before tearing); (4) flattened wire hooks straightened, but the distal portion left more of a “hook” shape remaining; (5) one 14/0 flattened hook tested in the whale’s mouth broke at the barb at a lower force than was required to break the hook during the isolated mechanical testing; and (6) round wire straightened more smoothly along the entire length and generally sliced through tissues more cleanly than flattened hooks. Additionally, W. McLellan observed variability in hook performance based on the direction of pull (dorsal versus caudal), but noted the direction would not be predictable in the field during an interaction.

Team members posed several clarifying questions based on his presentation, seeking to understand, in particular, the extent to which pilot whale jaw size and strength is similar or analogous to false killer whales. Later in the meeting, some Team members expressed interest in working with the Stranding Program and others to procure false killer whale heads for hook testing. Some Team members also

¹ McLellan, W.A., Arthur, L.H., Mallette, S.D., Thornton, S.W., McAlarney, R.J., and Pabst, D.A. 2014. Longline hook testing in the mouths of pelagic odontocetes. ICES Journal of Marine Science. <http://icesjms.oxfordjournals.org/cgi/reprint/fsu181?ijkey=pTAKnllRkQeOxfl&keytype=ref>

expressed interest in collecting swabs that may contain tissue from behind the barbs of straightened hooks to identify the species involved. It was noted that observers are not legally able to collect gear, but it may be possible for observers to collect tissue from straightened hooks. (J. Marchetti noted that observers have not reported visible tissue on straightened hooks to-date).

- *Cetacean Assessment Using Passive Acoustics*. Erin Oleson provided an update on three Science Center studies intended to use passive acoustics to learn more about cetacean presence and identification. The first two studies, which assessed the extent to which false killer whales can be identified (species and stock) by distinguishing among whistles and echolocation clicks. False killer whale whistles are readily identifiable to species, but use of echolocation clicks for species identification and whistles for stock classification are still under investigation. Analysis suggests the ability to use clicks for species identification, though classification error rates are susceptible to variations in the frequency response of the recording system. There are also promising results for discriminating between the three Hawaii false killer whale stocks using whistles, though more work is needed to explore the effects of group size, number of whistles per encounter, and sensitivity to unequal sample size on the classifier's success. The third study, conducted with extensive cooperation by the fleet (thus far 32 boats have agreed to participate), centered on deployment of acoustic recorders to answer a variety of research questions. Results provided significant data on false killer whale presence relative to depredated sets (false killer whales are detected three times more often than catch depredation is recorded); and, timing of cetacean detection (most common from the end of the soak through the haul, and false killer whale detections peaked during the haul). The results also seem to suggest that false killer whales tend to work longlines while moving away from the vessels. Additional studies are planned for the coming year.

In addition to posing a number of clarifying questions, several Team members expressed strong interest in the results and support for continued studies. There was also strong interest in assessing the extent to which real-time monitoring, if used widely by the fleet, could be used to help inform bounds on false killer whale abundance estimates (even if it is not considered viable for estimating population size). Finally, several participants expressed appreciation for the successful outreach effort to and cooperation by the fleet related to the third study.

- *Pelagic false killer whales and longline sets*. R. Baird presented results of his research into false killer whale movements in relation to longline fishing activity by synching pelagic false killer whale satellite tag and longline fisheries logbook data to try to understand dynamics of interactions. The effort, conducted in cooperation with the Science Center, showed false killer whale movements of tagged animals relative to the longline gear during setting, soaking and hauling. One example was shown with tagged whales >80 km from gear during setting and soaking but rapidly approaching the gear part way through hauling, and remaining around the gear for the subsequent set during setting, soaking and part of hauling. Despite the presence of the whales around the gear, catch of bigeye tuna during both sets were higher than during

- preceding or subsequent sets when tagged whales were not around gear. The presentation generated numerous questions and interest.
- *False killer whale depredation research and underwater video.* T. O’Connell shared with the Team results from the video, acoustic, and accelerometer project undertaken by the Southeast Alaska Sperm Whale Avoidance Project (SEASWAP). The project seeks to understand whether a “smart hook” could be designed to release unwanted bycatch using acceleration alone. A small portion of the work was conducted in the Hawaii longline fishery. The data, which included video of two false killer whales successfully depredating bait, suggested the following initial findings: (1) false killer whales use both acoustics and vision to depredate; (2) depredation method varies among individual animals (e.g., “twist” versus “grab and go”); (3) false killer whales are depredating bait and hooked fish, something that had not been directly observed before; and (4) there is preliminary evidence that depredation can be detected using accelerometers. More analysis of existing data is planned, and the project is seeking additional funding to increase coverage in the Hawaii longline fishery. Team members were intrigued by the study’s initial results and posed several questions to better understand the extent to which (a) cetaceans are depredating bait v. target catch, particularly since the two underwater videos show false killer whales depredating bait, and (b) the accelerometer can distinguish between false killer whale and mahi-mahi depredation. (T. O’Connell said initial results indicated accelerometers can distinguish between bait depredation by false killer whale and mahi-mahi, though sample sizes are small, and more work was needed to answer these and other questions.)
 - *Bycatch and depredation mitigation device testing proposal.* A. Ishizaki provided an overview of new bycatch and depredation mitigation devices intended to reduce odontocete depredation. The devices, developed by Derek Hamer with DBMS Global Oceans and tested thus far in Australia and Fiji, deploy either metal chains or a hooped cage structure once the target species is hooked to protect it from depredation. Testing results for this gear to-date suggest negligible impact on soak depth, increased catch rates, catch size unaffected or slightly increased, and no impact on set time (with an extra crew member deployed). The gear did have a slower sink rate and haul time was slower. Industry is interested in testing the chain device on Hawaii longline vessels, and the Council and partners have submitted proposals to fund such an effort. Team members posed several questions regarding the economic viability of the devices. A. Ishizaki said additional testing was needed to better understand the potential economic impact, as both gear and labor costs would be affected.

