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MMPA Bulletin

NOAA Fisheries Scientific Review Groups Meet

During November 2000, the three NOAA Fisheries regional Scientific Review Groups (SRGs) met to review new scientific information related to marine mammals. The SRGs were established under section 117 of the MMPA. Each group meets once or twice a year to provide scientific advice to NOAA Fisheries related to marine mammals and their conservation, particularly related to reducing mortality and serious injury incidental to commercial fishing. A common thread of discussion was scientific information, particularly molecular genetics, related to marine mammal stock structure.

The Alaska SRG met in Juneau, Alaska, on November 1-3, 2000. Other than a review of updated stock assessment reports, the group also discussed results of several large research efforts. Recent analyses on Alaska harbor seals, genetics (for stock structure), and abundance estimations were the focus of much of the meeting. The genetics laboratory at the Southwest Fisheries Science Center presented recently completed analyses of tissue samples collected from harbor seals living in many areas of Alaska. Results from this research indicated that harbor seals demonstrate a great deal of structuring in the population, and the current stock structure (three stocks: Southeast Alaska, Gulf of Alaska, and Bering Sea) may not be correct. The results suggest that there may be more than three stocks of harbor seals in Alaska. However, because the issue of stock structure and boundaries is one for management as well as science, the Alaska SRG recommended that NOAA Fisheries begin to redefine stock boundaries.

The group also discussed related to other species of marine mammals in Alaska, including humpback whales, northern fur seals, and killer whales. The two whale species were also the subject of stock structure discussions and recommendations that the existing stock boundaries may not be appropriate and should be revised. The SRG recommended that NOAA Fisheries conduct an analysis of the fur seal population and its carrying capacity to evaluate whether or not the stock was still depleted. The Alaska SRG also heard presentations from the U.S. Fish and Wildlife Service on marine mammal species under its jurisdiction in Alaska. Of particular interest were the results of the recent survey of sea otters in the Aleutian Islands, which show a steep decline in the population there.

The Pacific SRG met in Astoria, Oregon, on November 6-8, 2000 to review the updated Pacific stock assessment reports and recent scientific information from the region. Stock structure information again played a large role in the discussion and focused primarily on harbor porpoise and sperm whales. Major recommendations from the Pacific SRG addressed stock structure in sperm whales and the lack of baseline assessment data for cetaceans around the Hawaiian Islands. The SRG also recommended various smaller-scale projects in Hawaii to assist in monitoring dolphin mortality and trends in abundance.

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NOAA Fisheries Certifies Japan Under the Pelly Amendment

On September 13, 2000, the Secretary of Commerce certified that Japan is diminishing the effectiveness of the International Whaling Convention (IWC) conservation program through expanding its research whaling activities in the North Pacific. Specifically, Japan has recently included two new whale species, sperm and Bryde's, in its research whaling program, which had previously only included minke whales.

Japan's expansion of its scientific whaling program was contrary to the recommendations of the scientific body of the IWC which criticized the program, noting that this research was not critical for the management of whaling. The IWC passed a resolution in July 2000 urging Japan to refrain from implementing this expanded program.

The Secretary has the authority to take this action under section 8 of the Fisherman's Protective Act of 1967, 22 U.S.C. 1978 (the Pelly Amendment). This provision requires the Secretary of Commerce to certify to the President that "*nationals of a foreign country...are conducting fishing operations in a manner or under circumstances which diminish the effectiveness of an international fishery conservation program.*" Following a certification, the President is authorized to direct the Secretary of Treasury to prohibit the import of any fish or wildlife products from the certified nation to the extent such restrictions are sanctioned by the World Trade Organization. The President must then inform the U.S. Congress within 60 days of the certification of any action he has decided to take and must explain a decision not to ban the import of all fish products or wildlife products.

Following the Secretary's certification (see *MMPA Bulletin* Issue No. 19/20, "Stop Japan's Whale Killing"), which also certified Japan under the Packwood-Magnuson Amendment, 16 U.S.C. 1821(e)(2), President Clinton directed the Secretary of State to make Japan ineligible to conduct any future fishing operations within the United States' exclusive economic zone. Further, the President raised the issue of whaling with Prime Minister Mori at the Asia Pacific Economic Cooperation meeting held this past Fall, and U.S. officials (including Secs. Mineta and Albright) urged Japan to reconsider its expanded scientific research whaling.

The President's December 29, 2000, Report to Congress further directs agencies to investigate Japanese whaling equipment manufacturers as potential candidates for import restrictions and to keep Japanese whaling practices under active review. The report also emphasizes the need to continue to work to resolve this issue through bilateral and multilateral efforts. The President notes in his report that he does not believe import prohibitions would further U.S. objectives at this time.

For additional information about the Secretary of Commerce's Pelly certification of Japan, contact Cathy Campbell at: (202) 482-2652 or Scott Smullen at: (202) 482-6090.

NOAA Fisheries Publishes the 2001 List of Fisheries

NOAA Fisheries published the proposed List of Fisheries (LOF) for 2001 in the *Federal Register* on January 22, 2001 (66 FR 6545). Comments on the proposed rule are due to the Office of Protected Resources by March 8, 2001. Section 118 of the MMPA requires NOAA Fisheries to publish a list of commercial fisheries and classify each fishery based on whether it has a frequent (Category I), occasional (Category II), or remote likelihood of (Category III) incidental mortality and serious injury of marine mammals. The classification of a fishery into Categories I or II determines whether participants in that fishery are subject to certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements. Fisheries proposed to be added or recategorized to Category I or II are listed below.

Fisheries Proposed to be Added To Category I

- Atlantic Squid, Mackerel, Butterfish Trawl Fishery
- Mid-Atlantic Coastal Gillnet Fishery

Fisheries Proposed to be Added to Category II

- Atlantic Blue Crab Trap/Pot Fishery
- California Longline Fishery
- Gulf of Mexico Blue Crab Trap/Pot Fishery
- Gulf of Mexico Gillnet Fishery
- Hawaii Swordfish, Tuna, Billfish, Mahi Mahi, Wahoo, Oceanic Sharks Longline/Set Line Fishery
- Mid-Atlantic Pound Net Fishery
- North Carolina Inshore Gillnet Fishery
- North Carolina Long Haul Seine Fishery
- Northeast Drift Gillnet Fishery
- Northeast Trap/Pot Fishery
- Southeast Atlantic Gillnet Fishery

For additional information about the 2001 proposed NOAA Fisheries List of Fisheries, contact Emily Hanson at: (301) 713-2322, ext. 101. You may view the 2001 proposed List of Fisheries at the NOAA Fisheries Office of Protected Resources web site at: www.nmfs.noaa.gov/prot_res/PR2/Fisheries_Interactions/list_of_fisheries.html.

