National Contingency Plan for Response to Unusual Marine Mammal Mortality Events

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National Oceanic and Atmospheric Administration
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EXECUTIVE SUMMARY

The Marine Mammal Health and Stranding Response Act requires the preparation of a contingency plan for response to unusual marine mammal mortality events. Such events may be caused by a variety of factors including: oil discharges and releases of anthropogenic chemicals; naturally occurring biotoxins; changes in environmental conditions; and infectious agents. Mortality events also vary in their characteristics. The cause may be known or not known. There may be live marine mammals requiring care or only dead animals on the beaches. Depending on the type of event and characteristics, the appropriate response will vary, and a contingency plan must be sufficiently broad to provide for a response to a wide variety of circumstances.

The Act provides that the response to an unusual mortality event will be directed by an Onsite Coordinator. The Onsite Coordinator will be either a National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (FWS) Regional Director or an individual designated by the Regional Director. The primary purpose of this plan is to provide a blueprint to the Onsite Coordinator for the response to mortality events. It provides guidance to Regional Directors of NMFS and FWS on: steps to be taken to protect the public health and welfare; advance planning for such events; steps to identify the cause(s) of an event; and measures to determine the biological significance of an event. The plan contains lists of contacts for response, facilities that are capable of holding live animals, tissue collection and preparation, and analyses that may be necessary to determine causes of death and the effects that physical, chemical, or biological factors may have on marine mammal populations.

This plan is divided into several sections corresponding to different activities that may be required in a response to an unusual mortality event.

Because public health and welfare is of paramount concern in any mortality event, a short section (Section II) on this issue precedes all other substantive sections.

Although not technically part of a response, section three addresses materials and information that should be generated in advance. The success of a response may be dependent on having necessary equipment in place, well trained personnel, and general protocols for tissue collection. In preparation for unusual marine mammal mortality events, Regional Directors should:

1) Be aware of possible causes for unusual marine mammal mortality events (p. 3) and the criteria used to designate such events (p. 18);

2) Identify individuals with the necessary abilities to be Onsite Coordinators (p. 18-19);

3) Identify and preposition equipment that might be necessary to respond to a mortality event (p. 13-14);

4) Distribute protocols for gross necropsy and tissue collection to those who are likely to be involved in a response to a mortality event (p. 14-15);

5) Provide training to individuals likely to be involved in a response. Such training should include:

a) Safety measures (p. 9-12);

b) Utilization of protocols for gross necropsy, tissue collection, preparation, and shipment for different analyses (p. 33-38);

c) Chain-of-custody procedures;

6) Establish and maintain lists of contacts, including:

a) Notifications to be made to accelerate initial response (p. 15-16, 19-20, and Addenda A-E);

b) Facilities with capacity, equipment, and expertise to treat live animals (Addendum E);

c) Facilities/individuals with the expertise necessary to conduct gross necropsies and prepare tissues for a variety of analyses (Addendum F);

d) Facilities/individuals with the expertise necessary to conduct specific analyses (p. 34-38); and

7) In order to respond to situations where live-capture operations may be necessary to determine the cause(s) of a mortality event, identify (if necessary, train) individuals with the expertise necessary for live capture operations and identify sources of equipment that would be required for such an exercise (p. 39-40).

Sections four through nine deal with procedures in responding to an unusual mortality event. It should be noted that under certain circumstances, another entity may be responsible for response. In the case of a known oil discharge or release of a hazardous substance, either the Coast Guard or the Environmental Protection Agency will assume responsibility for a response. When the reason for a mortality event is determined to be a direct human interaction, e.g., incidental mortality in fisheries or animals being deliberately killed, the appropriate actions should be taken by either the management or enforcement sections of the two agencies and are outside the context of this plan.

Section four (IV) (p. 18-26) covers steps that should be taken to accelerate response and assess capabilities and needs.

During past mortality events, NMFS has found that it is extremely difficult for the same individual to conduct the scientific side of an investigation and deal with the administrative side of an investigation. Section five (V) (p. 27-30) prescribes the appointment of personnel whose primary responsibility will be administrative.

Section six (VI) (p. 31-32) covers special circumstances when there may be live animals during a mortality event.

Section seven (VII) (p. 33-38) details analyses that might be required, lists individuals with the skills necessary to conduct necropsies and collect tissues for detailed analysis, and locations where specific analyses may be performed. Although additional analyses may be required depending on the nature of the event, basic information is contained on the following: blood from live animals; histopathology; life history; biotoxins; heavy metals/organic contaminants; and virology/bacteriology/mycology.