General Team discussion related to the research projects also generated the following broad comments: (1) interest in NMFS conducting a false killer whale abundance survey, including the entire Hawaiian EEZ, before 2018; (2) interest in NMFS providing information regarding the acoustic data collected in the 2010 HICEAS survey, even if not sufficient to estimate abundance (e.g., number of false killer whale recordings and where they occurred); and (3) reiterating the importance of the Team’s prioritization of research

activities in driving Agency activity and focus. Research activities were also considered in Team discussions related to potential consensus recommendations and are summarized in a later section.

- **TRP Implementation Status.** The meeting included several presentations intended to give participants an overview of TRP implementation status and any related issues. Below is a brief synopsis of key updates.
 - *PIRO Overview.* N. Young noted that implementation is moving forward largely as planned, with no notable changes or operational problems reported to-date. Specific progress includes: (1) completion of the Monitoring Strategy (with the first annual report to be prepared soon), and (2) close tracking of interactions and debriefing of observers to better understand handling/release details. She also noted the Observer Program’s strong cooperation and support of TRP implementation, from shifting observer on-board priorities to improving false killer whale identification. N. Young also cited several implementation considerations that merit possible Team discussion as it considers strategies to strengthen the Plan. These included: (1) implementation challenges associated with the Southern Exclusion Zone trigger (false alarms, staff-intensive analysis for injury determinations and administrative requirements associated with expedited implementation, uncertainty for fishermen, unintended pressure on observers, etc.); and (2) challenges tied to the somewhat artificial distinction between takes inside/outside the EEZ. She encouraged Team members to consider the effectiveness of the Southern Exclusion Zone (SEZ) closure strategy in its deliberations.
 - *Enforcement/Compliance.* Take Tomson with the NOAA Office of Law Enforcement and Eric Roberts with the U.S. Coast Guard provided brief updates on enforcement and compliance related to TRP implementation. T. Tomson noted that, with the exception of two violations shortly after TRP implementation in early 2013, monitoring has indicated the longline fleet has been in full compliance with all regulations. He further noted in a follow-up communication that the approximately 80 longline vessels (“a rough estimate”) have been inspected thus far in 2015. He also noted that his office recently hired two additional uniformed officers for a total of three officers. E. Roberts reiterated the strong compliance to-date and noted that all Coast Guard officers are recertified every 12-18 months to ensure they are up-to-date on current regulations. He said the Coast Guard typically boards 20-40% of longline vessels each year.

Some Team members sought to understand the extent to which the Team might get access to VMS data for scientific purposes such as tracking false killer whale movements relative to the fleet. T. Tomson suggested in a follow-up communication that was shared with the Team that, under certain conditions, such access might be possible.

- *Industry Overview.* R. Steen provided a brief overview of implementation-related issues based on industry’s experience with the Plan to-date. Other than some initial

challenges associated with gear availability to support the transition to weak hooks, he suggested the fleet has not had any significant issues implementing the regulations to-date. He did, however, note HLA's recent emphasis on training to improve handling during a false killer whale interaction given the "quick line cuts" associated with a number of interactions. This effort is described in greater detail below.

C. Key Themes and Discussion Topics

Plan Effectiveness

The Team spent the bulk of the meeting assessing the effectiveness of the Plan to-date and considering candidate strategies and research needs to strengthen TRP implementation.

The discussion began on Day 2 with presentations by N. Young, K. Forney and E. Oleson on Agency efforts to track effectiveness to-date and identify key issues and analyses for the Team's consideration. Below is a synthesis of the key points raised in these upfront presentations.

- N. Young provided a characterization of hooks and observed interactions since Plan implementation. Regarding hook characterization, N. Young noted that a more comprehensive look at Observer Program data suggest there have been 34 distinct hook "types" (i.e., unique combinations of size, cross-sectional shape [round or flattened], and wire diameter) used by the fleet since the TRP gear requirements went into effect, ranging in wire diameter from <4.0 to >4.5 mm and size from 14/0 to 16/0. N. Young noted that there are caveats to using these data, including that hook "types" may not actually be unique (e.g., because of inter-observer or equipment differences, or measurement error), and that a given "type" could include actually different hooks (e.g., if the hooks differed in some aspect that is not recorded by observers, such as manufacturer, material, etc.). A review of hook types associated with interactions did not reveal any significant hook performance-related trends (three interactions with 15/0 round 4.3 mm wire diameter hooks, for example, ended with 1 line broken, 1 hook bent, and 1 line cut), but N. Young said the study may suggest the need for changes in how hook types are monitored and type of data collected. The Team was provided with a detailed handout showing the variety and frequency of hook types observed, and involvement in observed false killer whale interactions.

Regarding observed interaction characterizations, N. Young provided a summary table detailing the characteristics of each observed interaction since Plan implementation, as well as a handout with in-depth descriptions of each interaction. (From 2013 to April 2015, there have been 16 observed false killer whale interactions in the deep-set fishery and 1 in the shallow set; all hookings.) N. Young noted that reports to-date show few clear trends in hook performance, but noted a high number of serious injury determinations due to "line cut" and "line broke" outcomes (7 cases where line broke and 5 with lines cut). Most interactions (13 of 17) lasted 1 to 5 minutes, which may be enough time to implement better handling/release strategies. In only 3 of the 17 documented cases did the hook straighten or break.

