

False Killer Whale Take Reduction Team
Research Priorities Work Group Teleconference
November 14, 2013

Attendees: Robin Baird, Hannah Bernard, Bennett Brooks, Paul Dalzell, Eric Gilman, David Laist, Tory O’Connell, Erin Oleson, Ryan Steen, Nancy Young.

Work Group members unable to attend: John LaGrange, Scott McCreary, Paul Nachtigall, Andy Read, Sharon Young.

Call Objective

The objective of the call was to review the Work Group’s aggregate scores/rankings for candidate research projects, consider the ramifications of the Work Group’s prioritization, and decide on an approach for briefing and seeking the confirmation of the full Team.

Review of Aggregate Rankings

- Erin provided an overview of the spreadsheet (10/31 version), in which Work Group members’ rankings were converted from high/medium/low to numerical scores (2/1/0), and individual members’ scores were averaged to provide a single score for each project. The “COMBINED” worksheet shows all 57 projects in rank order (color-coded by category), and highlights the top ranked projects in each category.
- Erin noted that the SSC/Council’s approach to scoring was a bit different than others, in which projects were ranked across categories and high scores given only to FKW assessment projects. This may have slightly affected the overall rankings.
- Work Group members recommended the spreadsheet headings be revised to reflect Paul’s name, rather than the SSC/Council. Paul indicated that the scores reflect his and Asuka’s perspectives on the various research projects, with their ranking informed by advice from a SSC sub-committee convened to review and provide feedback to Paul/Asuka.

Discussion

- One Work Group member noted that some projects could be combined, such as those for which data could be collected simultaneously during field projects (e.g., FA.03, FA.08, FA.09, FA.10, FB.01, FB.03, and FB.17). Many of these projects are individually expensive, but if data can be collected together during the same field project, combining the projects might be more cost-effective (though Robin noted that analysis costs might have fewer cost-savings). None of those projects individually ranked in the top 4 of either category (FA or FB), but if they had been combined into a single project, they/it might have been ranked higher.
 - Erin highlighted the Work Group’s previous discussion of the benefits and drawbacks of lumping and splitting projects, and how that could affect the rankings. She also noted that different aspects of each project (feasibility, cost, etc.) may have been considered or weighted differently by individual Work Group members. These issues underscore the difficulty in maintaining a consistent approach to describing and ranking the projects.
- Several Work Group members noted that there may also be sequencing issues for several projects that would suggest a different priority ranking. For example, a particular project

may not be feasible (or fundable) without data collected or technology developed by another lower-ranked project. The scores for “prerequisite” projects may influence or be influenced by the scores of the “successive” projects.

- Given these two considerations, the Work Group agreed that re-ranking was not necessary at this time but that there should be a third way to present the projects (in addition to overall rank and within-category rank) to highlight those which you might get “more bang for the buck” if combined, or those which are necessarily tied because of sequencing requirements. They asked that this additional way of considering research projects be shared with the full Team, along with the overall and within-category ranking.
- One Work Group member requested the description of FB.19 be revised to more broadly encompass potential methods to answer the research question, or to add more examples of potential methods.
 - NOTE: The spreadsheet that summarizes the rankings does not currently include detailed information on the approach, purpose/benefit, feasibility, or cost. However, some or all of this information may be included in the version of the spreadsheet that is provided to the full Team.
- One Work Group member requested that the updated project listing make explicit those projects where funding (full or partial) is already identified.
- During a brief discussion of state fisheries, some Work Group members expressed concern that the state fisheries topics were ranked relatively low. Others members stated that they ranked those topics low because state fisheries are outside of the official scope of the TRP, so they gave priority to projects affecting the longline fisheries.

Approach for Briefing/Seeking Confirmation of Full Team

- Work Group members recommended providing the full Team with the complete list of candidate research projects and rankings, highlighting the top 21 overall, and developing an additional description of projects with synergy or sequencing considerations. The list(s) should be accompanied by a narrative that describes the nuances of the ranking exercise, including consideration of feasibility, cost, etc.
- The Work Group agreed that the Team should be asked to review and provide feedback on the projects and rankings, but that the Team members should not be asked to conduct their own rankings.
- The timing and nature of the full Team review is yet to be determined.

Next Steps

- Nancy is to revise the spreadsheet to change the “SSC/Council” heading to Paul Dalzell’s name and format pages for easier printing (see Attachment). For the version that will be provided to the Team (which will include information on approach, purpose/benefit, etc.), Nancy is to rewrite the description of project FB.19 to allow for more analysis options. It will also include any updates, as needed, regarding project funding status.
- Work Group members are to provide feedback to Erin and Nancy regarding projects that could be grouped together or that have sequencing concerns.
- Nancy is to draft a memo to transmit the rankings to the full Team, and distribute to the Work Group for its review and comment. The memo will also include a section that calls out projects with apparent synergy and/or sequencing considerations.

- The Work Group's recommendations, once confirmed, will be shared with the full Team for its subsequent review and discussion (details to be worked out).

Adjourn

Attachment

Work Group's Rankings of Candidate Research Projects

Note: This version is substantively the same as the version reviewed during the 11-14-13 teleconference, and includes only minor formatting changes.