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Marine Mammal Health and Strandings

President Clinton Signs Marine Mammal Stranding and Research Bills into Law

Marine Mammal Rescue Assistance Act of 2000*

On December 21, 2000, President Clinton signed legislation that will support and foster continued work on the health of marine mammal populations through enhanced stranding response. The Marine Mammal Rescue Assistance Act of 2000 amends Title IV of the Marine Mammal Protection Act (MMPA) to include a granting mechanism by which eligible stranding network participants could apply for funds for recovery or treatment of marine mammals, for collection of data from living or dead stranded marine mammals for scientific research regarding marine mammal health, and for facility operation costs that are directly related to these activities. The grants program will be administered by the Departments of Commerce and Interior, with each department receiving separate authorization of appropriations, \$4 million and \$1 million, respectively, for each of the fiscal years 2001 through 2003. Each awarded grant will not exceed \$100,000, and eligible participants will be required to provide 25% in non-federal matching funds.

In previous years, the vast majority of stranding response programs were carried out by volunteer organizations at their own expense. However, in FY01, NOAA Fisheries received \$4 million in appropriations for marine mammal strandings. This funding, combined with the stranding legislation, will provide NOAA with knowledge on the causes of mortality and disease, health of populations, and basic biology of marine mammals. These data provide NOAA insight into the health of our Nation's living oceans.

The Marine Mammal Health and Stranding Response Program in the Office of Protected Resources will be responsible for administering the national grants program for those organizations authorized under NOAA Fisheries' jurisdiction. Criteria for implementation of the grants program will be developed by NOAA Fisheries this Spring in consultation with representatives from each NOAA Fisheries' stranding region, the Marine Mammal Commission, and representatives from public and private organizations that are actively involved in the rescue, rehabilitation, release, and scientific research of marine mammals, as well as marine conservation and forensic sciences.

* *Public Law Number 106-555, Title II, 114 Stat. 2765 (codified as amended in scattered sections of 16 U.S.C.).*

Mandate to Study Eastern Gray Whale Populations

The Marine Mammal Rescue Assistance Act of 2000 also requires NOAA Fisheries to initiate a study to better understand why increased numbers of gray whales are stranding in the United States. From January 1999 to December 2000, record numbers of gray whales stranded along the West Coast of North America from Alaska to the Baja Peninsula of Mexico (see *MMPA Bulletin* Issues No. 16 and 18, "Recent Gray Whale Mortalities on the West Coast" and "Gray Whale Strandings Continue on the West Coast"). Stranding rates remained high in 2000, and few calves were seen, leading scientists and politicians alike to be concerned about the health of this recently recovered whale population. The North eastern stock of gray whales bears the distinction of having been the only marine mammal species ever to be removed from the Endangered Species List. It was officially taken off the Endangered Species List in June 1994, and a five year monitoring program was instituted. At a status review meeting held in 1999, researchers suggested that another five-year monitoring program be conducted to evaluate the long term trend in population. However, because of the unusually high rate of mortalities and the low sighting rate of calves during the past two years, NOAA Fisheries will initiate the Congressionally mandated study to examine the factors responsible for this phenomena not later than 180 days after the enactment date, which was December 21, 2000.

NOAA Fisheries responds to unusual marine mammal mortality events by consulting with the working group on unusual marine mammal mortality events formed pursuant to section 404 of the MMPA. In response to the increased gray whale strandings, NOAA Fisheries consulted with the working group in July 1999, and since then the mortality event has been under investigation by NOAA Fisheries and stranding responders. Some of the potential factors that have been proposed as playing a role in the increased mortalities and decreased calf numbers are: 1) nutritional stress due to depleted food sources; 2) adverse health affects from chemical contaminants and natural biotoxins; 3) disease that could adversely impact the ability to feed, migrate, and reproduce normally; 4) environmental factors; and 5) anthropogenic factors such as fisheries interactions and ship strikes.

Studies will be conducted under this program to estimate abundance for status and trends as well as to estimate cow-calf ratios for growth and productivity. In addition, investigations will be intensified to gather more baseline data on health and causes of mortality in the eastern gray whale population throughout its range.

For additional information on the Marine Mammal Rescue Assistance Act of 2000 and the mandated gray whale stranding investigation, contact Dr. Janet Whaley at: (301) 713-2322, ext 170.

U.S. Navy Requests a Permit to Operate the SURTASS Low Frequency Active (LFA) Sonar

The U.S. Navy is requesting a small take authorization for Surveillance Towed Array Sensor System (SURTASS) LFA sonar for a five-year period from NOAA Fisheries. The SURTASS LFA sonar has the potential to harass marine mammals incidental to its operation (see page 10).

NOAA Fisheries is seeking public comment on this proposed authorization and will consider these comments before making its determination on whether to grant the Navy a "small take exemption" under the MMPA. The exemption would allow the Navy to harass or disturb whales, dolphins or other marine mammals during its operation of the sonar over a five-year period, if the agency determines that the SURTASS LFA sonar's effect on marine animals will be negligible. The MMPA allows the incidental disturbance, called a take, of small numbers of marine mammals under section 101(a)(5) of the MMPA (see *MMPA Bulletin* Issue No. 12, 3rd Quarter 1998, "Small Takes of Marine Mammals"). Additionally, those members of the public in opposition to deployment of SURTASS LFA sonar were offered an opportunity by the Navy to express their concerns during the comment period on the Navy's Draft Overseas Environmental Impact Statement (EIS) on this action. These concerns have been addressed by the Navy as part of its Final EIS on the proposed SURTASS LFA sonar deployment.

The LFA system has been under development by the U.S. Navy for ten years. It is designed to detect submarines ten times farther away than standard sonars, giving improved fleet protection. Only one ship presently has this experimental sonar with a second vessel recently constructed. However, the Navy hopes to have two additional ships to carry this sonar within the next five years (Victorious-class vessels).