N. Young and others also noted that the vessel captains were not present for a number of the interactions, and crew handling techniques may be accounting for the higher-than-expected

number of serious injuries (though this is difficult to discern given the limited details collected by observers on crew actions and the still relatively small sample size). R. Steen also noted that 12 interactions were either line broke or cut – an indication of the need for improved training. Participants expressed strong interest in gathering more detail from observers – either in data forms or via interviews – to better understand crew intent and actions during an interaction. Several participants also raised questions about the accuracy of false killer whale size reported by observers, since size is very difficult to estimate in the field.

- An analysis of pre- and post-TRP Observer Program data by K. Forney suggests there is not yet a documented statistically significant difference in M&SI rates or proportion of non-serious injuries given the variability in annual take rates and the overall low number of interactions. Moreover, K. Forney conducted an analysis to better understand the length of time needed to detect statistically significant shifts in take or serious injury rates. Based on her analysis, K. Forney suggested only large (40-50%) reductions in M&SI would be statistically significant within 3-5 years. Additionally, if present, an increase in the proportion of non-serious injury interactions (to 25-35%, up from the pre-TRP proportion of 8.3%) should be detectable within 3-5 years. These results have potential implications for measuring Plan effectiveness (i.e., assessing trends versus statistically significant results). The Team also noted that these results suggest it will be easier to identify a change in the proportion of non-serious injury interactions than a reduction in overall M&SI, and requested that NMFS monitor the proportion of non-serious injuries. N. Young noted that this is included as a “secondary indicator of effectiveness” in the Plan Monitoring Strategy.
- E. Oleson presented a brief review of the deep-set fishery annual effort from 2002-2013. Logbook data indicate a steady increase in effort outside the Hawaii EEZ (13,000-plus sets outside the EEZ versus just under 6,000 sets within the EEZ in 2013). Industry representatives said the shift is consistent with the longer-term trend of the fleet fishing north and east of the Hawaiian Islands during some months of the year and is not driven by vessels seeking to avoid potential false killer whale interactions within the EEZ. E. Oleson then presented data on the proportion of fishing effort (from logbooks) that was observed, by area. This analysis indicated a lower proportion of effort inside the EEZ was observed in 2013 (approximately 16%) compared to effort on the high seas (approximately 22%). However, E. Oleson noted the divergence is not unprecedented. Divergence in observer versus logbook data was also noted in the proportion of fishing effort within the Hawaii EEZ, with 30% of logbook sets occurring inside the EEZ but only 23% of observed sets. Again, E. Oleson noted that the divergence is not without precedent.

Later on Day Two, there were several presentations related to handling/release training efforts. First, N. Young reminded the Team of its past deliberations on the topic, highlighting TRT input on placards and Protected Species Workshop training content. She also provided a summary of a 2014 Work Group call to discuss best practices (no single approach recommended, more study needed). Next, both HLA and the Agency provided updates on their recent handling/release training efforts. HLA’s presentation by R. Steen emphasized (1) a new, HLA-produced video intended to underscore the importance of maintaining tension and not cutting the line during an interaction; and (2) its strategy for ensuring videos are viewed by vessel captains (using an

industry liaison to show the video and have a face-to-face discussion, shown at auction or upon request at other locations). R. Steen noted that the video has been seen so far by approximately 80% of vessel captains. Andrew Torres with PIRO's Sustainable Fisheries Division also gave an overview of NMFS handling/release training, which includes a section on false killer whale handling/release as a component of its marine mammal training module. A. Torres' presentation included a hands-on demonstration that made clear the challenges inherent in trying to provide sufficient tension on the line by hand.

Following the presentations, the Team had focused discussions on a range of topics and possible recommendations related to various elements of the Plan. Below is a synthesis of Team discussions. A summary of recommendations considered by the Team based on its deliberations is included in the following section.

- **Gear modifications.** During the course of the three-day meeting, the Team discussed the merits of recommending, potentially requiring or pursuing additional research on various gear modifications during the course of the three-day meeting.
 - *Stronger branchlines.* Many Team members expressed the view that the large number of lines breaking during interactions to-date suggests that current branchlines are too weak and new efforts are needed to ensure hooks are the weakest part of the terminal tackle. Team members discussed the merits of specifying, via rulemaking, new branchline requirements versus voluntary implementation by industry. Several industry members suggested that a voluntary approach would likely be successful, particularly if promoted by HLA, given (1) the relatively low cost and effort required, (2) the generally positive nature of using stronger lines when fishing (i.e., retain more fish), and (3) the fleet's shared interest in minimizing false killer whale serious injuries. Several Team members also recommended the Agency conduct research into branchline characteristics to better understand the parameters (e.g., diameter, material, manufacturer, age, and use) that affect its breaking strength. It was also suggested that information on branchline strength be incorporated into the captain and crew trainings.
 - *Weak hooks.* Team members had varied views on the effectiveness of current weak hook requirements. Several Team members said the results of the interactions to-date (e.g., lines snapping before hooks straighten) and the results of W. McLellan's hook strength testing already suggested that the current hooks are too strong and the Team should be considering weaker hooks. Some Team members recommended the Agency retest 4.0 mm wire diameter hooks since an earlier study was considered by some to be inconclusive due to the time of year the study was undertaken, or test the intermediate wire diameter (4.2 mm) as recommended in the Draft TRP. Others discussed the idea that wire diameter may not be the most important factor controlling a hook's strength, and recommended not launching another test of hook strength until factors other than wire diameter are better understood. One Team member noted that many of the smaller wire diameter hooks are already in use by the fleet. Still other Team members said it was still premature to begin looking at weaker hooks given that the Plan is still early in its implementation, and suggested instead that HLA (and the

Agency) work more closely with industry to ensure that vessels are using more effective handling techniques, and, as possible, track the status (and potential impact) of voluntary efforts by the fleet to use stronger branchlines. Implementation of, or additional research into, weaker hooks was seen by several Team members as premature.