False Killer Whale Biology - Individual Scores

Topic ID	Research Activity	Robin	Eric	Paul N.	John L.	Paul D.	Hannah	Ryan	Tory	David
FB.01	Continue telemetry studies on the pelagic stock FKWs	M	L	L	M	L	M	M	M	H
FB.02	Continue telemetry studies on the NWHI stock FKWs	M	L	L	L	L	L	L	L	L
FB.03	Continue telemetry studies on the MHI insular stock FKWs	H	H	L	L	L	H	L	M	L
FB.04	Examine call types and rates by different FKW populations to better understand the variability and nuances of the acoustic data, allowing for more precise and useful examination of existing and ongoing acoustic data.	L	M	L	M	L	H	L	H	L
FB.05	Develop real-time assessment capability for distinguishing between FKWs and other odontocetes using whistles and echolocation clicks	M	M	L	M	L	H	H	H	H
FB.06	Evaluate acoustic behavior near longlines using recorders on fishing gear	L	M	L	H	L	H	H	H	M
FB.07	Use acoustic tags to understand foraging and acoustic behavior	L	M	L	L	L	M	L	M	L
FB.08	Carry out underwater observations of foraging behavior	M	H	L	L	M	M	M	H	L
FB.09	Study adaptive learning in the FKW	L	M	H	M	L	L	M	L	L
FB.10	Conduct vessel sound playbacks	H	H	H	H	L	L	M	M	M
FB.11	Determine the extent to which FADs attract FKWs.	L	M	L	L	L	M	M	M	H
FB.12	Assess impact of hook density on FKW ability to follow line	M	H	H	H	L	M	L	L	L
FB.13	Determine range at which a hook in a fish can be detected by FKW	L	H	H	H	L	M	M	M	M
FB.14	Test visual acuity of FKWs given different types of lights often found on longline vessels	L	L	H	H	L	M	M	L	L
FB.15	Evaluate FKW capability to see floats, as well as monofilament line of different colors and width	L	L	H	H	L	H	M	L	L
FB.16	Assess FKW response to compounds found in oil fish and other fish species that FKWs do not depredate from the line	L	H	H	M	L	L	L	L	M
FB.17	Assess hormones to examine stress and reproductive rates	H	L	L	L	L	L	L	L	L
FB.18	Examine physiological response of FKW and similar species during/following an interaction	L	L	L	L	L	L	M	L	L
FB.19	Evaluate survival of FKWs and similar species following fisheries interactions.	L	H	H	H	L	H	H	M	H
FB.20	Assess importance of fishery as a food source for FKWs.	M	L	M	M	L	M	M	L	M
FB.21	Conduct hook-tissue interaction research to better understand the relationship between type of gear and where the animal is hooked and the severity of the injury.	H	H	L	H	Not scored	H	H	H	M

FB.03	Paul D.'s L/M changed to L, but score of 0.5 (between L[0] and M[1])
FB.16	Eric's HHH changed to H

False Killer Whale Biology - Individual Scores, Numerical Conversion

Topic ID	Research Activity	Robin	Eric	Paul N.	John L.	Paul D.	Hannah	Ryan	Tory	David
FB.01	Continue telemetry studies on the pelagic stock FKWs	1	0	0	1	0	1	1	1	2
FB.02	Continue telemetry studies on the NWHI stock FKWs	1	0	0	0	0	0	0	0	0
FB.03	Continue telemetry studies on the MHI insular stock FKWs	2	2	0	0	0.5	2	0	1	0
FB.04	Examine call types and rates by different FKW populations to better understand the variability and nuances of the acoustic data, allowing for more precise and useful examination of existing and ongoing acoustic data.	0	1	0	1	0	2	0	2	0
FB.05	Develop real-time assessment capability for distinguishing between FKWs and other odontocetes using whistles and echolocation clicks	1	1	0	1	0	2	2	2	2
FB.06	Evaluate acoustic behavior near longlines using recorders on fishing gear	0	1	0	2	0	2	2	2	1
FB.07	Use acoustic tags to understand foraging and acoustic behavior	0	1	0	0	0	1	0	1	0
FB.08	Carry out underwater observations of foraging behavior	1	2	0	0	1	1	1	2	0
FB.09	Study adaptive learning in the FKW	0	1	2	1	0	0	1	0	0
FB.10	Conduct vessel sound playbacks	2	2	2	2	0	0	1	1	1
FB.11	Determine the extent to which FADs attract FKWs.	0	1	0	0	0	1	1	1	2
FB.12	Assess impact of hook density on FKW ability to follow line	1	2	2	2	0	1	0	0	0
FB.13	Determine range at which a hook in a fish can be detected by FKW	0	2	2	2	0	1	1	1	1
FB.14	Test visual acuity of FKWs given different types of lights often found on longline vessels	0	0	2	2	0	1	1	0	0
FB.15	Evaluate FKW capability to see floats, as well as monofilament line of different colors and width	0	0	2	2	0	2	1	0	0
FB.16	Assess FKW response to compounds found in oil fish and other fish species that FKWs do not depredate from the line	0	2	2	1	0	0	0	0	1
FB.17	Assess hormones to examine stress and reproductive rates	2	0	0	0	0	0	0	0	0
FB.18	Examine physiological response of FKW and similar species during/following an interaction	0	0	0	0	0	0	1	0	0
FB.19	Evaluate survival of FKWs and similar species following fisheries interactions.	0	2	2	2	0	2	2	1	2
FB.20	Assess importance of fishery as a food source for FKWs.	1	0	1	1	0	1	1	0	1
FB.21	Conduct hook-tissue interaction research to better understand the relationship between type of gear and where the animal is hooked and the severity of the injury.	2	2	0	2		2	2	2	1