LFA produces pings from a string of 18 sound elements suspended 160 feet below the ship; it listens to echoes with a mile-long "tail" of hydrophones towed behind the ship. LFA has improved range because it uses low frequency sound (100 to 500 Hz) which travels through water better than higher frequencies. Also, its 18 sound elements focus sound into a beam that travels better than sound from sonars that act like a point source.

NOAA Fisheries preliminarily believes there are minimal risks to the use of LFA because there are sufficient mitigation measures in place, the duty cycle is low (a single 60 to 100-sec ping every 12 minutes), the operations are infrequent (six per year, each lasting 18 days), and the operations are thousands of miles apart at sea as well as far from the shore. NOAA Fisheries will be seeking additional scientific information that either supports or refutes its preliminary findings that the harassment will not have more than a negligible impact on marine mammals stocks.

For additional information about SURTASS LFA, you may visit the U.S. Navy's web site at: <http://eisteam.home.mindspring.com>. You may also contact Mr. J. S. Johnson, SURTASS LFA Sonar Program Manager, 901 North Stewart Street, Suite 708, Arlington, VA 22203. You may write to Donna Wieting, Chief, Marine Mammal Conservation Division, NOAA Fisheries Office of Protected Resources, 1315 East-West Highway, Silver Spring, MD 20910-3225 for a copy of the application or to submit comments on the application.

Gear Modifications Amending the Atlantic Large Whale Take Reduction Plan (ALWTRP)

The ALWTRP was implemented to protect the North Atlantic right whale and other large whales in the following fisheries: New England sink gillnet; Gulf of Maine/U.S. Mid-Atlantic lobster trap/pot; U.S. Mid-Atlantic coastal gillnet; and the Southeastern U.S. Atlantic shark gillnet fisheries. NOAA Fisheries published an interim final rule (IFR) on December 21, 2000 (65 FR 80368) amending the regulations implementing the ALWTRP. This IFR implements changes for the gillnet fishery in New England and for the American lobster trap fishery in New England and the Mid-Atlantic. These changes were agreed to by the Atlantic Large Whale Take Reduction Team (ALWTRT) during a series of meetings held last year in Danvers, MA.

The gear modifications implemented in this IFR include:

- 1) gear requirements for State water lobster fisheries of ME, NH, MA, and RI will remain unchanged;
- 2) the nearshore and offshore lobster waters in the ALWTRP will be redefined to be consistent with nearshore/offshore and north/south boundaries contained in the American Lobster Fishery regulations;
- 3) fishers are encouraged to keep buoy lines as knot-free as possible, and the use of splices are encouraged in lieu of knots;
- 4) the option for the buoy line weak link in the Lobster Gear Take Reduction Technology List would be changed from 1100 lbs. to 600 lbs. and to specify that the link must be knotless;
- 5) new gear requirements for lobster fisheries in Lobster Areas 1, 2, and the Outer Cape Lobster Management area include knotless weak links at the buoy with a breaking strength of 600 lbs. or less, multiple-trap trawls only, limit of one buoy line on all trawls up to and including five traps, and gear marking midway on the buoy line;
- 6) new gear requirements for lobster fisheries in Lobster Area 3 and the Area 2/3 overlap include knotless weak links at the buoy with a breaking strength of 3780 lbs or less and gear marking midway on the buoy line;
- 7) new gear requirements for lobster fisheries in the Nearshore Management Areas 4 and 5 include changes to the Lobster Take Reduction Technology List and gear marking midway on the buoy line;

8) the Gillnet Take Reduction Technology List would no longer apply to anchored gillnet gear set in areas of the Northeast Region outside the Mid-Atlantic Coastal Waters area;

9) new gear requirements for sink gillnet fisheries east of 72° 30' W. Longitude would include knotless weak link at the buoy with a breaking strength no greater than 1100 lbs., weak links with a breaking strength no greater than 1100 lbs., placed in the headrope at the center of each panel, net strings that contain 20 or fewer net panels would be anchored with one of three specified anchoring systems, and gear marking midway on the buoy line; and

10) other provisions from the February 1999 rule would remain in effect.

The effective date of this rule was initially set for January 22, 2001. However, due to rough weather conditions in the Gulf of Maine, the affected fishers were not able to implement the gear modifications in time. Therefore, NMFS delayed the effective date of the IFR (66 FR 5489) to February 21, 2001, allowing fishers 30 additional days to implement the gear modifications.

The Southeast and Mid-Atlantic Subgroups of the ALWTRT met in August 2000, and will provide its recommendations to the full ALWTRT for approval at the next meeting. A final rule will be forthcoming and will be based on: (1) the comments received from this IFR; (2) the recommendations of the Southeast and Mid-Atlantic Subgroup; and (3) the recommendations from the Northeast Subgroup on dynamic risk reduction.

A summary of the regulations, the *Federal Register* Notice, and other background on the ALWTRP is available on the NOAA Fisheries Northeast Region web site at: www.nero.nmfs.gov/whaletrp/.

For additional information about the 30-day extension or the ALWTRP, contact Dr. Gregory K. Silber at: (301) 713-2322, ext. 152; Patricia Lawson at: (301) 713-2322, ext. 129; or by writing to Douglas Beach at: NOAA Fisheries Northeast Region, 1 Blackburn Drive, Gloucester, MA 01930.

Update on Cook Inlet Beluga Whale Conservation

As reported in the *MMPA Bulletin* (Issue No. 19/20, 2nd/3rd Quarter 2000, "Update on the Conservation of Cook Inlet Belugas"), on October 4, 2000 NOAA Fisheries proposed regulations to limit the harvest of Cook Inlet beluga and published a Draft Environmental Impact Statement (DEIS) on the proposed action (65 FR 59164). NOAA Fisheries has since received several public comments on the proposed rule and DEIS (the comment period ended November 27, 2000). At that time, NOAA Fisheries also announced the scheduling of a formal hearing on the proposed regulations which took place in Anchorage, AK on December 5-7, 2000. The hearing, which is a required step in the process of issuing final harvest regulations, included participants from Native Alaskan organizations, tribal governments, environmental groups, industry organizations, the Marine Mammal Commission, and NOAA Fisheries.

Following the December hearing, the parties are considering a stipulation to support a harvest of 1.5 beluga whales per year between 2001-2004, with the intention of allowing a single whale struck each year by the Native Village of Tyonek and a strike every other year by Alaska Native beluga hunters from Anchorage. However, this harvest would be reduced or eliminated if there was unusually high mortality during this interval. The stipulation is necessary because pertinent data are not sufficiently precise to allow for a biological assessment of the impact of the harvest initially.

