

**The Western Pacific Regional Fishery Management Council's  
Marine Mammal Advisory Committee**

The Western Pacific Regional Fishery Management Council convened three Marine Mammal Advisory Committee (MMAC) meetings in 2005, 2007, and 2009. The MMAC was formed to address interactions between Hawaii-based longline fisheries and cetaceans, primarily the false killer whale. In addition, due to the Category I classification of the deep-set fishery (based on interactions with false killer whales), and the small estimated population size of the false killer whale stock around the Main Hawaiian Islands, the Council acknowledged that action was needed to reduce interactions. The MMAC advised the Council on actions that could aid in developing measures to minimize further interactions between false killer whales and longline vessels. After reviewing mitigation measures evaluated in other fisheries, the MMAC concluded that no simple solution was available to reduce the interaction levels, but several long-term recommendations were made to help address this issue in the future. These recommendations included: continuing assessments of the nature of interactions between false killer whales and Hawaii longline fisheries; improving techniques to estimate stock size; surveying longline fishermen for knowledge of whale depredation events and any potential methods to avoid depredation (in the main Hawaiian Islands, American Samoa, and if possible Samoa and Cook Islands); and utilizing captive behavior characteristics to study and determine the efficacy of deterrents. Many of the actions recommended by the MMAC have been completed or are in progress.

The MMAC's recommendations from 2005, 2007, and 2009 are included in the following pages.



**Marine Mammal Advisory Committee  
1<sup>st</sup> Meeting, May 11-12, 2005  
Honolulu, Hawaii**

**Recommendations**

1. The MMAC supports the continuation of studies to obtain information on the abundance, distribution, and stock structure of false killer whales and other cetaceans in the US EEZs in the Western Pacific (NMFS PIFSC, SWFSC, NOS-SPLASH).
2. The MMAC recommends that fishery interactions between the Hawaii longline fishery and false killer whales (as well as other cetaceans) be fully assessed. Studies should focus on spatial and temporal patterns, gear and target species associations, and characteristics of the depredation events during longline soaks (NMFS PIFSC & PIRO, and SWFSC).
3. The MMAC recommends that the magnitude and nature of fishery interactions between cetaceans and Hawaii nearshore fisheries be assessed (Hawaii DAR, NMFS PIFSC & PIRO).
4. The MMAC recommends that baseline studies on the foraging ecology of false killer whales be conducted. Specific studies should address cetacean sensory ecology and diving behavior, oceanographic features, and trophic relationships. Further, studies should include characterizing the behavior of false killer whales and other cetaceans around longlines.
5. The MMAC encourages PIRO to work collaboratively with PIFSC to address cetacean data and sampling needs through the observer programs and the stranding program.
6. The MMAC recommends that the Council continues to encourage the Hawaii Longline Association to ask its members to facilitate the collection of biological samples from cetaceans by onboard observers, and communicate to its members the significance of data derived from sampling collection.
7. The MMAC encourages the study of live false killer whales and other cetaceans currently housed in research laboratories. Research should be aimed at increasing our understanding of cetacean morphology and sensory systems; issues that are relevant to management concerns to reduce and/or eliminate fishery interactions between cetaceans and longline fisheries.

8. The MMAC recommends that one or more MMAC members participate in the Take Reduction Team for the Atlantic longline fishery.
9. The MMAC recognizes the critical need for the inclusion of one or more fishermen on the Committee.
10. The MMAC recommends that efforts to implement mitigation strategies for false killer whales and other cetaceans with the Hawaii longline fisheries should include relevant information from existing studies of fisheries in other areas. This could include information from strandings, observer programs, and other workshops on this issue.
11. The MMAC recommends that an accomplishment report on the above recommendations be written and verbally presented to the Pacific Scientific Review Group when it meets in November 2005