False Killer Whale Biology - Aggregate Scores

Topic ID	Research Activity	Sum	# Scores	Avg. Score	No highs?
FB.01	Continue telemetry studies on the pelagic stock FKWs	7	9	0.778	
FB.02	Continue telemetry studies on the NWHI stock FKWs	1	9	0.111	x
FB.03	Continue telemetry studies on the MHI insular stock FKWs	7.5	9	0.833	
FB.04	Examine call types and rates by different FKW populations to better understand the variability and nuances of the acoustic data, allowing for more precise and useful examination of existing and ongoing acoustic data.	6	9	0.667	
FB.05	Develop real-time assessment capability for distinguishing between FKWs and other odontocetes using whistles and echolocation clicks	11	9	1.222	
FB.06	Evaluate acoustic behavior near longlines using recorders on fishing gear	10	9	1.111	
FB.07	Use acoustic tags to understand foraging and acoustic behavior	3	9	0.333	x
FB.08	Carry out underwater observations of foraging behavior	8	9	0.889	
FB.09	Study adaptive learning in the FKW	5	9	0.556	
FB.10	Conduct vessel sound playbacks	11	9	1.222	
FB.11	Determine the extent to which FADs attract FKWs.	6	9	0.667	
FB.12	Assess impact of hook density on FKW ability to follow line	8	9	0.889	
FB.13	Determine range at which a hook in a fish can be detected by FKW	10	9	1.111	
FB.14	Test visual acuity of FKWs given different types of lights often found on longline vessels	6	9	0.667	
FB.15	Evaluate FKW capability to see floats, as well as monofilament line of different colors and width	7	9	0.778	
FB.16	Assess FKW response to compounds found in oil fish and other fish species that FKWs do not depredate from the line	6	9	0.667	
FB.17	Assess hormones to examine stress and reproductive rates	2	9	0.222	
FB.18	Examine physiological response of FKW and similar species during/following an interaction	1	9	0.111	x
FB.19	Evaluate survival of FKWs and similar species following fisheries interactions.	13	9	1.444	
FB.20	Assess importance of fishery as a food source for FKWs.	6	9	0.667	x
FB.21	Conduct hook-tissue interaction research to better understand the relationship between type of gear and where the animal is hooked and the severity of the injury.	13	8	1.625	

False Killer Whale Biology - Rank Order

Topic ID	Research Activity	Avg. Score
FB.21	Conduct hook-tissue interaction research to better understand the relationship between type of gear and where the animal is hooked and the severity of the injury.	1.625
FB.19	Evaluate survival of FKWs and similar species following fisheries interactions.	1.444
FB.05	Develop real-time assessment capability for distinguishing between FKWs and other odontocetes using whistles and echolocation clicks	1.222
FB.10	Conduct vessel sound playbacks	1.222
FB.06	Evaluate acoustic behavior near longlines using recorders on fishing gear	1.111
FB.13	Determine range at which a hook in a fish can be detected by FKW	1.111
FB.08	Carry out underwater observations of foraging behavior	0.889
FB.12	Assess impact of hook density on FKW ability to follow line	0.889
FB.03	Continue telemetry studies on the MHI insular stock FKWs	0.833
FB.01	Continue telemetry studies on the pelagic stock FKWs	0.778
FB.15	Evaluate FKW capability to see floats, as well as monofilament line of different colors and width	0.778
FB.04	Examine call types and rates by different FKW populations to better understand the variability and nuances of the acoustic data, allowing for more precise and useful examination of existing and ongoing acoustic data.	0.667
FB.11	Determine the extent to which FADs attract FKWs.	0.667
FB.14	Test visual acuity of FKWs given different types of lights often found on longline vessels	0.667
FB.16	Assess FKW response to compounds found in oil fish and other fish species that FKWs do not depredate from the line	0.667
FB.20	Assess importance of fishery as a food source for FKWs.	0.667
FB.09	Study adaptive learning in the FKW	0.556
FB.07	Use acoustic tags to understand foraging and acoustic behavior	0.333
FB.17	Assess hormones to examine stress and reproductive rates	0.222
FB.02	Continue telemetry studies on the NWHI stock FKWs	0.111
FB.18	Examine physiological response of FKW and similar species during/following an interaction	0.111

Longline Gear - Individual Scores

Topic ID	Research Activity	Robin	Eric	Paul N.	John L.	Paul D.	Hannah	Ryan	Tory	David
LL.01	Evaluate feasibility of using moored listening stations (FADs, NOAA weather buoys, etc.) to determine FKW occurrence before a fishing trip	L	L	H	L	L	M	M	L	L
LL.02	Develop new or test existing methods for fleet to use acoustic recorders to determine FKW presence prior to setting	L	H	L	H	L	H	H	M	H
LL.03	Record acoustic profile of vessels and fishing gear across the fleet during transiting, setting, soaking, and hauling to assess potential cues to FKWs	L	H	L	H	L	L	M	M	M
LL.04	Survey all longline vessels to identify commonalities among those with high depredation rates	M	H	M	H	L	H	M	M	H
LL.05	Examine role of bait type, size, and manner of threading on bait depredation	M	H	M	M	L	M	L	M	M
LL.06	Evaluate where animals are caught within a set and why	L	M	H	M	L	L	L	M	H
LL.07	Evaluate potential to use killer whale/other playbacks as deterrents	L	L	L	M	L	M	M	L	L
LL.08	Examine the ability of FADs to be used as decoys for false killer whales (to reduce depredation of active longlines).	L	L	L	L	L	L	M	M	L
LL.09	Evaluate effectiveness of additions to terminal tackle or other items on the mainline as a method to reduce depredation on bait, catch and incidental takes of false killer whales	L	H	H	L	M	L	M	M	L
LL.10	Assess potential for hooks to be modified (foam coating, etc.) to increase or decrease detection range	L	M	H	L	L	H	L	L	L
LL.11	Determine types of hooks and hook manufacturers used by Hawaii deep-set longline vessels (<i>see details in doc prepared by Laist and Bernard</i>)	H	H	L	L	M	H	L	L	H
LL.12	Evaluate performance of gear used in deep-set fishery (<i>see details in doc prepared by Laist and Bernard</i>)	H	H	L	L	M	H	L	H	H
LL.13	Identify and evaluate other factors that may affect hook strength (and severity of FKW injuries)	L	H	L	M	M	L	L	M	L
LL.14	Desktop study to assess size of false killer whales caught	L	H	H	L	L	M	L	H	H
LL.15	Follow-up weak hook study to understand impact on target catch.	L	H	L	M	L	L	H	M	H
LL.16	Evaluate impact of weak hooks on FKW bycatch rates	M	H	L	M	L	M	H	H	H
LL.17	Collect straightened hooks for genetic sampling	H	H	L	L	L	H	L	M	H