The Administrative Law Judge will issue a written decision making recommendations about the proposed regulations. His decision will consider the evidence presented in testimonial form at the hearing, stipulations entered-into by all or some of the parties, written evidence submitted by the parties and the DEIS and comments submitted by the public. The parties will have a 30-day period to submit additional concerns in writing to the judge. At the completion of this process, NOAA Fisheries will publish notice of the judge's decision in the *Federal Register* and ask for further public comments on the regulations.

In related news, the Congress, before it adjourned in December, passed legislation indefinitely extending the moratorium on the taking of Cook Inlet beluga. The extension, which was included as part of the Commerce Appropriation bill, was signed into law by President Clinton on December 21, 2000. Under the moratorium, it is illegal to take any Cook Inlet beluga unless they are taken under the auspices of a co-management agreement. This extension provides NOAA fisheries the opportunity to negotiate co-management agreements (for a limited sustainable harvest of the stock) while protecting the belugas from hunting in the interim.

For additional information about NOAA Fisheries' conservation efforts regarding the Cook Inlet beluga whale, contact Dr. Tom Eagle at: (301) 713-2322, ext. 105 or Caroline Good at: (301) 713-2322, ext. 117. You can also visit the NOAA Fisheries Alaska Region web site at: www.fakr.noaa.gov/protectedresources/whales/beluga.htm.

NOAA Fisheries Proposes Public Display Regulations

NOAA Fisheries is proposing to amend the regulations for permits to capture or import marine mammals for the purpose of public display under the MMPA of 1972, as amended. The proposed revisions would update existing requirements for public display permits to capture or import marine mammals under the MMPA, Endangered Species Act of 1973 as amended (ESA), and Fur Seal Act of 1966 (FSA)/(the Acts), implement amendments to the MMPA enacted on April 30, 1994, and clarify the public display requirements relating to the transfer, transport, or export of captive marine mammals. Further revisions clarify requirements for exports of captive marine mammals, amendments to the criteria for deciding whether to issue or deny public display permits, and revised administrative requirements and procedures. These revisions are intended to provide a comprehensive regulatory foundation for permitting and other requirements regarding the public display of captive marine mammals, and to make administration of the public display component of the NOAA Fisheries permit program more efficient, consistent, and predictable.

The proposed regulations would also formalize the notification requirements for transfers, transports, births and deaths of captive marine mammals, and the procedures by which NOAA Fisheries has been maintaining the inventory of marine mammals held for public display. To reduce and streamline reporting and notification requirements, NOAA Fisheries has entered into a Cooperative Agreement with the International Species Information System (ISIS) to administer the captive marine mammal inventory database, including marine mammal transport notifications. ISIS is an international non-profit membership organization that manages a database and information system for wild animal species in captivity, including marine mammals, at more than 500 institutions in 54 countries. Under this cooperative agreement, ISIS will administer the captive marine mammal inventory information in consultation with NOAA Fisheries as part of the central ISIS captive wildlife database and information system.

Many of the marine mammal holders who currently report marine mammal inventory information and transport/transfer notifications to NOAA Fisheries also voluntarily contribute their inventory information to the ISIS. It is estimated that one-half of the marine mammal specimens are reported separately to both databases; therefore, converting to ISIS administration of the marine mammal database should ease the reporting burden for many marine mammal holders.

The proposed rule is expected to be published in the *Federal Register* in the Spring of 2001 for review and comment. Comments on this proposed rule must be postmarked or received by the date specified in the *Federal Register* Notice, and may be mailed to NOAA Fisheries, Office of Protected Resources, Permits Division (F/PR1), 1315 East-West Highway, Rm. 13705, Silver Spring, MD 20910. Comments may also be submitted by facsimile at (301) 713-0376, provided the facsimile is confirmed by hard copy submitted by mail and postmarked no later than the closing date of the comment period. Please note that comments will not be accepted by e-mail or other electronic media.

For additional information, contact Ann Terbush or Gene Nitta at: (301) 713-2289.

Harbor Porpoise Take Reduction Teams Update

Harbor Porpoise Take Reduction Teams Annual Meetings

The Mid-Atlantic Harbor Porpoise Take Reduction Team (MATRT) met in Virginia Beach, VA on November 28-30, 2000, followed by a meeting of the Gulf of Maine Harbor Porpoise Take Reduction Team (GMTRT) in Danvers, MA on December 12-13, 2000. Both teams were convened to address interactions between the Gulf of Maine stock of harbor porpoise and commercial fisheries, with the MATRT focusing on the Mid-Atlantic coastal gillnet fishery and the GMTRT focusing on the Northeast sink gillnet fishery.

Both teams were provided with updates on stock assessments and take analysis, reviews of progress implementing team recommendations, and information about other take reduction plans or fishery management plans that interface with the Harbor Porpoise Take Reduction Plan (HPTRP). The teams reviewed strategies currently included in the HPTRP to reduce harbor porpoise take and discussed ways to improve enforcement and observer coverage. Both teams also received a presentation on the use of reflective gillnet as an alternative to pingers for deterring harbor porpoise and discussed how reflective netting could be used under the HPTRP.

Final Rule Modifying the List of Exempted Waters of the Harbor Porpoise Take Reduction Plan

NOAA Fisheries published the final rule modifying the HPTRP to redefine Delaware Bay in the list of exempted waters in the *Federal Register* on January 11, 2001 (66 FR 2336). The rule became effective upon publication. The rule redefined the exempted waters area of Delaware Bay to include waters landward of the 72 COLREGS line (International Regulations for Preventing Collisions at Sea, 1972). Members of the MATRT recommended by consensus that NOAA Fisheries redefine the list of exempted waters because harbor porpoise stranding and observer data did not justify imposing HPTRP gear restrictions on the Delaware Bay fishing. The intent of the final rule is to exempt fishers operating in Delaware Bay from the HPTRP regulations.

For additional information about efforts to reduce bycatch of harbor porpoise, contact Emily Hanson at: (301) 713-2322, ext. 101.