- **Handling and Release.** Team members broadly agreed that interaction data to-date suggest the need for improved training on the most effective strategies for releasing a hooked false killer whale. In particular, Team members voiced concern that 12 of the 17 interactions since Plan implementation in 2013 resulted in line either breaking or being cut, particularly as many of the interactions lasted long enough to enable hook-straightening strategies. Several Team members further noted that captains were frequently not present during the interaction (at least 6 of the 17 interactions) – suggesting that more training is needed to ensure: (1) captains are alerted and engaged, and (2) crew members are sufficiently aware of and can implement the most effective handling techniques in case the captain is not present.

Team members also considered strategies for more effectively communicating handling and release techniques to both captain *and* crew. Some of the discussion centered on the messages being delivered during the trainings, with many (though not all) Team members agreeing that trainings should give captains and crews latitude in techniques used to maintain sufficient tension to facilitate hook strengthening. At the same time, there were concerns that crews might “play” an animal for too long, thereby causing capture myopathy. At least one Team member expressed some concerns that the images in the HLA video, despite the narration, seems to suggest cleating off the line and backing down the vessel as the single preferred method. As well, at least one Team member expressed support for the current NOAA handling/release placard’s sequential instructions, to first maintain tension, but to move on to other actions if the hook does not straighten (i.e., attempt dehooking, and if unsuccessful, to cut the line), noting that the Agency likely cannot be more prescriptive than that.

The discussion suggested some early impacts of HLA’s training. R. Dang noted that he has already seen an uptick in awareness of the Plan’s hook-straightening objective among Vietnamese-American captains that have undertaken the training, as well as some different techniques being considered. It is too early to assess more concrete benefits related to Plan goals (i.e., fewer false killer whale serious injuries) as HLA’s training only began in February 2015.

Other points raised related to handling and release techniques and training included the following:

- The Team expressed general support for the HLA video and appreciation for the Industry’s outreach efforts.
- More detailed information on observed interactions will be instrumental in helping the Team assess the effectiveness of current guidelines and, as needed, modify approaches. Several suggestions were put forward to facilitate better informed Team

discussions on the topic, including: (1) expanding the data fields for observed interactions to better detail crew actions, hook manufacturer, etc.; (2) using observer debriefing interviews to better understand crew behavior during interactions; and (3) providing the Team access to observer videos of interactions (subject to confidentiality requirements).

- Team members discussed the merits of identifying a “bright line” to guide crew response when a hook is not straightening (interaction duration, animal behavior or response, etc.), but Team members eventually agreed that flexibility is needed given the complexity of each interaction and no single “bright line” is viable.
- Team members discussed various strategies for accessing Observer Program videos of false killer whale interactions. Team members agreed that videos edited to preserve confidentiality are often of much lower resolution and thus less value, as key sections are often rendered unviewable or inaudible. Some Team members said it is more important that the Agency, if at all possible, share unedited videos with Team members that have signed confidentiality agreements.
- Some Team members noted that use of a vessel’s hydraulic system or pulleys might offer other strategies for providing consistent line tension. The pulley also may mimic a dorsal pull, which – based on W. McLellan’s work to-date – may lead to a more predictable, and sometime faster, release of the hook than a caudal pull.
- At least one Team member suggested the NMFS “Marine Mammal Handling and Release Guidelines” placard could be presented in a more accessible fashion, with greater use of graphics (e.g., using a cartoon illustration so that no written text is needed to understand the message). It was also suggested that its materials be translated into other languages, including those of captains and crew, and that HLA’s video be made available at gear distributors to foster greater awareness.
- **Other:** Others observations and/or strategies put forward for improving Plan effectiveness are summarized briefly below.
 - Several Team members expressed interest in considering the benefits and viability of incorporating electronic monitoring, specifically with video and/or still cameras. Some possible benefits of electronic monitoring noted by some participants during the discussion included (1) providing insights into crew handling and release techniques; (2) assessing any possible observer effect; and (3) providing a mechanism to observe a handful (2 to 3) vessels out of California. Other Team members noted that electronic monitoring is already being discussed by the Western Pacific Council and by managers at the national level, and that feasibility studies in the fishery to-date suggest that electronic (video) monitoring may be useful (e.g., video recorded protected species interactions within view of the camera), but is both costly and labor-intensive given the time required to review and process videos, and implementation and other issues would also need to be considered. Several participants also noted that electronic monitoring holds promise to augment but not replace human observers.

One Team member noted that of the three vessels out of California, one has 100% observer coverage and, hence, that portion of the fleet has an effective observer coverage of 33%. A representative from PIRO's Observer Program clarified that boats, if operating under Hawaii longline permits, are subject to the same observer coverage requirements as longline vessels operating out of Hawaii.

The option of convening a specific TRT work group to investigate options for testing electronic (video and/or camera) monitoring was discussed, but did not receive consensus support. Instead, electronic monitoring is to be considered among the issues to be taken up by the Research Work Group (see Next Steps below).