Longline Gear - Individual Scores, Numerical Conversion

Topic ID	Research Activity	Robin	Eric	Paul N.	John L.	Paul D.	Hannah	Ryan	Tory	David
LL.01	Evaluate feasibility of using moored listening stations (FADs, NOAA weather buoys, etc.) to determine FKW occurrence before a fishing trip	0	0	2	0	0	1	1	0	0
LL.02	Develop new or test existing methods for fleet to use acoustic recorders to determine FKW presence prior to setting	0	2	0	2	0	2	2	1	2
LL.03	Record acoustic profile of vessels and fishing gear across the fleet during transiting, setting, soaking, and hauling to assess potential cues to FKWs	0	2	0	2	0	0	1	1	1
LL.04	Survey all longline vessels to identify commonalities among those with high depredation rates	1	2	1	2	0	2	1	1	2
LL.05	Examine role of bait type, size, and manner of threading on bait depredation	1	2	1	1	0	1	0	1	1
LL.06	Evaluate where animals are caught within a set and why	0	1	2	1	0	0	0	1	2
LL.07	Evaluate potential to use killer whale/other playbacks as deterrents	0	0	0	1	0	1	1	0	0
LL.08	Examine the ability of FADs to be used as decoys for false killer whales (to reduce depredation of active longlines).	0	0	0	0	0	0	1	1	0
LL.09	Evaluate effectiveness of additions to terminal tackle or other items on the mainline as a method to reduce depredation on bait, catch and incidental takes of false killer whales	0	2	2	0	1	0	1	1	0
LL.10	Assess potential for hooks to be modified (foam coating, etc.) to increase or decrease detection range	0	1	2	0	0	2	0	0	0
LL.11	Determine types of hooks and hook manufacturers used by Hawaii deep-set longline vessels (<i>see details in doc prepared by Laist and Bernard</i>)	2	2	0	0	1	2	0	0	2
LL.12	Evaluate performance of gear used in deep-set fishery (<i>see details in doc prepared by Laist and Bernard</i>)	2	2	0	0	1	2	0	2	2
LL.13	Identify and evaluate other factors that may affect hook strength (and severity of FKW injuries)	0	2	0	1	1	0	0	1	0
LL.14	Desktop study to assess size of false killer whales caught	0	2	2	0	0	1	0	2	2
LL.15	Follow-up weak hook study to understand impact on target catch.	0	2	0	1	0	0	2	1	2
LL.16	Evaluate impact of weak hooks on FKW bycatch rates	1	2	0	1	0	1	2	2	2
LL.17	Collect straightened hooks for genetic sampling	2	2	0	0	0	2	0	1	2

Longline Gear - Aggregate Scores

Topic ID	Research Activity	Sum	# Scores	Avg. Score	No highs?
LL.01	Evaluate feasibility of using moored listening stations (FADs, NOAA weather buoys, etc.) to determine FKW occurrence before a fishing trip	4	9	0.444	
LL.02	Develop new or test existing methods for fleet to use acoustic recorders to determine FKW presence prior to setting	11	9	1.222	
LL.03	Record acoustic profile of vessels and fishing gear across the fleet during transiting, setting, soaking, and hauling to assess potential cues to FKWs	7	9	0.778	
LL.04	Survey all longline vessels to identify commonalities among those with high depredation rates	12	9	1.333	
LL.05	Examine role of bait type, size, and manner of threading on bait depredation	8	9	0.889	
LL.06	Evaluate where animals are caught within a set and why	7	9	0.778	
LL.07	Evaluate potential to use killer whale/other playbacks as deterrents	3	9	0.333	x
LL.08	Examine the ability of FADs to be used as decoys for false killer whales (to reduce depredation of active longlines).	2	9	0.222	x
LL.09	Evaluate effectiveness of additions to terminal tackle or other items on the mainline as a method to reduce depredation on bait, catch and incidental takes of false killer whales	7	9	0.778	
LL.10	Assess potential for hooks to be modified (foam coating, etc.) to increase or decrease detection range	5	9	0.556	
LL.11	Determine types of hooks and hook manufacturers used by Hawaii deep-set longline vessels (<i>see details in doc prepared by Laist and Bernard</i>)	9	9	1.000	
LL.12	Evaluate performance of gear used in deep-set fishery (<i>see details in doc prepared by Laist and Bernard</i>)	11	9	1.222	
LL.13	Identify and evaluate other factors that may affect hook strength (and severity of FKW injuries)	5	9	0.556	
LL.14	Desktop study to assess size of false killer whales caught	9	9	1.000	
LL.15	Follow-up weak hook study to understand impact on target catch.	8	9	0.889	
LL.16	Evaluate impact of weak hooks on FKW bycatch rates	11	9	1.222	
LL.17	Collect straightened hooks for genetic sampling	9	9	1.000	