There are special circumstances that may require additional actions. The eighth section (VIII) discusses procedures for dealing with: the possibility of litigation; live capture to gain information not available from stranded animals; requests from independent researchers for materials; and mass strandings.

The final section (IX) details responsibilities after an event is concluded. The Onsite Coordinator will prepare a report containing results of scientific investigations, findings as to the cause of a mortality event, an assessment of the impact on the affected population(s), and recommendations for subsequent monitoring or management activities. In addition, participants should receive communications expressing appreciation for their roles in responding to the mortality event.

Basic steps in responding to an event include:

1) Based on the criteria listed on page 18, the Working Group on Unusual Marine Mammal Mortality Events is responsible for determining when an unusual mortality event is occurring.

2) When notified by the Working Group that an unusual mortality event is occurring, the Assistant Administrator for Fisheries or, when species under FWS jurisdiction are involved, the Director of the U.S. Fish and Wildlife Service will appoint the appropriate Regional Director as Onsite Coordinator. The Regional Director may designate another qualified individual to serve in this capacity.

3) To accelerate response, the Onsite Coordinator will provide notification and instruction to:

a) Stranding Network members (Addendum A);
b) Federal beachfront agencies (Addendum B);
c) State wildlife resource agencies (Addendum C);
d) Coast Guard District Headquarters (p. 15-16);
e) Public health agencies (if necessary) (Addendum D);
f) Appropriate local governmental units;
g) NMFS, FWS, and National Biological Service laboratories;
h) Native American groups (as appropriate) (Addendum E).

4) As necessary, the Onsite Coordinator will establish an Administrative Team (p. 27-30) to:

a) Handle contracting and other financial affairs;
b) Respond to inquiries from the media and general public; and
c) Handle collection of data, data entry, and tracking of samples.

5) The Onsite Coordinator is responsible for checking to determine if environmental conditions may have precipitated a mortality event or resulted in detection of a larger number of mortalities than would normally be the case. These conditions include:

a) Current anomalies (p. 24);
b) Sea surface temperatures (p. 24);
c) Toxic phytoplankton blooms (p. 24); and
d) Shellfish monitoring (p. 24).

6) The Onsite Coordinator shall assess basic needs for response including: adequacy of response network in terms of coverage, ability to conduct necropsies, and ability to collect tissue samples; available equipment; and, if live animals are involved in the mortality event, the capacity and capabilities of rehabilitation facilities. If any of these is less than adequate, steps shall be taken to supplement existing resources.

7) If the cause(s) of an event is known, the Onsite Coordinator will make provision for:

a) Adequate care of live animals (p. 31-32);
b) Collection, preparation, analysis, and archiving of tissues and voucher specimens (p. 33-38). If litigation is possible, provisions for maintaining a proper chain of custody are necessary;
c) Assessing the impact of the mortality event on wild populations; and
d) If feasible, put mitigation measures in place.

8) If the cause(s) of an event is unknown, all of the previous steps are necessary. In addition, in consultation with the Working Group, the Onsite Coordinator will put investigative measures in place including:

a) Making provision for aerial surveys, if necessary, to locate fresh carcasses and/or determine the extent of a mortality event (p. 23);

b) Defining specific tissue collection and preparation protocols. Making arrangements for specific analyses to be performed and for shipment of samples to facilities performing analyses (p. 33-38);

c) Compiling and analyzing results.

9) After a mortality event is over and results of analyses have been received, the Onsite Coordinator shall file a final report containing compilation and, as appropriate, interpretation and correlations of data sets and analytical results to document the cause(s) and biological significance of an event. If appropriate, the report shall contain recommendations for post-event monitoring. In addition, the report shall analyze the response to the event and provide suggestions for improving future responses. (p. 43-44).

Immediately following this page, a decision tree is provided covering the various activities that may be necessary in a response.

INTRODUCTION

Much of the impetus for the passage of the Marine Mammal Protection Act (MMPA) in 1972 (P.L. 92-522) stemmed from concern over the direct killing of marine mammals and mortality associated with fisheries. In the two decades following enactment, increasing attention has been given to more indirect human impacts on marine mammals, including those associated with anthropogenic contaminants. The deaths of large numbers of bottlenose dolphins, *Tursiops truncatus*, on the U.S. east coast in 1987-88 created concern that the Federal Government was inadequately prepared to respond to unusual mortality events, explain their occurrence, and take corrective action.