- N. Young, as noted earlier, encouraged the Team to assess the effectiveness of the real-time SEZ closure trigger given various implementation complexities and the apparent shift in the locations of fishing effort and observed false killer whale interactions. The Team did not discuss the issue further.
- One Team member briefly sought feedback on the viability of and industry interest in buyouts as a strategy for reducing false killer whale M&SI (since effort is the factor most directly correlated with takes). Industry members emphasized that there would likely be little support for buyouts. Moreover, they noted that even if implemented, buyouts would only result in a transfer effect of foreign suppliers (who are not subject to the MMPA) meeting demand. The Team did not discuss the issue further.

Non-Longline Fisheries²

The Team spent a portion of Day Three discussing non-longline fisheries, first taking stock of research and data to better understand the fisheries and assess the potential for interactions with false killer whales, and then considering the merits of taking steps to expand Team scope to include non-longline fisheries. Phil Fernandez and Craig Severance, two non-longline fishermen who participated in earlier TRT Working Group calls on the topic, were invited to join the discussion to fold in non-longline perspectives and expertise.

The discussion first began with the following presentations:

- N. Young reviewed previous Team and Working Group discussions on the topic. As well, she noted that the Agency currently does not have sufficient data on false killer whale M&SI in specific non-longline commercial fisheries to determine whether take reduction measures are required. Additionally, individual fisheries are not sufficiently characterized to be able to support informed deliberations on take reduction measures, as necessary. Accordingly, the Agency's current assessment is that efforts for these fisheries are best directed at data gathering and research. She further noted that if or when a decision is made to broaden the Team's scope, the Agency would concurrently increase membership to fold in representatives from affected commercial fisheries.

² The term "non-longline fisheries" is meant to collectively refer to any fisheries other than longline fisheries. At various points in TRT deliberations, some or all of these fisheries have been referred to as "state" or "nearshore" fisheries.

- R. Baird summarized work on false killer whale fisheries interactions in Hawaiian waters. Among the findings: (1) several indicators (including ingested hooks in the stomach of a stranded false killer whale, high percentages of MHI stock with mouthline injuries and photo catalogs showing line injuries on dorsal fins consistent with fisheries interactions) provide evidence of fishery interactions with false killer whales in Hawaiian waters with non-longline fisheries; (2) MHI stock (particularly two of the three distinct social clusters), compared to the pelagic and NWHI stocks, shows a higher proportion of individuals with injuries consistent with fisheries interactions; and (3) interactions suggest higher rate of fishery interaction with females. Based on the evidence, R. Baird suggested there is, in his view, sufficient evidence to broaden the scope of the TRP to include nearshore fisheries.
- R. Baird presented information on the spatial and temporal overlap of false killer whales and state fisheries. In particular, R. Baird shared with the Team the results of his efforts to normalize Fishery Ecosystem Assessment Tool (FEAT) data to report pounds caught per state statistical grid cell to better reflect high catch areas within state waters. The results suggest both high variability in catch rates throughout state waters, as well as several consistently high catch rate areas. The next step is to merge the reanalyzed FEAT data with false killer whale movements to identify areas of greatest overlap.
- Leila Madge, a contractor through PIFSC and funded with NMFS' funding for TRTs, provided a synthesis of her 40-plus in-depth interviews with fishermen, which were intended to deepen the agency's understanding of the "interactions" between small boat fisheries and small cetaceans (e.g., when, where and why are interactions taking place; types of gear used; fishermen responses to cetacean sightings, etc.). Her results suggest a broad diversity within fisheries, ranging from years of experience, ability to identify marine mammals correctly, vessel size, gear types, and mix of fishing methods used. She recommended the Team take fully into account the likelihood of M&SI interactions given gear or bait attractiveness, gear-type lethality and vessel size (which impacts a vessels ability to reach areas frequented by false killer whales) when considering next steps associated with the non-longline fisheries.
- E. Oleson presented an analysis of state fisheries depredation data (both trip and monthly reports, with some data limitations due to confidentiality considerations) conducted by Chris Boggs and others with the Science Center and State of Hawaii. Key points covered in her presentation included the following: false killer whale depredation was reported in trolling (lures), and palu ahi, drop stone, and make dog fishing methods; the most reported depredation was reporting in trolling (lures) and deep-sea and bottom handline methods (mainly by "porpoise" and dolphins); reports of depredation by dolphins are increasing while those of porpoise are decreasing (the two terms are believed to be used interchangeably for several species of dolphins in Hawaii); false killer whale depredation was reported in March-August, while pilot whale depredation was reported from March-October; and false killer whale depredation occurs most frequently off west Hawaii Island and south and west Oahu. A number of important caveats associated with this analysis can be found at Boggs *et al.* 2015 (<http://www.pifsc.noaa.gov/library/pubs/DR-15-006.pdf>).

Team members expressed a range of divergent views on the extent to which it was appropriate

and possible to broaden the Team's scope at this time to consider non-longline fisheries.

Agency representatives on the Team, reiterating N. Young's earlier points on scope, suggested there is insufficient data to attribute false killer whale M&SI to specific commercial fisheries, and still insufficient characterization of specific commercial fisheries to support development of meaningful measures, if warranted, that would reduce M&SI. Additionally, they said, there are important procedural requirements: fisheries must first be categorized as Category I or II on the MMPA List of Fisheries to be considered for observer coverage and/or inclusion in the TRP. MMPA regulations allow elevation of fisheries to Category II by "analogy," but NMFS has not considered any fisheries other than the Hawaii shortline fishery to be analogous to the Category I and II Hawaii longline fisheries. NMFS representatives also reiterated that it is possible to engage other fishermen in the conversation (at meetings and on Work Groups) as invited experts, without expanding the scope of the Team or Plan.

