MARINE MAMMAL COMMISSION

22 November 2011

Dr. Howard Braham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3226

Dear Dr. Braham:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the draft 2011 stock assessment reports for marine mammals occurring in U.S. waters. These reports provide important information needed to understand and resolve vital marine mammal conservation issues. The Commission appreciates the opportunity to review the reports, provide comments, and recommend improvements.

Unfortunately, stock assessment information often is not sufficient to meet the requirements of the Marine Mammal Protection Act. Many stock assessments lack even the most basic information such as up-to-date minimum abundance estimates, which are necessary to calculate the stocks' potential biological removal (PBR) levels. Estimates of serious injury and mortality rates are lacking for even more stocks. In the absence of such information, managers cannot confidently determine the status of these stocks, the extent of impacts from human interactions, and whether management measures intended to protect them are effective. In the end, the lack of information means that managers are more likely to err by over- or under-protecting marine mammal species, either of which can be unnecessarily costly.

RECOMMENDATIONS

To improve stock assessment efforts generally, the Marine Mammal Commission recommends that the National Marine Fisheries Service—

- develop a nation-wide, five-year schedule for carrying out stock assessments that reflects projections and priorities for available ship and aircraft time, and identifies the funding necessary to complete marine mammal population surveys;
- review its observer programs nationwide, set standards for observer coverage, identify gaps in existing coverage, and determine the resources needed to (1) observe all fisheries that do or may directly interact with marine mammals, especially strategic stocks and (2) provide reasonably accurate and precise estimates of serious injury and mortality levels;
- partner with state fishery management agencies, the fishing industry, and other stakeholders to develop a funding strategy in 2012 that will substantially improve the extent and level of observer coverage and data collection concerning incidental serious injury and mortality of marine mammals within five years;
- develop alternative strategies for collecting information on mortality and serious injury levels in fisheries for which entanglements are difficult to detect or quantify using traditional observer programs;

- collaborate with other nations and international fishery management organizations to develop and implement cooperative or complementary strategies for assessing the status of transboundary marine mammal stocks, and the rate of serious injury and mortality of such stocks in fisheries; and
- consider the various approaches that are available for integrating all human-related risk factors into stock assessments and adopt an integration method that will produce, at a minimum, reasonable estimates of the lower and upper bounds of serious injury and mortality rates for every stock.

To improve stock assessment efforts in the Atlantic and Gulf of Mexico, the Marine Mammal Commission recommends that the National Marine Fisheries Service—

- conduct the required surveys of North Atlantic pinniped stocks, incorporate the results into stock assessment reports, and use that information to manage those stocks and the risk factors affecting them;
- improve stock assessments for bottlenose dolphins in both the Atlantic and the Gulf of Mexico by conducting the research needed to resolve questions concerning stock structure, provide more accurate and precise estimates of the abundance and trends of the various stocks, and provide more accurate and precise estimates of the level of serious injury and mortality in fisheries and from other human activities; and
- develop a stock assessment plan for the Gulf of Mexico that describes (1) a feasible strategy for assessing the Gulf's marine mammal stocks and (2) the infrastructure, expertise, and funding needed to implement it.

To improve stock assessment efforts in the Alaska region, the Marine Mammal Commission recommends that the National Marine Fisheries Service—

- consider the impending changes in the Arctic and develop a long-term assessment strategy that will provide a reliable basis for characterizing population abundance, stock status, and trends, as well as implementing protective measures that will minimize the effects of Arctic climate disruption on the viability of marine mammal stocks;
- substantially increase its efforts to (1) collaborate with the Alaska Native community to monitor the abundance and distribution of ice seals and (2) use seals taken in the subsistence harvest to obtain data on demography, ecology, life history, behavior, health status, and other pertinent topics;
- do everything it can to ensure that all vessels operating in the area are aware of the need to protect the North Pacific right whale, and that every practicable step be taken to minimize the probability of entanglements and ship strikes; and
- continue its efforts to better describe the distribution and movement patterns of North Pacific right whales, especially with respect to their distribution during those periods when they are outside designated critical habitat.