Marine Mammal Health and Stranding Response Act

In response to increasing public concern, the Congress passed the Marine Mammal Health and Stranding Response Act in 1992 (P.L. 102-587, 16 U.S.C. 1421-1421(h)). The Act created a new Title 3 to the Marine Mammal Protection Act that was redesignated as Title 4 by §24(b)(1) of P.L. 103-238. Sections 301-309 were redesignated as §§401-409. The Act contained three basic elements. Sections 402-403 deal with generating scientific information from stranded animals and upgrading the capabilities of the marine mammal stranding networks. Section 402 also mandates development of criteria for release of rehabilitated animals. In response to the problem of adequate baseline information, section 407 provides for the establishment of a National Marine Mammal Tissue Bank, provisions for analysis of tissues for contaminants, and creation of a data base.

Section 404 provides a framework for responding to unusual mortality events. It creates a multidisciplinary Marine Mammal Unusual Mortality Event Working Group to provide guidance to the Secretaries of the Interior and Commerce in determining when such an event is occurring, in developing a response plan to such an event, and in developing a contingency plan for responding to such an event. The Working Group was constituted in April 1993.

The Act also provides the framework for responding to mortality events which includes the appointment of an Onsite Coordinator to coordinate response activities. The Onsite Coordinator shall be a Regional Director of either the National Marine Fisheries Service (NMFS) or the United States Fish and Wildlife Service (FWS) or someone designated by the Regional Director. The House Report describes the Onsite Coordinator's responsibilities: directing of the response process; managing personnel and facility usage; acting as a liaison with central offices; and coordinating public relations. Section 405 creates a fund to be used for special costs incurred in responding to unusual mortality events.

The development of this contingency plan was mandated by §404(b) which states:

"(1) IN GENERAL.--The Secretary (of Commerce) shall in consultation with the Secretary of the Interior and the unusual mortality event working group, and after an opportunity for public review and comment, issue a detailed contingency plan for responding to any unusual mortality event.

"(2) CONTENTS.--The contingency plan required under this subsection shall include--

"(A) a list of persons, including stranding network participants, at a regional, State, and local level who can assist the Secretary in implementing a coordinated and effective response to an unusual mortality event;

"(B) the types of marine mammal tissues and analyses necessary to assist in diagnosing causes of unusual mortality events;

"(C) training, mobilization, and utilization procedures for available personnel, facilities, and other resources necessary to conduct a rapid and effective response to unusual mortality events; and

"(D) such requirements as are necessary to--

"(i) minimize death of marine mammals in the wild and provide appropriate care of marine mammals during an unusual mortality event;

"(ii) assist in identifying the cause or causes of an unusual mortality event;

"(iii) determine the effects of an unusual mortality event on the size estimates of the affected populations of marine mammals; and

"(iv) identify any roles played in an unusual mortality event by physical, chemical, and biological factors, including contaminants."

In scope, the contingency plan must include all coastal regions of the United States and the adjacent waters under United States jurisdiction. It must be adequate to address all species of marine mammals. With the exceptions noted below, NMFS is primarily responsible for response to mortality events involving cetaceans and pinnipeds (excluding walrus), and FWS is primarily responsible for sea otters, walrus, manatees, and polar bears. Depending on the circumstances, other units of government may have responsibilities. As an example, if a mortality event should create a serious public health problem, a variety of other local, state, and Federal agencies would have responsibilities. The House Report accompanying the legislation states that the plan should be specific to species (or groups of species). Because approaches for determining the cause of an event--collecting, preserving, and analyzing tissues--are likely to be similar among the range of species, this contingency plan provides a general outline, with species differences highlighted only when appropriate. The species-specific approach is most appropriate for rehabilitating live animals (Dierauf, 1990). For example, the physical facilities needed to care for pinnipeds are less complicated than those needed for cetaceans or polar bears.

Unusual Mortality Events

The Act characterizes an unusual mortality event as having the following characteristics: (1) it is unexpected; (2) it involves a significant die-off of any marine mammal population; and (3) it demands an immediate response. In addition to the obvious circumstances involving significant numbers of marine mammal deaths within a short period of time, the Working Group determined that there were two other instances when a response would be justified--when there is a mass stranding of unusual species of cetaceans and when even small numbers of a severely endangered marine mammal species appear to be affected. Although steady declines of a population over time warrant investigation, such occurrences are part of each agency's more general charge under the Act. Clearly, the structure of the Act indicates that its purpose is to address acute mortality. Rapid large-scale mobilization and appointment of an Onsite Coordinator may not be the appropriate method for addressing a chronic population decline.