(continued from page 1) The Atlantic SRG met in Lajas, Puerto Rico on November 14-15, 2000. The Atlantic SRG took advantage of the meeting site in Puerto Rico to hear presentations on current and past research in the Caribbean on cetaceans and manatees, as well as research and management needs for the region. The SRG also focused a significant amount of attention on bottlenose dolphin science and data in preparation for the convening of the Bottlenose Dolphin Take Reduction Team. Discussions included stock structure, distribution of coastal and offshore bottlenose dolphin, abundance estimates of bottlenose dolphin in coastal areas and in bays, sounds, and estuaries, human interactions, and NOAA Fisheries' plans for the convening of the take reduction team. The SRG also discussed: 1) issues related to the status, abundance, and stock boundaries of humpback whales, right whales, and harbor porpoises; 2) discussed the status and plans of take reduction plans and the Zero Mortality Rate Goal; and 3) reviewed draft 2001 Stock Assessment Reports.

As a result of the discussions held during the meeting, the Atlantic SRG made a variety of recommendations to NOAA Fisheries regarding:

- bottlenose dolphin research efforts and take reduction team plans;
- right whale tagging research;
- stock identification studies on harbor porpoise;
- analysis of logbook data, swordfish landing data, and catch per unit effort estimates in the Atlantic pelagic longline fishery;
- determination of human interaction of stranded marine mammals;
- analysis of observer coverage required to monitor the Harbor Porpoise Take Reduction Plan;
- investigation of re-allocating observed takes in the Gulf of Maine sink gillnet fishery from pingered and non-pingered nets;
- use of existing sighting data to generate a line transect estimate of abundance for right whales; and
- development of a Science Plan for cetacean stocks in the Caribbean that will meet the obligations of the Endangered Species Act and MMPA.

For additional information about the NOAA Fisheries Scientific Review Groups, contact Dr. Tom Eagle at: (301) 713-2322, ext. 105.

NOAA Fisheries Helps Lead New Efforts On Marine Protected Areas

Executive Order (E.O.) 13158 on Marine Protected Areas (MPAs) directs federal agencies to work closely with state, territorial, local, tribal and other stakeholders to strengthen and expand a national system of MPAs. Under the EO, MPAs are defined as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." NOAA and the Department of the Interior are charged with several specific tasks including creating a list of existing U.S. MPAs, creating a national MPA web site, establishing a national MPA Center to provide science, tools and strategies, and establishing an MPA Advisory Committee to provide non-federal input. Many of these efforts are underway, and updates are available on the web site. Much input and participation is needed to make this effort successful.

Although not under the jurisdiction of the MMPA, this effort could help improve and strengthen existing protections for marine mammals. For example, the inventory or list of U.S. MPAs is intended to be a resource to help determine what currently exists, how effective sites are, and if there are gaps in the current system. This assessment, and the creation of a comprehensive system of MPAs "representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources" could result in improvements at existing MPAs, and possibly the identification of new sites. The MPA list is designed to be a tool to reduce redundancy in current marine protective regulations, and to assess which areas of the marine environment are in need of specific management measures.

The inventory of U.S. MPAs is currently being developed. Some "candidate" sites are listed in the "MPA Inventory" section of the web site, including five "critical habitats" for marine mammals. These habitats are designated under the Endangered Species Act (ESA) to protect areas utilized by endangered or threatened species that have been shown to be areas critical to the species at some point in their lives. Critical habitat designation alone does not qualify an area to be included on the MPA Inventory List. To be included on the list, the habitat must have regulations in place that give it added protection above and beyond critical habitat designation. Input is being solicited on the criteria for determining if a site meets the MPA definition, and what data to provide on each site.

The five critical habitats on the list currently include:

- 1) Cape Cod Bay Northern Right Whale Critical Habitat (MA)
- 2) Great South Channel Northern Right Whale Critical Habitat (MA)
- 3) Monk Seal Critical Habitat (HI)
- 4) Southeastern Right Whale Critical Habitat (GA and FL)
- 5) Steller Sea Lion Critical Habitat (AK)

When effectively designed and implemented, MPAs are important management tools for protecting, restoring and enjoying coastal and ocean resources including marine mammals. MPAs have been used effectively to conserve and manage natural areas, protect species of concern, reduce user conflicts, provide educational and research opportunities, help rebuild and sustain fisheries, and enhance recreational opportunities. Currently, the U.S. does not have an integrated system of MPAs. The goal of this effort is to work with federal and non-federal partners to develop a blue-print for a national system of MPAs, and evaluate and improve the effectiveness of existing and future MPAs.

For additional information Marine Protected Areas visit the official Marine Protected Areas of the United States web site at: <http://mpa.gov>. You can also contact Roger Griffis in the NOAA Office of Policy and Strategic Planning at: (202) 482-5034, by fax at: (202) 501-3024, or by email at: roger.b.griffis@noaa.gov.

NOAA Fisheries Hears from Stakeholders

In the spirit of cooperation, stakeholders in marine mammal conservation issues are given the opportunity to use the MMPA Bulletin as a forum to express their views about working toward common goals. Guest authors from other government agencies, the fishing industry, or conservation groups may contribute, and letters written to NOAA Fisheries by general constituents may also appear. The views expressed by the guest authors are solely their own and do not necessarily reflect NOAA's positions or policies.

The National Whale Conservation Fund: A New Approach to Supporting Needed Research

By David Laist of the Marine Mammal Commission

The study of highly mobile marine mammals at sea is an expensive proposition, especially when the subject of the research is large whales. Yet the information obtained from such work is critically important if we are to develop effective conservation and management programs for these species. The problem is finding ways to pay for it.

The good news is that federal funding for marine mammal research and management has increased substantially over the past two decades. Unfortunately, the number of critical issues has also increased and urgent priorities invariably exceed funding levels. In some cases, even the most compelling arguments have failed to secure support because of the intense competition for limited funds. Given the situation, it is essential to find creative new approaches to old funding dilemmas.

A possible solution surfaced during the Marine Mammal Commission's 1996 annual meeting. The agenda that year included in-depth reviews of ongoing programs for both northern right whales and Florida manatees, providing an interesting opportunity to compare and contrast the two programs. It was apparent from the reviews that the funding, staff size, data collection, and data synthesis efforts for manatee recovery work far exceeded those for right whales - even though right whales face similar needs and are, in fact, far more in danger of extinction.