To improve stock assessment efforts in the Pacific, the Marine Mammal Commission recommends that the National Marine Fisheries Service—

- conduct the necessary surveys to update stock assessment reports for harbor seals along the Oregon and Washington coasts and in Washington inland waters; and
- maintain and enhance existing collaborations to obtain the data necessary to generate stock assessments for all Pacific Island cetaceans within U.S. jurisdiction, and to seek new opportunities, such as collaborating with the Navy, to leverage resources for accomplishing this challenging task.

RATIONALE

General comments

Marine mammal population surveys: The Marine Mammal Protection Act requires that stock assessments be prepared and periodically updated for all stocks of marine mammals in U.S. waters. However, resource managers lack even the most basic information for many stocks, such as up-to-date minimum abundance estimates, because the resources for conducting population surveys, primarily the availability of ship and aircraft time, have not been adequate. To address this deficiency, the Service should develop a long-term plan, including cost estimates and priorities, to meet population survey needs on a nationwide basis. The recent National Research Council study, "Critical Infrastructure for Ocean Research and Societal Needs in 2030," identified several key elements that may be of value to the Service in such a planning effort. For example, the study identified criteria that could help agencies prioritize investments, taking account of issues such as whether the infrastructure can help address more than one research question, the quality of the data collected using the infrastructure, and future technology trends. Accordingly, the Marine Mammal Commission recommends that the National Marine Fisheries Service develop a nation-wide, five-year schedule for carrying out stock assessments that reflects projections and priorities for available ship and aircraft time, and identifies the funding necessary to complete marine mammal population surveys.

Observer effort: The 2011 stock assessments continue to reveal shortcomings in the assessment of marine mammal bycatch. Well-designed observer programs with sufficient coverage are necessary to produce accurate and precise bycatch estimates. Although some fisheries (e.g., certain groundfish fisheries in Alaska) have 100-percent observer coverage, others receive little or no coverage or have not been observed in a number of years (including gillnet fisheries, which are known to be non-selective and often result in high bycatch). As a result, the available data on marine mammal bycatch are not sufficient to characterize or manage interactions with many fisheries.

In the Atlantic, increased observer coverage is needed to improve bycatch assessments for bottlenose dolphins and harbor porpoises. For example, at its last meeting in 2007 the bottlenose dolphin take reduction team noted the need for increased coverage of the Spanish mackerel fishery

in North Carolina. Many other coastal gillnet fisheries that catch bottlenose dolphins are either unmonitored, or monitored at such low rates that confidence levels around the bycatch estimates are unacceptably wide. In addition, effort in the spiny dogfish gillnet fishery, which was a substantial source of harbor porpoise bycatch in the early 1990s, has increased significantly in recent years necessitating additional observer coverage. In the Gulf of Mexico, most fisheries are unobserved or under-observed, particularly state, recreational, and charterboat fisheries, all of which could have significant interactions with bottlenose dolphins. In Alaska, annual funding for observer coverage of state gillnet fisheries continues to be insufficient to determine whether mortalities and serious injuries exceed potential biological removal levels for several marine mammal stocks. For example, the Service has estimated the minimum total annual mortality of harbor seals in commercial salmon gillnet fisheries based on limited observer data that are at best 9 years old and in some cases more than 20 years old.

In summary, inadequate observer coverage remains a significant issue in most U.S. waters. To address this shortcoming, the Marine Mammal Commission repeats its 2010 recommendation that the National Marine Fisheries Service review its observer programs nationwide, set standards for observer coverage, identify gaps in existing coverage, and determine the resources needed to (1) observe all fisheries that do or may directly interact with marine mammals, especially strategic stocks and (2) provide reasonably accurate and precise estimates of serious injury and mortality levels. The Commission recognizes that the cost of adequate observer programs is not trivial and that the Service is facing significant funding challenges, but it believes that the Service, working with the industry and other stakeholders, should be able to develop alternative, innovative mechanisms to provide funding and incentives. If the Service is unable to do so, then the responsibility for demonstrating that fisheries do not adversely affect marine mammals should fall to those fisheries. To address the need for increased and better observer effort, the Marine Mammal Commission recommends that the National Marine Fisheries Service partner in 2012 with state fishery management agencies, the fishing industry, and other stakeholders to develop a funding strategy that will substantially improve the extent and level of observer coverage and data collection concerning incidental serious injury and mortality of marine mammals within five years.