**Marine Mammal Advisory Committee  
2<sup>nd</sup> Meeting, 1-2 February 2007  
Honolulu, Hawaii**

**Recommendations –Final**

1. The MMAC recommends that fishery interactions between the Hawaii longline fishery and cetaceans be assessed through an analysis of the existing observer database. This analysis should focus on spatial, temporal and environmental patterns, gear, vessel, and target species associations, and characteristics of the depredation events during longline fishing. The preliminary results of this analysis should be provided to the MMAC by August 2007 in an update via electronic correspondence. (PIFSC, SWFSC & PIRO)
2. The MMAC recommends that questions related to whale depredation be incorporated into the upcoming survey of Hawaii longline participants planned to be conducted by PIFSC. (PIFSC, PIRO)
3. The MMAC recommends that PIRO and Council staff work collaboratively with the Hawaii Longline Association to develop a plan to gather fishermen knowledge about whale depredation events, methods used to avoid these events, and locations where whale depredation more frequently occurs. This information should be gathered through individual, informal "talk story" conversations. The process selected to collect this information should be announced to the MMAC in the August 2007 update, with a goal of a preliminary report by the end of 2007. (PIRO, WPRFMC, HLA)
4. The MMAC recommends that the ongoing research being conducted as a result of the Atlantic Take Reduction Team be evaluated for applicability to whale depredation in this region. This research, which focuses on determining what vessel noises attract pilot whales and if acoustic decoy buoys can be effective at reducing depredation, may assist in the development of mitigation measures for this region. PIRO/PIFSC staff should continue to participate in the Atlantic Take Reduction Team process. (PIRO, PIFSC)
5. The MMAC recommends that PIFSC work with the industry to evaluate the feasibility of conducting an investigation of vessel discards to determine if offal discards attract marine mammals and if so, how discards may be managed to avoid attracting marine mammals. As well, the MMAC recommends that the regulations governing discards, particularly related to sea birds, be evaluated to

ensure that regulations enacted for the protection of one protected species are not increasing fishery interactions with other species, such as marine mammals. (PIFSC, PIRO)

6. The MMAC supports the continuation, development and expansion of surveys, tagging, genetics and photo ID studies and/or new techniques to obtain information on the abundance, distribution, and stock structure of false killer whales and other cetaceans in the US EEZs and international waters in the Central and Western Pacific. (PIFSC, SWFSC, research community)
7. The MMAC recommends that the study commissioned by PIRO to investigate the magnitude and nature of fishery interactions between cetaceans and Hawaii nearshore fisheries be reported to the MMAC when completed. (PIRO & PIFSC)
8. The MMAC recommends that baseline studies on the foraging ecology of false killer whales be continued. Specific studies should address cetacean sensory ecology and diving behavior, oceanographic features, and trophic relationships. Further, studies should include characterizing the behavior of false killer whales and other cetaceans around longlines. (PIFSC, SWFSC, research community)
9. The MMAC recommends that the Council continue to encourage the Hawaii Longline Association to ask its members to facilitate the collection of biological samples from cetaceans by onboard observers, and communicate to its members the potential benefits to the fishery from data derived from sampling collection. Information to be provided in multiple languages. (WPRFMC, HLA)
10. The MMAC encourages the study of live false killer whales and other cetaceans currently housed in research laboratories. In particular, research that can advance the effectiveness of passive acoustic detection and passive reflector systems should be evaluated for potential use to reduce depredation. (PIFSC, SWFSC, research community)
11. The MMAC recommends investigating the feasibility of conducting an acoustic propagation assessment of longline vessel noise and false killer whale hearing. If feasible, this analysis could improve understanding of what vessel noises false killer whales hear and potentially aid in the development of technology to make vessels and equipment more difficult for whales to detect. (PIFSC, SWFSC, research community)
12. Recognizing that marine mammal fishery interactions occur in both U.S. and international longline fisheries, the MMAC supports the continuation of efforts to foster cooperation and information sharing among international fleets to mitigate bycatch of marine mammals and other species. (NMFS, WPFMC)



**Marine Mammal Advisory Committee, Third Meeting  
April 6-7, 2009  
Honolulu, Hawaii**

**Recommendations**

The Marine Mammal Advisory Committee (MMAC) convened its third meeting on April 6-7, 2009 at the Council Office in Honolulu, Hawaii. The MMAC heard updates on false killer whale stocks, bycatch, and potential mitigation measures. Based on the information provided at the meeting, the current state of knowledge regarding false killer whales around Hawaii are:

- Three separate stocks of false killer whales have been identified in the central North Pacific for the purpose of stock assessment reports: Hawaii Insular Stock (population estimate: 123, CV=0.72), Hawaii Pelagic Stock (484, CV=0.93), and Palmyra Stock (1,329, CV=0.65). The insular stock has been studied by committee member Robin Baird and his colleagues, and has only been documented within approximately 75 nmi from the Main Hawaiian Islands (MHI). A recent paper published by Reeves, Leatherwood, and Baird (2009) point to evidence of possible decline in the insular stock over the last 20 years.
- All of the observed take locations in commercial longline fisheries have been outside of the defined insular stock range, suggesting that most interactions occur with the pelagic stock. However, some seasonal fishing effort extends into the defined insular stock range, indicating that the insular stock may also be interacting with longline fisheries. In addition, there is evidence of shortline fishing within the current 75 nmi stock boundary. Some reports by fishers of interactions with 'blackfish' and other cetaceans suggest potential for fisheries other than those federally regulated to be impacting the insular population of false killer whales.
- Very little research has been conducted on the pelagic and Palmyra stocks of false killer whales. It is unknown whether the North Western Hawaiian Islands (NWHI) might have an insular population similar to the population in the MHI.
- Preliminary analysis of bycatch and depredation in Hawaii-based longline fisheries by committee member Karin Forney and colleagues suggests that depredation by cetaceans may be rare but random events. Although possible gear type effects may exist, a recent correction of the 2003-2006 observer database will require reanalysis of depredation data.
- A survey of Hawaii-based longline vessel captains and owners conducted by George Krasnick of TEC Inc. showed that all 22 respondents interviewed routinely experience depredation by whales. Fishers reported actively avoiding cetaceans by moving away from them if sighted before setting, or cutting the line and moving away if sighted during the set. Interviewed vessel captains and owners estimated that 5%-60% (median=27%) of their annual catch are lost to whale depredation.