In large part, the reason for this disparity is the establishment of the Manatee Trust Fund by the state of Florida in 1980. Today the Fund provides about \$3 million a year to support state manatee recovery activities that complement federal programs carried out by the Department of the Interior's Fish and Wildlife Service and U.S. Geological Survey. Together the two Interior Department agencies provide roughly the same level of support for manatees as the National Marine Fisheries Service provides for right whales, but the infusion of money from the Manatee Trust Fund makes a striking difference in what the two programs can accomplish.

The Manatee Trust Fund draws its income from several sources. People with a special concern for the species can contribute to the Fund through the purchase of manatee license plates and manatee stickers, checking donation boxes on boat registration applications, and other means. Because of the threats to manatees resulting from collisions with recreational boats, the Florida Legislature also has directed that a small portion of the boat registration fees collected annually by the state be allocated to the Fund. Thus, people with a special interest in manatees and the groups responsible for creating management issues are the principal contributors to the Fund.



In contrast, almost no direct financial support is provided for right whale recovery work by those groups whose activities have contributed to the threat (*e.g.*, commercial shipping companies) or by those who care most about right whales or benefit from recovery efforts (*e.g.*,

whale enthusiasts and whale - watching tour operators). Together, these groups represent an untapped source of potential financial support.

Recognizing this, the Marine Mammal Commission in 1996 recommended the development of a right whale conservation fund to provide a means for soliciting voluntary contributions to support right whale recovery efforts. The proposal caught the attention of Senator Judd Gregg of New Hampshire. To broaden the appeal, and provide needed support for other large whales, the idea was expanded to include all whales in U.S. waters. With Senators Gregg and Ted Stevens as cosponsors, a bill was passed by Congress late in 1998 directing the National Fish and Wildlife Foundation, in consultation with the Marine Mammal Commission and the National Oceanic and Atmospheric Administration, to establish a National Whale Conservation Fund. Its purpose is "to Support research, management activities or educational programs that contribute to the protection, conservation, or recovery of whale populations of the United States." In allocating funds, priority is to be given

to "populations of whales that are most endangered (including the Northern Right Whale)."

Because neither the Foundation, the Commission or NOAA had money or staff available, little could be done in 1999 to begin Fund operations. To address this deficiency, Congress earmarked \$250,000 of the FY 2000 right whale appropriations to begin development of the Fund. With this support, the National Fish and Wildlife Foundation, the Marine Mammal Commission, and the National Marine Fisheries Service are currently cooperating on establishing an administrative framework for the Fund so that fund-raising efforts can begin. During the first year, the major share of available money will be directed toward Fund development rather than going for project support. Despite the many pressing needs for right whale work, it is critical to invest now in Fund development. The result will be a many-fold return for right whales and other whales in the years to come.

Like the weather, funding constraints for marine mammal work is something everyone complains about. But unlike the weather, some creative fixes appear possible to address these problems. Similar supporting mechanisms have been established for conservation work on other species, such as black bears, tigers, and coral reefs. Such funds might also be an effective means to help other marine mammal species.

David Laist is the Senior Policy and Program Analyst on the Staff of the Marine Mammal Commission. Mr. Laist joined the Commission's staff in 1979 and is the staff lead responsible for Commission involvement in both the right whale and Florida manatee recovery programs. He is a member of the Florida Manatee Recovery Team, the Atlantic Large Whale Take Reduction Team, and the Northeast Implementation Team for the Right Whale and Humpback Whale Recovery Plans. Mr. Laist may be contacted at DLaist@mmc.gov.

NOAA Fisheries Embargoes ETP Nations

The 2nd/3rd Quarter 2000 issue of the *MMPA Bulletin* article "Finding Process to Lift Tuna Embargoes" reported that nations must receive an "affirmative finding" from NOAA Fisheries, as required by 50 CFR 216.24(f)(9), to be allowed to import into the United States yellowfin tuna or products derived from yellowfin tuna harvested by purse seine in the eastern tropical Pacific Ocean (ETP). If a nation does not have an affirmative finding, then its yellowfin tuna harvested by purse seine in the ETP is subject to embargo under the MMPA. Pursuant to this, on October 3, 2000, NMFS issued embargoes on the importation into the United States from Belize, Bolivia, Colombia, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Vanuatu, and Venezuela of yellowfin tuna and yellowfin tuna products harvested by purse seine vessels in the ETP after March 3, 1999, the effective date of the International Dolphin Conservation Program Act (IDCPA) (65 FR 60170, October 10, 2000).

Prior to March 3, 1999, MMPA section 101(a)(2)(B) contained embargo provisions that required nations with purse seine vessels greater than 400 short tons fishing in the ETP to submit documentation indicating that they had adopted dolphin protection standards comparable to the U.S. standards. Under those provisions, Belize, Colombia, Panama, Vanuatu, and Venezuela were embargoed for failure to either adopt or enforce comparable marine mammal protective measures. This action reaffirms the existing embargoes against yellowfin tuna for those five nations. Yellowfin tuna from Bolivia, El Salvador, Guatemala, Honduras, and Nicaragua had not been embargoed in recent years, however, those nations have not submitted documentation to NOAA Fisheries to apply for and receive affirmative findings under the MMPA.

Since the enactment of the IDCPA, the affirmative finding process has required that the harvesting nation meet several conditions related to compliance with the International Dolphin Conservation Program (IDCP). To issue an annual affirmative finding NOAA Fisheries must be provided and be able to verify information regarding: 1) a nation's membership status with the Inter-American Tropical Tuna Commission (IATTC); 2) whether a nation is meeting its obligations to the IATTC, including financial obligations; 3) whether a nation is complying with the IDCP; 4) the use of a tuna tracking and verification program comparable to the U.S. tracking and verification regulations; 5) whether a nation's dolphin mortality limits (DMLs) were not exceeded in the previous calendar year; and 6) whether the national fleet per-stock per-year mortality limits, if allocated, were not exceeded in the previous calendar year. This information assists NOAA Fisheries in determining if a nation is fully participating and complying with all dolphin and tuna conservation measures agreed to in the IDCP.

On October 6, 2000, NOAA Fisheries issued an embargo for the importation into the United States of yellowfin tuna and products derived from yellowfin tuna harvested in the ETP by Spanish-flag purse seine vessels or vessels under Spanish jurisdiction after March 3, 1999 (65 FR 61146, October 16, 2000). This embargo determination was made after NOAA Fisheries considered documentary evidence submitted by the Government of Spain and obtained from the IATTC and determined that the documentation was insufficient for NOAA Fisheries to issue an affirmative finding for Spain.