Non-longline fishermen at the table and in the audience suggested that the Team needs to better understand the complexity and dynamics of the highly diverse non-longline fisheries before the Team moves to consider any management measures intended to reduce takes. Extensive characterization of the fishery, they said, is a needed and an important next step. They also suggested the Team membership needs to be broadened to bring in non-longline fishermen if the Team is to seriously engage the topic.

Other Team members suggested the Team already has ample evidence, precedents, and a pathway to expand the Team's scope. Some Team members suggested there was sufficient information (e.g., self-reports of "depredation in commercial troll and handline gear, photographs of false killer whales showing injuries consistent with fishery interactions) to warrant expanding the scope. Additionally, several Team members suggested that other take reduction teams faced with fisheries having limited definitive data to document marine mammal interactions have broadened their scope and membership to include other fisheries by analogy (e.g., various trap/pot fisheries on the Atlantic Large Whale Take Reduction Team), and they encouraged the Agency to rely on the same precedent to expand the FKWTRT's scope. As well, several Team members suggested a preferred approach is for the Team to start engaging the issue sooner than later (even if the initial focus is on information-gathering and sharing rather than prescribing specific management measures), and expanding the Team, they said, makes it possible to bring knowledgeable non-longline fishermen to the table as full members.

The discussion also included the following additional points:

- A number of Team members suggested that R. Baird's work on mouthline injuries might help the Agency better understand the extent to which interactions lead to serious injuries. Some also encouraged the Agency to revisit its serious injury determination criteria specific to false killer whale interactions.
- One Team member suggested that an ESA Section 10 permit and conservation plan, or the ESA recovery planning process, could be possible mechanisms for addressing false killer whale takes in non-longline fisheries.
- Several Team members expressed frustration with the apparent structural "Catch 22" regarding observer coverage: observers are needed to generate sufficient data to elevate a

fishery to Category I or II, but NMFS does not have authority to place observers on vessels unless they are Category I or II. To address this, at least one Team member suggested the Agency elevate the fisheries to a Category II to enable observer coverage. Several speakers, however, suggested that observers would not be cost-effective given the size of the fisheries and the small false killer whale populations.

- At least one speaker expressed frustration that there was not more time available at the meeting to discuss non-longline issues. Agency staff acknowledged the limited time, but noted the Team's focus for now is on evaluating the longline fishery-focused TRP.
- One Team member questioned whether it was effective to broaden the scope of the current Team or whether (if and when the agency decides to expand the scope) it would make more sense to constitute a separate team. [Agency staff noted that there is a tradeoff between efficiency (cost and time associated with convening two teams) v. effectiveness (bringing together different gear groups).]

Research Exemptions

R. Steen and B. Cummings provided an overview of a research exemption concept proposal developed for the Team's consideration. The approach, intended to encourage fishery participation in research activities consistent with TRP goals and research priorities, centers on ensuring that false killer whale M&SI that occur during research activities would not apply to either SEZ trigger/reopeners or counted in the TRP's high-seas related goal. Additionally, it allows that exempted research could be conducted in the SEZ if closed. It further calls for NMFS to seek Team input and confirmation before approving any exemption request. R. Steen and B. Cummings developed the concepts based on the Team's deliberations during its last in-person meeting in 2013.

Team members noted the potential benefits of such an approach – testing non-compliant gear, conducting research in closed areas with unique characteristics (e.g., acoustically quiet), but in general participants did not see a compelling imperative as this time. Comments and concerns centered on the following:

- Most Team members were uncertain of the potential near-term utility of a research exemption given the ability to test gear outside the Hawaii EEZ without takes counting toward the SEZ trigger.
- Several Team members suggested the potential benefit of a research exemption is not sufficient to warrant a separate rule-making at this time. Better, they said, to reconsider the need if and when other, more pressing Plan amendments are moving forward.
- At least one Team member voiced concern about any increase in false killer whale takes due to exemptions – even if they are in service of Plan-related research – given the small population size..
- Members voiced concerns about the unintended consequences of an exemption request, including inadvertently (1) encouraging vessels to seek research exemptions as a way to avoid existing regulations, and (2) serving as a disincentive for vessels to participate in research that does not fall under the research exemption.
- It was also noted that, while the Team can ask the Agency to seek their input prior to making a decision on any proposed research exemption, the Agency cannot delegate its decision-

making authority to a TRT (or any other body).

Based on the discussion, Team members opted not to move forward with a recommendation on this topic at this time.

Research Priorities

Over the course of the meeting, a number of potential research projects and topics were discussed. These included the following (not in any ranked order):