Observer program limitations: In certain cases, observer programs alone may do little to increase our understanding of interaction rates. For example, in the Atlantic, entanglements of right whales have not been reported in any observed fishery since 1993, and yet right whale entanglements are common (85 confirmed entanglements from 1990 to 2009) and have led to the serious injury or death of at least one whale per year over the last five years. Knowlton et al. (2005)[i] found that up to 76 percent of examined right whales have at least one scar that can be attributed to fishing gear. In these cases, observer programs may not be able to estimate entanglement rates, because the per-vessel rates are extremely low, coverage is inadequate, or entanglements occur primarily when nets or lines are not being actively tended. Regardless, the Service's existing observer program and management strategy is failing to detect most entanglements and the resulting injuries and deaths and, therefore, is not providing the information needed to manage the responsible fisheries adequately. The Marine Mammal Commission recommends that the National Marine Fisheries Service develop alternative strategies for collecting information on mortality and serious-injury levels in fisheries for which entanglements are difficult to detect or quantify using traditional

observer programs. Alternatives include more comprehensive gear-marking or gear-tracking requirements. At a minimum, gear markings should enable the Service to identify the fishery, region, and gear part of any gear removed from whales, and ideally markings should be "readable" at a distance.

Transboundary stocks: The majority of marine mammal stocks occurring in U.S. waters also occur in adjacent or neighboring international or foreign waters. Assessing transboundary stocks can be particularly challenging because it requires cooperation with research organizations and, in some cases, international management authorities outside the United States. Perhaps the most common problem is a lack of information on bycatch levels from stocks shared with other countries or taken in international waters, which undermines stock assessment efforts.

The level of cooperation in assessing transboundary stocks often falls short even with our closest neighbors. For example, the lack of observer data from Canadian fisheries undermines assessment of many of the stocks shared with Canada. In the Gulf of Maine, observer coverage of 4-7 percent per year in the northeast sink gillnet fishery from 2005 to 2009 produced a serious injury and mortality estimate of 395 to 666 harbor porpoises killed per year. The same harbor porpoise stock also occurs in the adjacent Canadian waters of the Bay of Fundy, where a similar and sizeable gillnet fishery occurs. However, Canada does not have comparable observer coverage, and as such, comparable data to determine bycatch levels in Canadian waters are lacking. However, it is reasonable to assume that the bycatch of this stock exceeds the U.S. estimate by an unknown, but potentially significant, amount.

In Hawaii, recent surveys provide evidence of unsustainable takes from false killer whale stocks. Observers on U.S. longline vessels have documented an annual bycatch of roughly 20 pelagic false killer whales in the deep-set pelagic longline fishery, which far exceeds the stock's PBR of 2.4. Half of the U.S. bycatch occurs outside the U.S. Exclusive Economic Zone (U.S. EEZ). From 2005 to 2008, the estimated bycatch outside U.S. waters ranged from 0 to 8 whales per year, somewhat less than the 3 to 17 taken inside the U.S. EEZ. However, in 2009 the estimate for false killer whales seriously injured or killed outside the U.S. EEZ spiked to 37 animals. This large increase suggests that U.S. bycatch outside the zone may be much higher and more uncertain than previously thought. Longline vessels from other nations operating in the same areas also are likely to take pelagic false killer whales, adding to pressure on the stock and uncertainty about its status. Understanding the impacts to this stock and effectively managing both the U.S. and foreign fisheries that are affecting false killer whales depends, in part, on obtaining bycatch data from foreign fleets operating outside the U.S. EEZ and under the management authority of the Inter-American Tropical Tuna Commission.