These embargoes remain in effect for each nation until an affirmative finding has been granted to the nation. NOAA Fisheries is currently working with representatives of several of these nations to assist them in meeting all of the requirements of the IDCPA for conserving dolphin and tuna stocks in the ETP and may reconsider these findings based on the submission of additional information by a nation if the information indicates that the nation has met the requirements under 50 CFR 216.24(f)(9).

For additional information about these yellowfin tuna embargoes, contact Nicole R. Le Boeuf at: (301) 713-2322, ext. 156 or J. Allison Roult at: (562) 980-4020. You may also view this and other tuna/dolphin related Federal Register Notices at the NOAA Fisheries Office of Protected Resources Tuna/Dolphin Program web site at: www.nmfs.noaa.gov/prot_res/PR2/Tuna_Dolphin/tunadolpin.html

Frequently Asked Questions about Low Frequency Active (LFA) Sonar

What is SURTASS LFA?

The Surveillance Towed Array Sensor System (SURTASS) LFA sonar is a long-range, low frequency underwater sonar system that has both active and passive components and is used by the U.S. Navy to locate submarines.

What has the U.S. Navy done to test the LFA sonar system?

NOAA Fisheries understands that the U.S. Navy has conducted experiments for several years to determine the feasibility of the SURTASS LFA sonar system. The testing consisted of three phases of research on the effects of SURTASS LFA sonar on marine mammals (see *MMPA Bulletin* Issue No. 11, 2nd Quarter 1998, "Scientific Research to Study the Effect of Low Frequency Sound on the Behavior of Marine Mammals"). This research was completed in March 1998, and the ship has not deployed the sonar system since that time.

What did the results show? Were marine mammals affected, and how much?

The scientific research program for determining impacts on large whales (those species potentially most susceptible) from LFA sonar focused on blue and fin whales in the southern California Bight (Sept-Oct. 1997), gray whales migrating past the central California coast (January 1998), and humpback whales off Hawaii (February-March 1998). These studies included three important behavioral contexts for baleen whales: feeding, migrating and breeding.

Essentially, the three research phases did not support the earlier hypothesis that most baleen whales exposed to received levels (RLs) near 140 dB would exhibit disturbance of behavior and avoid the area. These experiments, which exposed baleen whales to RLs ranging from 120 to about 155 dB, detected only minor, short-term behavioral responses.

Although the scientific research program did not address long-term or cumulative effects on marine mammals, because the LFA sonar will only be in a single area for a relatively short period of time, and possibly not return to that area for years, no long-term impacts on individual or populations of marine mammals are anticipated.

Is LFA sonar going to add to the problem of increasing levels of sound pollution in the ocean?

There are two types of noise in the ocean, natural and anthropogenic (human-caused). Natural noise is caused by wind, waves, rain, earthquakes, and marine life. Human-caused noise is created mostly by shipping and in inshore waters by seismic activities, construction, and recreational boaters. Both ships and boats have sonar noise in addition to vessel noise from its engines and props.

SURTASS LFA sonar is a coherent low frequency signal with a duty cycle of less than 20%, operating for a maximum of only 432 hours/year for each system and a total of 72 days/year for all four LFA sonar systems combined. This compares to an ap-

proximate 21.9 million days/year for the world's shipping industry (presuming an 80% activity rate all the time). Therefore, by definition, all noise sources, natural and human-caused, result in the total level of background noise in the oceanic region wherein it takes place. However, SURTASS LFA sonar noise would make up a very small part of the human-caused noise pollution in the ocean.

What sorts of indications or information would NOAA Fisheries need to deny this permit application?

NOAA Fisheries is required to make its determination whether or not the SURTASS LFA sonar has more than a negligible impact on species or stocks of marine mammals based on the best scientific information available. At this time, NOAA Fisheries has made a preliminary determination based on the scientific literature that the disturbance to marine mammals by SURTASS LFA sonar is not having a significant impact. This scientific research was conducted by the Scientific Research Program funded by the U.S. Navy, but conducted by independent scientists.

If scientific information is provided to NOAA Fisheries during the proposed rule comment period that indicates that its preliminary determination is in error, NOAA Fisheries will evaluate both data sets to make its final determination. If, based on the best scientific information available, NOAA Fisheries cannot make a determination that the harassment of marine mammals during SURTASS LFA sonar operations will have a negligible impact on affected marine mammal species and stocks (not necessarily on individual animals), or if a determination is made under section 7 of the Endangered Species Act (ESA) that the action is likely to jeopardize the continued existence of a marine mammal species or stock listed as threatened or endangered under the ESA, then NOAA Fisheries cannot issue the U.S. Navy a Letter of Authorization under the MMPA.

Are marine scientists concerned about the deployment of this system, and what is NOAA Fisheries doing to listen to their views?

NOAA Fisheries has a responsibility to make the required determinations under the MMPA based on the best scientific information available. At this time, this information, which is based on marine mammal research available, indicates that deployment of SURTASS LFA sonar will not have more than a negligible impact on affected marine mammal stocks. If marine scientists have scientific information that contradicts the information used by NOAA Fisheries in its preliminary determination, they should provide that data to NOAA Fisheries during the public comment period on the proposed rule to authorize the incidental harassment of marine mammals due to SURTASS LFA sonar operations.

Do environmentalists, fishermen, and scientists oppose this system deployment?

While a number of environmental groups are in opposition to LFA sonar, NOAA Fisheries is unaware of any organized opposition by commercial and recreational fishermen. Such opposi-

tion is also unlikely since fishermen are well aware of their need to also use loud sonar in order to locate fish schools. Currently, NOAA Fisheries is in a 45-day comment period on its proposed rule that would authorize the U.S. Navy to take marine mammals incidental to operation of SURTASS LFA sonar.

NOAA Fisheries welcomes additional scientific information that either supports or refutes its preliminary findings that the harassment will not have more than a negligible impact on marine mammal stocks. In addition, members of the public in opposition to deployment of SURTASS LFA sonar were offered an opportunity by the U.S. Navy to express their concerns during the comment period on the Navy's Draft Overseas Environmental Impact Statement on this action. These concerns have been addressed by the U.S. Navy as part of its Final Environmental Impact Statement on the proposed SURTASS LFA sonar deployment.