- Conducting a false killer whale abundance survey before 2018 (when the current abundance estimate will “expire”), including the entire Hawaiian EEZ, to inform stock assessment for the species
- Expanding the passive acoustic research using recorders deployed by the fleet
- Expanding the use of video, acoustic, and accelerometer recording of false killer whale depredation of both bait and catch
- Continuing ongoing photo-identification and satellite telemetry work to better understand the demography and movements of false killer whales
- Collecting photographs, measurements, and tissue swabs of a representative sample of straightened hooks as well as a systematic sample of straightened hooks when false killer whale or other marine mammals are observed associated with the gear
- Working with the non-longline fisheries, the State of Hawaii, and other stakeholders to better characterize non-longline fisheries as relevant to understanding the potential for false killer whale bycatch
- Assessing the extent to which R. Baird’s data on mouthline injuries and other relevant data suggest a need for re-evaluating NMFS’s serious injury criteria for false killer whales (e.g., whether a mouth-hooking leads to greater than 50% chance of mortality, or whether a mouth-hooking with a circle hook vs. a J hook leads to a less serious injury)
- Making better use of acoustic data, including from the 2010 HICEAS cruise, to, as possible, set bounds on false killer whale population estimates
- Repeating the 4.0 mm wire diameter hook study and/or testing 4.2 mm wire diameter hooks, taking into account seasonal considerations for the fishery
- Evaluate specifications other than wire diameter that may contribute to a hook’s strength
- Evaluate impact of artificial bait on false killer whale depredation
- Evaluate whether there are any commonalities among vessels with false killer whale interactions
- Evaluate whether oceanographic conditions may be driving shifts in longline fishing distribution
- Test and account for observers’ bias in estimating animal length
- Explore the potential to use VMS data, consistent with confidentiality requirements, to support various research initiatives (assess overlap between vessels and false killer whale, etc.)
- In coordination with ongoing efforts to evaluate the potential use of electronic monitoring (e.g., in the Magnuson-Steven Act context, and/or in conjunction with the Council), conduct a pilot study to test the benefits and viability of electronic monitoring to supplement observer

- coverage and “ground truth” what is happening on unobserved trips
- Conducting additional hook straightening testing on false killer whale heads (as opposed to pilot whale heads)

The Team did not have a focused discussion on research priorities. Rather, possible research topics were discussed throughout the three days and the Team identified the need for a subsequent Working Group (see below). Research-related recommendations are summarized in the section below.

V. CONSENSUS RECOMMENDATIONS

Based on the deliberations, the Team agreed by full consensus to the following recommendations³:

- The Team recommends that NMFS document branchline characteristics currently used in the fleet including strength and diameter. The Team also recommends that the fleet encourage its members to explore the use of stronger branchline leaders to ensure that the weakest part of the terminal tackle is the hook in order to encourage hooked false killer whale release via hook straightening.
 - Rationale: Interactions to-date suggest branchlines are breaking before hooks straighten. Industry efforts to use stronger branchlines may reduce the frequency of line breakages, and increase the opportunity for hooks to straighten and release whales with non-serious injuries.
- The Team recommends that the in-field videos (and audio) of hooking interactions of false killer whales and other odontocetes be made available to the appropriate Working Group and/or the Team to view to assist in learning more about the nature of hookings and to improve release techniques (under required confidentiality conditions). These videos could be evaluated and selected for usage by the trainers (Andrew & HLA) to share with captains during training.
 - Rationale: Interactions to-date suggest crews may not be handling gear in a manner that facilitates hook straightening. Access to in-field videos consistent with confidentiality requirements will enable the Team to develop better informed recommendations to strengthen Plan effectiveness.
- The Team recommends that NMFS and HLA develop a unified and simplified message to captains and crew (e.g., placards, cartoons). The Team recommends timely development and implementation of a strategy for outreach to both captains and crew (in light of the possibility that captain is not able to be present on deck), e.g., onboard trainings, translator present, etc. The HLA video should be translated into most common crew languages. The video should be widely distributed and shown. In addition, the Team recommends that the trainings continue to be ongoing, with special emphasis on

³ Bullet point text was agreed to by the Team; rationale was synthesized for this Key Outcomes Memo based on the Team’s discussions.

interactive sessions that utilize both demonstrations and video to facilitate sharing of various strategies to dehook false killer whales.

- **Rationale:** Training will be most effective if messages are consistent, easily understood, and focus on a handful of core messages. It is important to preserve the opportunity for HLA's industry-to-industry outreach, but greater coordination between HLA and NMFS should improve overall effectiveness.

The Team considered several other recommendations, but was unable to reach full consensus. These items are summarized briefly below.

- ***Non-Longline recommendations.*** The Team initially considered recommendations related to non-longline fisheries: (1) NMFS should add the Category II shortline fishery to the scope of the TRT and add a shortline fishery representative to the Team; (2) NMFS should reclassify to Category II those state fisheries using hook-and-line gear analogous to those fisheries known to interact with false killer whales. There was no consensus on either of these points, as the representative of the WPFMC said further internal discussion was needed with the Council's advisory groups and Scientific and Statistical Committee before the WPFMC representative could weigh in definitively on these recommendations.

The Team then considered a third recommendation for NMFS, in consultation with the non-longline fisheries, the State, and other stakeholders, to develop and report to the Team a detailed characterization of the non-longline fisheries relevant to false killer whale bycatch. The Team initially offered consensus support for the recommendation, but the WPFMC representative later withdrew the Council's initial support for two stated reasons: (1) the issue is within the purview of the State; and (2) the recommendation implies a high level of certainty of bycatch in the non-longline fisheries.

- ***Research recommendations.*** Some Team members put forward for Team consideration a subset of the research topics discussed or generated throughout the meeting (see Research Priorities section of this Key Outcomes Memo). Specifically, this subset included: conducting a false killer whale abundance survey, including the entire Hawaiian EEZ, before 2018; expanding passive acoustic research using recorders deployed by the fleet; expanding use of underwater video and acoustic recording of false killer whale bait and catch depredation; supporting ongoing photo-identification and satellite telemetry work to understand the demography and movements of false killer whales; exploring selected and confidential use of VMS data for research purposes; and collecting photographs, measurements, and tissue swabs from a representative sample of straightened hooks.