Longline Gear - Rank Order

Topic ID	Research Activity	Avg. Score
LL.04	Survey all longline vessels to identify commonalities among those with high depredation rates	1.333
LL.02	Develop new or test existing methods for fleet to use acoustic recorders to determine FKW presence prior to setting	1.222
LL.12	Evaluate performance of gear used in deep-set fishery (<i>see details in doc prepared by Laist and Bernard</i>)	1.222
LL.16	Evaluate impact of weak hooks on FKW bycatch rates	1.222
LL.11	Determine types of hooks and hook manufacturers used by Hawaii deep-set longline vessels (<i>see details in doc prepared by Laist and Bernard</i>)	1.000
LL.14	Desktop study to assess size of false killer whales caught	1.000
LL.17	Collect straightened hooks for genetic sampling	1.000
LL.05	Examine role of bait type, size, and manner of threading on bait depredation	0.889
LL.15	Follow-up weak hook study to understand impact on target catch.	0.889
LL.03	Record acoustic profile of vessels and fishing gear across the fleet during transiting, setting, soaking, and hauling to assess potential cues to FKWs	0.778
LL.06	Evaluate where animals are caught within a set and why	0.778
LL.09	Evaluate effectiveness of additions to terminal tackle or other items on the mainline as a method to reduce depredation on bait, catch and incidental takes of false killer whales	0.778
LL.10	Assess potential for hooks to be modified (foam coating, etc.) to increase or decrease detection range	0.556
LL.13	Identify and evaluate other factors that may affect hook strength (and severity of FKW injuries)	0.556
LL.01	Evaluate feasibility of using moored listening stations (FADs, NOAA weather buoys, etc.) to determine FKW occurrence before a fishing trip	0.444
LL.07	Evaluate potential to use killer whale/other playbacks as deterrents	0.333
LL.08	Examine the ability of FADs to be used as decoys for false killer whales (to reduce depredation of active longlines).	0.222

State Fisheries - Individual Scores

Topic ID	Research Activity	Robin	Eric	Paul N.	John L.	Paul D.	Hannah	Ryan	Tory	David
SF.01	Develop detailed descriptions of fishing practices including precise information on gear types used in the state fisheries (e.g., troll, dangler, handline, hybrid).	M	L	L	M	L	H	M	M	H
SF.02	Institute observer coverage (possibly from an alternative platform) and/or video monitoring to better track state fisheries' practices and possible interactions.	M	H	L	L	L	M	L	L	H
SF.03	Cross-reference and otherwise examine existing data to assess consistency and QA/QC.	M	L	L	L	L	L	M	L	L
SF.04	Better understand the distinctions and areas of commonality in federal and state reporting protocols.	L	L	L	L	L	M	L	L	Not scored
SF.05	Evaluate hook-and-line (shortline, kakaline, troll, handline, etc.) fishery effort and geographic distribution regionally and seasonally	H	M	L	L	L	H	M	M	Not scored
SF.06	Model the potential for FKW interactions with state fisheries by calculating a FKW CPUE in the deep-set longline fishery and then extrapolating that to the state fishery (based on rates of tuna caught).	H	L	L	L	L	L	L	H	L

State Fisheries - Individual Scores, Numerical Conversion

Topic ID	Research Activity	Robin	Eric	Paul N.	John L.	Paul D.	Hannah	Ryan	Tory	David
SF.01	Develop detailed descriptions of fishing practices including precise information on gear types used in the state fisheries (e.g., troll, dangler, handline, hybrid).	1	0	0	1	0	2	1	1	2
SF.02	Institute observer coverage (possibly from an alternative platform) and/or video monitoring to better track state fisheries' practices and possible interactions.	1	2	0	0	0	1	0	0	2
SF.03	Cross-reference and otherwise examine existing data to assess consistency and QA/QC.	1	0	0	0	0	0	1	0	0
SF.04	Better understand the distinctions and areas of commonality in federal and state reporting protocols.	0	0	0	0	0	1	0	0	
SF.05	Evaluate hook-and-line (shortline, kakaline, troll, handline, etc.) fishery effort and geographic distribution regionally and seasonally	2	1	0	0	0	2	1	1	
SF.06	Model the potential for FKW interactions with state fisheries by calculating a FKW CPUE in the deep-set longline fishery and then extrapolating that to the state fishery (based on rates of tuna caught).	2	0	0	0	0	0	0	2	0

State Fisheries - Aggregate Scores

Topic ID	Research Activity	Sum	# Scores	Avg. Score	No highs?
SF.01	Develop detailed descriptions of fishing practices including precise information on gear types used in the state fisheries (e.g., troll, dangler, handline, hybrid).	8	9	0.889	
SF.02	Institute observer coverage (possibly from an alternative platform) and/or video monitoring to better track state fisheries' practices and possible interactions.	6	9	0.667	
SF.03	Cross-reference and otherwise examine existing data to assess consistency and QA/QC.	2	9	0.222	x
SF.04	Better understand the distinctions and areas of commonality in federal and state reporting protocols.	1	8	0.125	x
SF.05	Evaluate hook-and-line (shortline, kakaline, troll, handline, etc.) fishery effort and geographic distribution regionally and seasonally	7	8	0.875	
SF.06	Model the potential for FKW interactions with state fisheries by calculating a FKW CPUE in the deep-set longline fishery and then extrapolating that to the state fishery (based on rates of tuna caught).	4	9	0.444	

State Fisheries - Rank Order

Topic ID	Research Activity	Avg. Score
SF.01	Develop detailed descriptions of fishing practices including precise information on gear types used in the state fisheries (e.g., troll, dangler, handline, hybrid).	0.889
SF.05	Evaluate hook-and-line (shortline, kakaline, troll, handline, etc.) fishery effort and geographic distribution regionally and seasonally	0.875
SF.02	Institute observer coverage (possibly from an alternative platform) and/or video monitoring to better track state fisheries' practices and possible interactions.	0.667
SF.06	Model the potential for FKW interactions with state fisheries by calculating a FKW CPUE in the deep-set longline fishery and then extrapolating that to the state fishery (based on rates of tuna caught).	0.444
SF.03	Cross-reference and otherwise examine existing data to assess consistency and QA/QC.	0.222
SF.04	Better understand the distinctions and areas of commonality in federal and state reporting protocols.	0.125