Clearly, the Service must be able to assess and manage transboundary stocks if our national conservation strategy for marine mammals is to be complete and responsive to the directives of the Marine Mammal Protection Act. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service collaborate with other nations and international fishery management organizations to develop and implement cooperative or complementary strategies for assessing the status of transboundary marine mammal stocks and the rate of serious injury and

mortality of such stocks in fisheries. Priority should be given to those stocks that are known to interact significantly with fisheries. The goal should be to manage transboundary stocks using a PBR level calculated for the entire stock considering all bycatch, something that has been suggested in the proposed revisions to the stock assessment guidelines.

Addressing all human-related risk factors: Section 117 of the Marine Mammal Protection Act requires that in completing stock assessments, the responsible agencies "estimate the annual human-caused mortality and serious injury of the stock by source and, for a strategic stock, other factors that may be causing a decline or impeding recovery of the stock, including effects on marine mammal habitat and prey." Despite this directive, the 2011 draft stock assessments are inconsistent in their treatment of risk factors other than fisheries, which compromises the full assessment of individual stocks and full evaluation of specific risk factors. Because some causes of mortality can be difficult to link to a particular stock, the estimates of serious injury and mortality that are counted against PBR are mostly derived from fishery interactions. Nonetheless, the objective of the Marine Mammal Protection Act is clear: stock assessments, including the calculation of PBR, are to be based on all human-caused mortality and serious injury. To that end, the Marine Mammal Commission recommends that the National Marine Fisheries Service consider the various approaches that are available for integrating all human-related risk factors into stock assessment and adopt an integration method that will produce, at a minimum, reasonable estimates of the lower and upper bounds of serious injury and mortality rates for every stock.

Atlantic and Gulf of Mexico stock assessment reports

Pinniped surveys: The 2011 draft stock assessment reports do not include up-to-date estimates of gray and harbor seal abundance in the northwest Atlantic, due primarily to a lack of systematic and current aerial surveys. Intermittent visits by researchers to breeding sites such as Muskeget and Monomoy Islands suggest that seal populations have changed at those sites in recent years. The Service should update assessments of those stocks with new information on abundance, distribution, and their relationship with Canadian populations of these species. Doing so is necessary to provide a basis for evaluating, among other things, the potential impacts of renewable energy development, gillnet and trawl fishery bycatch, and the causes and significance of unusual mortality events (e.g., harbor seals in the Gulf of Maine experienced unusual mortality events in 2003, 2004, and 2006, and a new event began last month). To ensure that managers are working with up-to-date information, the Marine Mammal Commission repeats its recommendation from 2010 that the National Marine Fisheries Service conduct the required surveys of the western North Atlantic harbor and gray seal stocks, incorporate the results into the stock assessment reports, and use that information in their management of those stocks and the risk factors affecting them.

Bottlenose dolphins and other cetacean stocks: The stock structure of bottlenose dolphins in the Atlantic and Gulf of Mexico is complex and difficult to study. Nonetheless, that structure has important implications for management and conservation of these stocks. The Service has made considerable progress investigating stock structure in the Atlantic to inform take-reduction efforts. But it has neglected investigation of stock structure in the Gulf of Mexico, where Service scientists are capable of conducting the necessary studies but have not been given the resources to do so.