If the Navy starts using this system throughout the world, will there be even more strandings like in the Bahamas (see MMPA Bulletin Issue No. 19/20, 2nd/3rd Quarter 2000, "Update on the Mass Stranding in the Bahamas")?

The Navy's SURTASS LFA sonar system will not be deployed so that loud sounds (*i.e.*, greater than 180 dB) will occur within 12 nautical miles of any coast including offshore islands anywhere in the world. In addition, it will not operate in certain designated Off-shore Biologically Important Areas, such as the critical habitat for northern right whales off the U.S. East Coast, the Subantarctic convergence zone off Antarctica, the Costa Rican dome off Central America, and Penguin Bank off Hawaii. Because of its offshore operations, the relatively small area where marine mammals might be harmed and the visual, passive acoustic and active acoustic (fish-finder-like sonar) monitoring that will be employed, it is very unlikely that there would be any strandings associated with SURTASS LFA sonar operations. If any do occur, NOAA Fisheries will coordinate with the U.S. stranding networks along whichever coast(s) LFA sonar is operating to ensure that strandings will be thoroughly investigated.

What is the U.S. Navy doing to minimize LFA sonar's impact on marine mammals?

As part of its plan to minimize effects on marine animals, the U.S. Navy has proposed visual monitoring and both passive and active (fish finding) sonar monitoring to detect marine mammals and sea turtles prior to their entering the SURTASS LFA sonar operating area. Officials have also designed shutdown criteria to prevent the likelihood of injury to marine mammals.

For additional on SURTASS LFA sonar, see page 4, "U.S. Navy Requests a Permit to Operate the SURTASS Low Frequency Active Sonar (LFA)."

NOAA Fisheries Develops Aquaculture Guidelines

As reported in the 2nd Quarter 1999 *MMPA Bulletin* Issue No. 15, "NMFS Hosts Aquaculture Workshop", the NOAA Fisheries Office of Protected Resources held a workshop to review the status of knowledge of interactions between marine protected resource and aquaculture facilities last year. This workshop was held to develop recommendations on specific guidelines and standards to minimize the adverse impacts to marine protected species from both nearshore and offshore aquaculture facilities to be incorporated into the larger NOAA Fisheries guidelines.

Marine aquaculture of finfish (such as salmon) and shellfish (such as oysters) is a prominent and growing industry in the U.S. Much of the aquaculture to date has been carried out close to shore. As ideal inshore sites become more difficult to find, NOAA Fisheries anticipates a shift of aquaculture operations to the offshore waters of the Exclusive Economic Zone (EEZ). Yet in the EEZ, interactions between marine aquaculture operations and protected resource populations are unknown.

The inshore marine aquaculture industry has had incidental takes of living marine resources, including marine mammals and sea turtles. Currently, these takes are minor, and aquaculture facilities are listed as Category III fisheries in the 2000 list of fisheries for both the Atlantic and Pacific Oceans (having a remote likelihood of or no known incidental mortality or serious injury of marine mammals). Primarily, takes result from attempts to dissuade pinnipeds who attack net pens full of fish - *e.g.*, salmon. Since net pens can be an open invitation to a hungry animal, aquaculture farmers often employ different strategies to deal with these predators. Options range from predator nets, to noise makers, to relocation or elimination of the problem animals.

To date, no specific guidelines have been developed to aid aquaculturists with regards to siting and operating facilities. With this in mind, the NOAA Fisheries Office of Sustainable Fisheries is developing a Code of Conduct for Responsible Aquaculture in the United States EEZ. The Code will provide the industry with this general guidance and provide NOAA Fisheries with a framework that can be used to ensure a more consistent review of aquaculture projects that require agency action.

For additional information on marine aquaculture or the NOAA Fisheries Code of Conduct for Responsible Aquaculture in the United States EEZ, contact: Ed Rhodes in the NOAA Fisheries Office of Sustainable Fisheries at: (301) 713-2334, ext. 102.

Aquaculture Workshop Report Available

A report of the proceedings of the workshop on Marine Aquaculture, Marine Mammals, and Marine Turtles Interactions Workshop Held in Silver Spring, MD on January 12-13, 1999 is available from the NOAA Fisheries Office of Protected Resources, as a part of the NOAA Technical Memorandum series.

To receive a copy of this report, contact the NOAA Fisheries Office of Protected Resources at: (301) 713-2322, or by fax at: (301) 713-4060. You can also write to: NOAA Fisheries Office of Protected Resources, Marine Mammal Division, 1315 East-West Highway, Silver Spring, MD 20910. You may also visit the NOAA Fisheries Office of Protected Resources web site's Reading Room at: www.nmfs.noaa.gov/prot_res/overview/publicat.html.

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From the Editors...

The Editorial Team would like to take this opportunity to recognize the work of *MMPA Bulletin* Featured Artist, Katherine Zecca, who has been providing the *Bulletin* with wonderful marine mammal illustrations for approximately two years (beginning with Issue No. 11, 2nd Quarter 2000). Katherine recently left her formal position with NOAA Fisheries, but fortunately will be able to continue to contribute her unique artwork to the *MMPA Bulletin*.

Katherine worked as a Visual Information Specialist for the NOAA Fisheries Alaska Fisheries Science Center in Seattle, WA for the last 12 years. Her primary interests are wildlife art and scientific illustration. Since detailed study of many species of marine mammals is often arduous, especially in inhospitable environments, it is difficult for artists to accurately portray the animals. Katherine, though, is able to work mainly from photographs and video images to study her subjects and convey their features in her work.

To create her illustrations for the *MMPA Bulletin*, Katherine primarily uses pencil and scratch board (ink on a chalk like surface). Katherine has created some pieces in full color using oil paints and other illustrations in watercolor and gouache. In October 1995, she received an award from then Assistant Ad-

ministrator for Fisheries, Roland Schmitt and then Assistant Administrator for Oceans, the late Nancy Foster, for her work on the NOAA Fisheries 125th Anniversary Poster.

The *MMPA Bulletin* Team and the NOAA Fisheries Office of Protected Resources staff wish to express our appreciation to Katherine for helping us make the *Bulletin* a great success. We have received several compliments in recent years about the *Bulletin*, and much of the praise has included recognition of Katherine's work. Many of Katherine's illustrations can be seen at the National Marine Mammal Laboratory Illustration Gallery online at: <http://nmml.afsc.noaa.gov/gallery/illustrations.htm>. You will also find examples of her work in back issues of the *MMPA Bulletin*.



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