False Killer Whale Assessment - Individual Scores

Topic ID	Research Activity	Robin	Eric	Paul N.	John L.	Paul D.	Hannah	Ryan	Tory	David
FA.01	Hawaiian EEZ survey (at least every 5 years)	M	Not scored	L	M	H	M	H	H	H
FA.02	Continue research into FKW abundance using towed and stationary acoustics. Develop new towed systems that allow for real-time localization of vocal FKW's	L	Not scored	H	H	L	L	H	H	H
FA.03	Monitor abundance and trends of MHI insular stock	H	Not scored	L	L	H	H	M	M	L
FA.04	Survey windward side of Hawaiian Islands to assess differential FKW encounter rates	M	Not scored	H	M	H	H	M	M	M
FA.05	Develop predictive habitat models of FKW density	L	Not scored	H	L	L	H	L	L	M
FA.06	Evaluate alternative methods for estimating abundance, with emphasis on improving precision	L	Not scored	H	H	H	M	H	M	L
FA.07	Use Observer Program data (in combination with other fishery-dependent data where applicable) on FKW sightings, interactions, and depredation to develop abundance estimates, estimate depredation rates, and identify hot spots.	L	Not scored	H	H	L	L	H	H	L
FA.08	Use mark/recapture studies to supplement info on abundance, demographics, stock structure, and injury categorization	H	Not scored	L	L	H	H	M	M	L
FA.09	Collect additional genetic samples from the pelagic, NWHI, and other distant FKW's to assess population structure	M	Not scored	L	L	H	H	L	L	H
FA.10	Evaluate degree of genetic differentiation between insular and pelagic stocks	L	Not scored	L	L	H	L	M	L	H
FA.11	Develop methods to pro-rate blackfish and unidentified cetacean bycatch	L	Not scored	L	L	L	M	L	M	H
FA.12	Re-analyze the proportion of SI vs. NSI for circle hooks vs. tuna and J-hooks	L	Not scored	L	H	L	H	H	M	M
FA.13	Evaluate detection probability for autonomous recorders in various locations	L	Not scored	L	H	L	M	L	H	M

False Killer Whale Assessment - Individual Scores, Numerical Conversion

Topic ID	Research Activity	Robin	Eric	Paul N.	John L.	Paul D.	Hannah	Ryan	Tory	David
FA.01	Hawaiian EEZ survey (at least every 5 years)	1		0	1	2	1	2	2	2
FA.02	Continue research into FKW abundance using towed and stationary acoustics. Develop new towed systems that allow for real-time localization of vocal FKWs	0		2	2	0	0	2	2	2
FA.03	Monitor abundance and trends of MHI insular stock	2		0	0	2	2	1	1	0
FA.04	Survey windward side of Hawaiian Islands to assess differential FKW encounter rates	1		2	1	2	2	1	1	1
FA.05	Develop predictive habitat models of FKW density	0		2	0	0	2	0	0	1
FA.06	Evaluate alternative methods for estimating abundance, with emphasis on improving precision	0		2	2	2	1	2	1	0
FA.07	Use Observer Program data (in combination with other fishery-dependent data where applicable) on FKW sightings, interactions, and depredation to develop abundance estimates, estimate depredation rates, and identify hot spots.	0		2	2	0	0	2	2	0
FA.08	Use mark/recapture studies to supplement info on abundance, demographics, stock structure, and injury categorization	2		0	0	2	2	1	1	0
FA.09	Collect additional genetic samples from the pelagic, NWHI, and other distant FKWs to assess population structure	1		0	0	2	2	0	0	2
FA.10	Evaluate degree of genetic differentiation between insular and pelagic stocks	0		0	0	2	0	1	0	2
FA.11	Develop methods to pro-rate blackfish and unidentified cetacean bycatch	0		0	0	0	1	0	1	2
FA.12	Re-analyze the proportion of SI vs. NSI for circle hooks vs. tuna and J-hooks	0		0	2	0	2	2	1	1
FA.13	Evaluate detection probability for autonomous recorders in various locations	0		0	2	0	1	0	2	1

False Killer Whale Assessment - Aggregate Scores

Topic ID	Research Activity	Sum	# Scores	Avg. Score	No highs?
FA.01	Hawaiian EEZ survey (at least every 5 years)	11	8	1.375	
FA.02	Continue research into FKW abundance using towed and stationary acoustics. Develop new towed systems that allow for real-time localization of vocal FKWs	10	8	1.25	
FA.03	Monitor abundance and trends of MHI insular stock	8	8	1	
FA.04	Survey windward side of Hawaiian Islands to assess differential FKW encounter rates	11	8	1.375	
FA.05	Develop predictive habitat models of FKW density	5	8	0.625	
FA.06	Evaluate alternative methods for estimating abundance, with emphasis on improving precision	10	8	1.25	
FA.07	Use Observer Program data (in combination with other fishery-dependent data where applicable) on FKW sightings, interactions, and depredation to develop abundance estimates, estimate depredation rates, and identify hot spots.	8	8	1	
FA.08	Use mark/recapture studies to supplement info on abundance, demographics, stock structure, and injury categorization	8	8	1	
FA.09	Collect additional genetic samples from the pelagic, NWHI, and other distant FKWs to assess population structure	7	8	0.875	
FA.10	Evaluate degree of genetic differentiation between insular and pelagic stocks	5	8	0.625	
FA.11	Develop methods to pro-rate blackfish and unidentified cetacean bycatch	4	8	0.5	
FA.12	Re-analyze the proportion of SI vs. NSI for circle hooks vs. tuna and J-hooks	8	8	1	
FA.13	Evaluate detection probability for autonomous recorders in various locations	6	8	0.75	