For more than a decade, the Commission and the Atlantic Scientific Review Group have been recommending a more aggressive approach to research and management of stocks in both regions, but particularly in the Gulf. Further work is needed in the Atlantic to ensure that take reduction measures are appropriately targeted at the fisheries that take dolphins in excess of Marine Mammal Protection Act standards. In both areas, the interactions between bottlenose dolphins and human activities are almost certainly going to increase in the foreseeable future as a function of increasing human population numbers and corresponding growth in fishing (commercial and recreational), oil and gas operations, shipping, military activities, tourism, and coastal development. These activities may injure or kill dolphins, compete with them for prey and space, and degrade their habitat. The Deepwater Horizon oil spill was a resounding reminder of the need to collect baseline information, and it drew particular attention to the bottlenose dolphin stocks that may be at elevated risk from such events because they depend on shallow coastal regions easily degraded by both spilled oil and oil-spill response measures. Therefore, the Marine Mammal Commission repeats its long-standing recommendation that the National Marine Fisheries Service improve stock assessments for bottlenose dolphins in both the Atlantic and the Gulf of Mexico by conducting the research needed to resolve questions concerning stock structure, provide more accurate and precise estimates of the abundance and trends of the various stocks, and provide more accurate and precise estimates of the level of serious injury and mortality in fisheries and from other human activities.

Other cetacean stocks: Efforts to respond to and assess the damage from the Deepwater Horizon oil spill also highlighted the current lack of information on other cetacean stocks in the Gulf of Mexico. With regard to marine mammals, most of the attention after the spill focused on bottlenose dolphins and sperm whales, with some attention given later to Bryde's whales. Those are but 3 of the 21 species listed by the Service as occurring in the Gulf of Mexico. Furthermore, those three species may not serve as reliable indicators of the effects of the spill or other human activities on the remaining 18 species. Those 18 species include some, such as beaked whales, that are difficult to assess. The lack of progress over the past decades cannot in any way be construed as meeting the intent of the Marine Mammal Protection Act. The Commission believes the first thing that must be done is for the Service to develop a plan that would provide the necessary information so that decision-makers have a clear rationale for providing the resources needed. With that in mind, the Marine Mammal Commission recommends that the National Marine Fisheries Service develop a stock assessment plan for the Gulf of Mexico that describes (1) a feasible strategy for assessing the Gulf's marine mammal stocks and (2) the infrastructure, expertise, and funding needed to implement it.

Alaska stock assessment reports

Ice seals: The retreat of sea ice has the potential to disrupt severely the breeding and feeding dynamics of ringed and bearded seals and, to a lesser extent, ribbon and spotted seals. Although sea-ice loss will certainly affect ice seal prey, predators, and interactions with humans, the impacts of climate disruption on these species will be complex and difficult to predict. In addition, new risk factors such as the advent of increased shipping, oil and gas development, military activities, commercial fishing, and coastal development—all facilitated by the warming temperatures and changes in sea-ice dynamics—will add to this complexity.

These species may be at risk of severe decline in the foreseeable future. Among other things, it is incumbent on the Service to develop and make use of better measures of stock status in order to determine the stocks' responses to climate disruption and to promote more effective management. Traditional surveys do not appear to be feasible—at least at this time— and, as is the case for the walrus and polar bear, new assessment strategies are needed.

Developing such strategies will be difficult. The areas to be assessed are vast and remote, the work is expensive, the existing information is limited, and the efforts will be confounded by numerous technical difficulties. Nonetheless, it would be inappropriate simply to step back and allow the pending changes in the Arctic to occur without assessing them and doing whatever is possible to minimize their impact on Arctic ecosystems. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service consider the impending changes in the Arctic and develop a long-term assessment strategy that will provide a reliable basis for characterizing population abundance, stock status, and trends of ice seals, as well as implementing protective measures that will minimize the effects of Arctic climate disruption on the viability of marine mammal stocks. As a vital part of that plan, the Commission further recommends that the Service substantially increase its efforts (1) to collaborate with the Alaska Native community to monitor the abundance and distribution of ice seals and (2) to use seals taken in the subsistence harvest to obtain data on demography, ecology, life history, behavior, health status, and other pertinent topics. Subsistence harvests provide opportunities to collect valuable data on ice-seal populations in many parts of their ranges while minimizing the logistical requirements and costs.