While a number of the research items garnered broad support, the entire set was pulled from the consensus package due to (1) HLA's need for more time to assess industry's support for several of the items under discussion, and (2) a recognition that it would be more effective to consider the new research topics in the context of the broader list developed and prioritized at earlier meetings. The Team agreed instead to reconvene a Research Work Group (J. LaGrange, T. O'Connell, R. Steen, A. Read, and D. Laist

expressed interest in serving on the Work Group; other Team members may opt to participate at a later date). Potential tasks for the Work Group will be to take stock of the progress of completed research, revisit the existing list of priority research projects established in 2013/2014, consider new candidate research projects, and suggest an updated prioritization of the full set of research priorities for subsequent consideration by the full Team.

- ***Related to branchlines.*** Team members considered but did not reach consensus on a fully developed recommendation that would have called on NMFS, in consultation with HLA, to identify breaking strengths of new and used branchlines based on various metrics and manufacturers. Given the variation in branchline characteristics, performance, and lifespan, the recommendation was intended to ensure branchlines will not break prematurely. Some industry members saw the recommendation as an overly prescriptive and time-intensive move at this time, particularly given the relatively recent fleet-wide adoption of weak hooks and the current focus on safe handling and research. Team members suggested instead the work be considered as a possible research priority.

VI. PUBLIC COMMENT

Several speakers (all non-longline fishermen) offered comments on Day Three, with all addressing non-longline fisheries issues. Their comments centered on the following:

- Emphasizing that fishermen are mindful of depredation impacts and, therefore, will typically leave a site if they encounter cetaceans that might be likely to depredate catch
- Providing additional perspectives on the variable interaction risk associated with different gear types (e.g., high-speed trolling, while a dominant fishery, is not seen as a high risk by fishermen)
- Encouraging the Team to consider voluntary measures that direct fishermen away from areas with known false killer whale presence
- Underscoring the importance of adding non-longline fishermen as members if the Team is going to consider recommending that NMFS expand the scope
- Questioning the viability of observers on charters and small boat fisheries given the expense, safety concerns and number of vessels
- Recommending the Team invest sustained effort in understanding the nuances and differences across the diverse fishing methods within non-longline fisheries, as well as defining the distinct gear types, well before it considers expanding the scope or moves forward with any recommended management measures
- Noting that most non-longline gear (with the exception of shortline gear) is much weaker and, therefore, not analogous to longline gear.

VII. NEXT STEPS

Based on the Team deliberations, participants agreed to the following next steps:

- Related to Research Priorities

- Reconvene a Research Work Group (J. LaGrange, T. O’Connell, R. Steen, A. Read and D. Laist expressed interest; others may opt to join in later) to revisit and update the existing list of priority research projects, note which projects are completed, fold in these and (potentially) other new candidate research projects, and suggest a prioritization for subsequent full Team consideration. A specific timeline is still to be set for the Work Group’s deliberations.
- Related to FKW Interactions
 - Review and conduct data mining on false killer whale interactions to identify common vessel characteristics, if any
 - Assess the potential for NMFS to share with the Team videos of crew handling of interactions; share videos if possible
- Related to Non-Longline Fisheries
 - Consider the merits and focus of convening a non-longline fisheries work group to develop next steps. Team members P. Dalzell and M. Jasny expressed interest in serving on the work group. Invited non-longline fisherman Phil Fernandez also offered to serve on the work group. Invited fishermen (had previously) offered to provide additional updates and information on non-longline fisheries. Initial tasks may focus on data gathering and synthesis.
- Related to Handling/Release
 - NMFS and HLA are to coordinate efforts to develop a unified and simplified message to captains and crew, as well as strengthen outreach efforts.
- Related to Enforcement and Compliance
 - Take Tomson is, as possible, to (1) provide data on the number of longline vessels checked for compliance with TRP requirements; and (2) provide information on OLE’s ability to share anonymized VMS data to support TRP-related research and dialogues.⁴
- Related to Council updates
 - A. Ishizaki is to provide to N. Young the Independent Advisory Team’s report on a tiered system for PBR for subsequent distribution to Team members.
- Related to Future Team Deliberations
 - Team members recommended the Team meet in late 2016 or early 2017, unless an earlier meeting is warranted due either to an SEZ closure or new and compelling findings on Plan effectiveness.
 - NMFS is to consider the need for new and/or additional longline fisheries representatives/alternates to ensure there is adequate representation at Team meetings. R. Steen asked the Agency consult with HLA if it pursues this further.
- Other
 - H. Bernard is to follow up with E. Oleson regarding leads for a possible a Korean translator to support Science Center outreach efforts.
 - K. Long is to distribute to the Team a final summary report from the February 2015 Deterrents workshop, as well as provide a link to any future Federal Register Notice.
 - K. Long is to provide to the Team links to the final report of the 2007 Serious Injury Determination workshop, as well as a link to the Agency’s “*Guidelines for Distinguishing Serious from Non-Serious Injury of Marine Mammals*”

⁴ T. Tomson provided information on both of these items, via email to N. Young, during Day Three of the Team’s deliberations.

- N. Young is to send a reminder to the Team when the Federal Register for the Ohai proposal is available for public comment.
- N. Young is to post meeting presentations on the Team website at <http://www.nmfs.noaa.gov/pr/interactions/fkwtrt/>, as well as distribute an updated Team roster
- The facilitation team is to prepare and distribute for Team comment a Key Outcomes Memorandum summarizing key points, areas of emerging consensus and next steps based on the Team's deliberations. The summary is not intended to be a meeting transcript; rather, it is intended to highlight key points only.

Questions or comments regarding this meeting summary should be directed to S. McCreary, B. Brooks, or N. Young. Scott and Bennett can be reached at 510-649-8008 and 212-678-0078, respectively; Nancy, at 808-725-5156.