False Killer Whale Assessment - Rank Order

Topic ID	Research Activity	Avg. Score
FA.01	Hawaiian EEZ survey (at least every 5 years)	1.375
FA.04	Survey windward side of Hawaiian Islands to assess differential FKW encounter rates	1.375
FA.02	Continue research into FKW abundance using towed and stationary acoustics. Develop new towed systems that allow for real-time localization of vocal FKWs	1.25
FA.06	Evaluate alternative methods for estimating abundance, with emphasis on improving precision	1.25
FA.03	Monitor abundance and trends of MHI insular stock	1
FA.07	Use Observer Program data (in combination with other fishery-dependent data where applicable) on FKW sightings, interactions, and depredation to develop abundance estimates, estimate depredation rates, and identify hot spots.	1
FA.08	Use mark/recapture studies to supplement info on abundance, demographics, stock structure, and injury categorization	1
FA.12	Re-analyze the proportion of SI vs. NSI for circle hooks vs. tuna and J-hooks	1
FA.09	Collect additional genetic samples from the pelagic, NWHI, and other distant FKWs to assess population structure	0.875
FA.13	Evaluate detection probability for autonomous recorders in various locations	0.75
FA.05	Develop predictive habitat models of FKW density	0.625
FA.10	Evaluate degree of genetic differentiation between insular and pelagic stocks	0.625
FA.11	Develop methods to pro-rate blackfish and unidentified cetacean bycatch	0.5

Topic ID	Research Activity	Avg. Score	Overall Rank
FB.21	Conduct hook-tissue interaction research to better understand the relationship between type of gear and where the animal is hooked and the severity of the injury.	1.625	1
FB.19	Evaluate survival of FKWs and similar species following fisheries interactions.	1.444	2
FA.01	Hawaiian EEZ survey (at least every 5 years)	1.375	3
FA.04	Survey windward side of Hawaiian Islands to assess differential FKW encounter rates	1.375	3
LL.04	Survey all longline vessels to identify commonalities among those with high depredation rates	1.333	5
FA.02	Continue research into FKW abundance using towed and stationary acoustics. Develop new towed systems that allow for real-time localization of vocal FKWs	1.250	6
FA.06	Evaluate alternative methods for estimating abundance, with emphasis on improving precision	1.250	6
FB.05	Develop real-time assessment capability for distinguishing between FKWs and other odontocetes using whistles and echolocation clicks	1.222	8
FB.10	Conduct vessel sound playbacks	1.222	8
LL.02	Develop new or test existing methods for fleet to use acoustic recorders to determine FKW presence prior to setting	1.222	8
LL.12	Evaluate performance of gear used in deep-set fishery (<i>see details in doc prepared by Laist and Bernard</i>)	1.222	8
LL.16	Evaluate impact of weak hooks on FKW bycatch rates	1.222	8
FB.06	Evaluate acoustic behavior near longlines using recorders on fishing gear	1.111	13
FB.13	Determine range at which a hook in a fish can be detected by FKW	1.111	13
FA.03	Monitor abundance and trends of MHI insular stock	1.000	15
FA.07	Use Observer Program data (in combination with other fishery-dependent data where applicable) on FKW sightings, interactions, and depredation to develop abundance estimates, estimate depredation rates, and identify hot spots.	1.000	15

Topic ID	Research Activity	Avg. Score	Overall Rank
FA.08	Use mark/recapture studies to supplement info on abundance, demographics, stock structure, and injury categorization	1.000	15
FA.12	Re-analyze the proportion of SI vs. NSI for circle hooks vs. tuna and J-hooks	1.000	15
LL.11	Determine types of hooks and hook manufacturers used by Hawaii deep-set longline vessels (<i>see details in doc prepared by Laist and Bernard</i>)	1.000	15
LL.14	Desktop study to assess size of false killer whales caught	1.000	15
LL.17	Collect straightened hooks for genetic sampling	1.000	15
FB.08	Carry out underwater observations of foraging behavior	0.889	22
FB.12	Assess impact of hook density on FKW ability to follow line	0.889	22
LL.05	Examine role of bait type, size, and manner of threading on bait depredation	0.889	22
LL.15	Follow-up weak hook study to understand impact on target catch.	0.889	22
SF.01	Develop detailed descriptions of fishing practices including precise information on gear types used in the state fisheries (e.g., troll, dangler, handline, hybrid).	0.889	22
FA.09	Collect additional genetic samples from the pelagic, NWHI, and other distant FKWs to assess population structure	0.875	27
SF.05	Evaluate hook-and-line (shortline, kakaline, troll, handline, etc.) fishery effort and geographic distribution regionally and seasonally	0.875	27
FB.03	Continue telemetry studies on the MHI insular stock FKWs	0.833	29
FB.01	Continue telemetry studies on the pelagic stock FKWs	0.778	30
FB.15	Evaluate FKW capability to see floats, as well as monofilament line of different colors and width	0.778	30
LL.03	Record acoustic profile of vessels and fishing gear across the fleet during transiting, setting, soaking, and hauling to assess potential cues to FKWs	0.778	30
LL.06	Evaluate where animals are caught within a set and why	0.778	30
LL.09	Evaluate effectiveness of additions to terminal tackle or other items on the mainline as a method to reduce depredation on bait, catch and incidental takes of false killer whales	0.778	30
FA.13	Evaluate detection probability for autonomous recorders in various locations	0.750	35