Eastern North Pacific right whale stock: In recent years the discovery of a reproducing eastern population of North Pacific right whales in the Bering Sea has been encouraging. However, all indications are that the population was severely reduced last century and is perilously close to extinction. We know from experience with the North Atlantic species that right whales are highly susceptible to serious injury and mortality from ship strikes and entanglements in fishing gear.

The small eastern North Pacific population cannot sustain any human-caused mortality. The 2011 assessment of this stock estimates its PBR to be 0.05, which means that only one whale could be removed in 20 years. Experience from the Atlantic has shown that right whales are susceptible to entanglement in gillnet and trap gear, which suggests the potential for interactions with the several gillnet and pot fisheries that operate in the Bering Sea and Gulf of Alaska, and within the North Pacific right whale critical habitat areas located in those waters. Experience also has shown that right whales are particularly susceptible to ship strikes that lead to serious injury and death. As the loss of ice in the Arctic progresses and industrial activities increase, increased ship traffic is expected through Unimak Pass and the Bering Strait. Shipping traffic transiting Unimak Pass on its way to and from the Bering Strait is likely to pass through the western portion of the critical habitat area designated in the southeast Bering Sea, putting right whales there at risk. Although it is difficult to quantify the probability of these interactions without further research, any removal would have serious consequences for the viability of the population. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service do everything it can to ensure that vessels of all types operating in those areas are aware of the need to protect the North Pacific

right whale, and that every step practicable be taken to minimize the probability of entanglements and ship strikes. Examples include alerting shipping companies, fishing vessel owners, oil and gas companies, the Coast Guard and the Navy, and advising them as to the measures they should take to prevent even a single serious injury or mortality. To ensure that the Service is giving the best possible advice, the Marine Mammal Commission also recommends that it continue its efforts to better describe the distribution and movement patterns of North Pacific right whales, especially with respect to their distribution during those periods when they are outside designated critical habitat.

Pacific stock assessment reports

Harbor seal surveys: Abundance estimates for harbor seals in the northeast Pacific currently are more than eight years old and those estimates are considered outdated based on standards that the Service has set and the Commission supports. Harbor seals from those stocks are taken in both gillnet and trawl fisheries, and new surveys are needed to evaluate the significance of such takes. For that reason, the Marine Mammal Commission repeats its recommendation that the National Marine Fisheries Service conduct the necessary surveys to update stock assessment reports for harbor seals along the Oregon and Washington coasts and in Washington inland waters.

Pacific Islands cetaceans: On 11 May 2010 the Commission wrote the National Marine Fisheries Service (letter enclosed) to urge the Service to develop and implement a plan for meeting its management and conservation responsibilities for cetaceans in its Pacific Islands region. The Commission is aware that the Service has now conducted several surveys and is in the process of generating abundance estimates and creating stock assessments for many of the cetaceans in the Hawaiian Archipelago and Palmyra Atoll. The Commission commends those efforts. Still, much more remains to be done, particularly within the U.S. Exclusive Economic Zone around remote Pacific Island groups such as American Samoa, Guam, the Northern Marianas and Wake Island, to meet the objectives of the Marine Mammal Protection Act, particularly with regard to characterization of cetacean stock structure (e.g., melon-headed whales). The Marine Mammal Commission recommends that the Service maintain and enhance existing collaborations to obtain the data necessary to generate stock assessments for all Pacific Island cetaceans within U.S. jurisdiction, and to seek new opportunities, such as collaborating with the Navy, to leverage resources for accomplishing this challenging task.

Please contact me if the Commission can support in any way the Service's efforts to improve these important stock assessments.

Sincerely,

Michael L. Gosliner for

Timothy J. Ragen, Ph.D.
Executive Director

Enclosure

[i] Knowlton, A.R., M.K. Marx, H.M. Pettis, P.K. Hamilton and S.D. Kraus. 2005. Analysis of scarring on North Atlantic right whales (*Eubalaena glacialis*): monitoring rates of entanglement interaction 1980-2002. National Marine Fisheries Service, Contract #43EANF030107, Final Report.