- Several acoustic approaches have been considered as potential depredation and interaction mitigation measures. Active acoustic devices have been tested with mixed results. For example, SaveWave Longline Saver device tested by committee member Paul Nachtigal and colleagues had limited effect on false killer whales, while DDD 02F Pinger tested by committee member Geoff McPherson and colleagues were effective with bottlenosed and common dolphins but have not been tested with false killer whales. Alternatively, passive acoustic devices that enlarge the whale's reflecting sonar are thought to be more effective in reducing depredation and interactions, and testing of such devices are currently underway.
- In response to the recent complaint filed against the National Marine Fishery Service (NMFS) regarding its failure to form a Take Reduction Team (TRT) for false killer whales despite the species' designation as a strategic stock under the Marine Mammal Protection Act (MMPA) since 2000, the NMFS Pacific Islands Regional Office (PIRO) has received funds to begin the process of developing a Take Reduction Plan.

**Based on the above knowledge, the MMAC made the following recommendations**

(recommendations are not in order of priority):

1. The MMAC recommends that additional research focus on resolving impacts of human activities on the Hawaii insular and pelagic stocks of false killer whales. Specific areas of research should include an updated U.S. EEZ abundance estimate by stock, additional satellite tagging studies on both stocks, photo identification, genetic and acoustic studies, and bycatch in all fisheries that interact with this species by stock. (PIFCS, SWFSC, Research Community)
2. MMAC received information that shortline fishing may be resulting in take of false killer whales and other cetaceans around the MHI. Accordingly, the MMAC recommends that the Council and NMFS PIRO staff work collaboratively with the State of Hawaii to fully assess the scale of shortline use and potential impacts on cetaceans around the MHI. The MMAC further recommends that the Council take action to monitor and regulate shortline fishing within federal waters due to the potential impacts of shortlines on cetaceans of the MHI. (Council, PIRO, State of Hawaii-DAR)
3. Recognizing that there is evidence for a decline of the size of the insular population of false killer whales, the MMAC recommends research into potential causes including, but not limited to undocumented bycatch, ingestion of hooked fish, reduced prey availability, deliberate shooting, and pollutants. (Council, PIRO, PIFSC, Research Community)
4. The MMAC recognizes the need for additional research and assessment throughout the Pacific Islands region including, but not limited to foraging, life history, and prey habitat modeling. (PIFSC, Research Community, SWFSC, ONMS)
5. The MMAC encourages the NWHI Monument to support research to better understand false killer whale and other cetacean populations that occur within the boundaries of the Monument. (Papahānaumokuākea Monument, PIFSC, PIRO, Research Community)

6. The MMAC encourages the Palmyra and Kingman Monuments to support research to better understand false killer whale and other cetacean populations that occur within the boundaries of the Monuments. (Monument Administration, PIFSC, PIRO, Research Community)
7. The MMAC encourages false killer whale population assessment and bycatch estimates to be extended into international waters. (Council, SWFSC, PIFSC)
8. The MMAC recommends that marine mammal researchers and the Hawaii Longline Association discuss ways in which the commercial longline fishery and other pelagic fisheries may be able to help researchers by providing platforms for obtaining information on marine mammal interactions with fishing gear. (HLA, Research Community, Other Fishers, PIFSC)
9. The MMAC encourages fishers and observers to take photographs of cetaceans (especially false killer whales) sighted in addition to those from fishery interactions to aid in further photo identification of individuals. Fishers and observers can be provided with informational brochures to show types of photographs that are useful and not useful, as well as resolution settings; protected species workshops required for owners and operators could be an opportunity for the dissemination of this information. (PIRO, PIFSC, Research Community, HLA and other fishers)
10. The MMAC supports the SSC recommendation for a one year high level of observer deployment in the American Samoa longline fishery, stemming from a PIFSC technical report authored by Marti McCracken; based on this report, MMAC suggests a 40% rather than 30% level of deployment to achieve greater statistical power. (PIRO, Council, PIFSC)
11. The MMAC recommends that the survey of longline fishers' knowledge of whale depredation events and any potential methods to avoid depredation be replicated in American Samoa, and if possible include Samoan and Cook Islands longline fishers in the survey. (PIRO, Council, American Samoa Longline Association)