Topic ID	Research Activity	Avg. Score	Overall Rank
FB.04	Examine call types and rates by different FKW populations to better understand the variability and nuances of the acoustic data, allowing for more precise and useful examination of existing and ongoing acoustic data.	0.667	36
FB.11	Determine the extent to which FADs attract FKWs.	0.667	36
FB.14	Test visual acuity of FKWs given different types of lights often found on longline vessels	0.667	36
FB.16	Assess FKW response to compounds found in oil fish and other fish species that FKWs do not depredate from the line	0.667	36
FB.20	Assess importance of fishery as a food source for FKWs.	0.667	36
SF.02	Institute observer coverage (possibly from an alternative platform) and/or video monitoring to better track state fisheries' practices and possible interactions.	0.667	36
FA.05	Develop predictive habitat models of FKW density	0.625	42
FA.10	Evaluate degree of genetic differentiation between insular and pelagic stocks	0.625	42
FB.09	Study adaptive learning in the FKW	0.556	44
LL.10	Assess potential for hooks to be modified (foam coating, etc.) to increase or decrease detection range	0.556	44
LL.13	Identify and evaluate other factors that may affect hook strength (and severity of FKW injuries)	0.556	44
FA.11	Develop methods to pro-rate blackfish and unidentified cetacean bycatch	0.500	47
LL.01	Evaluate feasibility of using moored listening stations (FADs, NOAA weather buoys, etc.) to determine FKW occurrence before a fishing trip	0.444	48
SF.06	Model the potential for FKW interactions with state fisheries by calculating a FKW CPUE in the deep-set longline fishery and then extrapolating that to the state fishery (based on rates of tuna caught).	0.444	48
FB.07	Use acoustic tags to understand foraging and acoustic behavior	0.333	50
LL.07	Evaluate potential to use killer whale/other playbacks as deterrents	0.333	50
FB.17	Assess hormones to examine stress and reproductive rates	0.222	52
LL.08	Examine the ability of FADs to be used as decoys for false killer whales (to reduce depredation of active longlines).	0.222	52
SF.03	Cross-reference and otherwise examine existing data to assess consistency and QA/QC.	0.222	52
SF.04	Better understand the distinctions and areas of commonality in federal and state reporting protocols.	0.125	55
FB.02	Continue telemetry studies on the NWHI stock FKWs	0.111	56
FB.18	Examine physiological response of FKW and similar species during/following an interaction	0.111	56

Top in each category (with overall rank)

FKW Biology		
FB.21	Conduct hook-tissue interaction research to better understand the relationship between type of gear and where the animal is hooked and the severity of the injury.	1
FB.19	Evaluate survival of FKWs and similar species following fisheries interactions.	2
FB.05	Develop real-time assessment capability for distinguishing between FKWs and other odontocetes using whistles and echolocation clicks	8 (tie)
FB.10	Conduct vessel sound playbacks	8 (tie)
FB.06	Evaluate acoustic behavior near longlines using recorders on fishing gear	13 (tie)
FB.13	Determine range at which a hook in a fish can be detected by FKW	13 (tie)

State Fisheries		
SF.01	Develop detailed descriptions of fishing practices including precise information on gear types used in the state fisheries (e.g., troll, dangler, handline, hybrid).	22
SF.05	Evaluate hook-and-line (shortline, kakaline, troll, handline, etc.) fishery effort and geographic distribution regionally and seasonally	27
SF.02	Institute observer coverage (possibly from an alternative platform) and/or video monitoring to better track state fisheries' practices and possible interactions.	36
SF.06	Model the potential for FKW interactions with state fisheries by calculating a FKW CPUE in the deep-set longline fishery and then extrapolating that to the state fishery (based on rates of tuna caught).	48
SF.03	Cross-reference and otherwise examine existing data to assess consistency and QA/QC.	52

Longline Gear		
LL.04	Survey all longline vessels to identify commonalities among those with high depredation rates	5
LL.02	Develop new or test existing methods for fleet to use acoustic recorders to determine FKW presence prior to setting	8 (tie)
LL.12	Evaluate performance of gear used in deep-set fishery (see details in doc prepared by Laist and Bernard)	8 (tie)
LL.16	Evaluate impact of weak hooks on FKW bycatch rates	8 (tie)
LL.11	Determine types of hooks and hook manufacturers used by Hawaii deep-set longline vessels (see details in doc prepared by Laist and Bernard)	15 (tie)
LL.14	Desktop study to assess size of false killer whales caught	15 (tie)
LL.17	Collect straightened hooks for genetic sampling	15 (tie)

FKW Assessment		
FA.01	Hawaiian EEZ survey (at least every 5 years)	3 (tie)
FA.04	Survey windward side of Hawaiian Islands to assess differential FKW encounter rates	3 (tie)
FA.02	Continue research into FKW abundance using towed and stationary acoustics. Develop new towed systems that allow for real-time localization of vocal FKWs	6 (tie)
FA.06	Evaluate alternative methods for estimating abundance, with emphasis on improving precision	6 (tie)
FA.03	Monitor abundance and trends of MHI insular stock	15 (tie)
FA.07	Use Observer Program data (in combination with other fishery-dependent data where applicable) on FKW sightings, interactions, and depredation to develop abundance estimates, estimate depredation rates, and identify hot spots.	15 (tie)
FA.08	Use mark/recapture studies to supplement info on abundance, demographics, stock structure, and injury categorization	15 (tie)
FA.12	Re-analyze the proportion of SI vs. NSI for circle hooks vs. tuna and J-hooks	15 (tie)