Factors that can cause an unusual mortality event include, but are not limited to:

1) Impacts including toxicity and fouling caused by oil discharges or chemical releases or toxic runoff of anthropogenic chemicals or other impacts, such as immunological dysfunction, caused by chronic exposure to pollutants that may become apparent in an acute mortality event;

2) Naturally occurring biotoxins;

3) Changes in environmental conditions such as an El Niño or a sudden change in water temperature;

4) Parasitic or infectious disease agents; or

5) Mortalities caused by direct human interactions such as bycatch in fisheries or deliberate taking. As noted below, such a mortality factor must be taken into account when trying to determine a cause of an event, but, once confirmed, response becomes a management or enforcement responsibility.

A contingency plan must include provisions for detecting and responding to each of these conditions. The response priorities will vary depending on whether or not the cause of the event is known, the number and species of animals involved, or if the event poses a threat to public health and safety. The major task during an El Niño may be to rescue and rehabilitate emaciated animals. In other instances, attention may focus on determining a cause(s), which may be far more difficult. As an example, it may be difficult to determine if contaminant burdens have compromised a population's immune systems to the point where the marine mammals are more vulnerable to the normal range of pathogens. Such a determination often is difficult even in human epidemiology, and far less is known about stressors and immune systems of marine mammals.

Although mortality events have received more publicity since the 1987-88 mortality of bottlenose dolphins along the mid-Atlantic coast, an examination of the historical record since 1978 shows that such events are not uncommon. Table 1 lists known mortality events over this period and scientific literature pertinent to those events.

Baseline Information and Stranding Networks

The 1987-88 mortality event raised some significant questions concerning response to such events. It drew attention to the need for baseline information. As an example, some of the dolphins died with high tissue levels of organochlorines, the significance of which could not be determined because there was a dearth of information with which to make comparisons (Geraci, 1989). It was also obvious that resources needed to respond to such an event were not initially available. The response might have been more effective if a team of specialists and protocols for tissue collection, preservation, and analysis had been in place.

Following the 1987-88 mortality event, NMFS took steps to address these weaknesses. A National Marine Mammal Tissue Bank was established to collect and archive tissues from marine mammals that can be used for retrospective analysis of contaminant levels. Section 407 of the Marine Mammal Health and Stranding Response Act provides a legislative mandate for the

Year	Species	Cause Implicated	Location	Reference
1978	Hawaiian monk seals (*Monachus schauinslandi*)	Ciguatoxin and maitotoxin	Northwest Hawaiian Islands	Gilmartin, 1987
1979-80	Harbor seals (*Phoca vitulina*)	Influenza A virus	Cape Cod, Massachusetts	Geraci et al., 1982
1982	Harbor seals (*Phoca vitulina*)	Influenza A virus	Cape Cod, Massachusetts	Hinshaw et al., 1984
1982	Manatees (*Trichechus manatus*) (Associated mortalities of fish and double-crested cormorants)	Brevetoxin	Southwest Florida	O'Shea et al., 1991
1983	Several species of pinnipeds	El Niño	Pacific coast from Peru through California	Trillmich and Ono, 1991
1984	California sea lions (*Zalophus californianus*) (Smaller outbreaks of the same disease occurred in 1988 and 1991)	Leptospirosis	California	Dierauf et al., 1985
1986	Sea Otters (*Enhydra lutris*) (Two humans contracted paralytic shellfish poisoning in the same area from blue mussels)	Saxitoxin	Kodiak Island, Alaska	DeGange and Vacca, 1989
1986	Dolphins, primarily *Tursiops truncatus* and some *Sousa chinensis* (Associated mortalities of fish, dugongs, birds, and sea turtles)	Cause not determined	Persian Gulf	Regional Organization for the Protection of the Marine Environment, 1986
1987	Humpback whales	Saxitoxin	Northeast U.S. coast	Geraci et al., 1989
1987	Baikal seals (*Phoca sibirica*)	Morbillivirus	Lake Baikal, USSR	Grachev et al., 1989
1987-88	Bottlenose dolphins (*Tursiops truncatus*)	Brevetoxin Morbillivirus	U.S. east coast	Geraci, 1989 Lipscomb et al., 1994
1988	Harbor seals (*Phoca vitulina*)	Phocine distemper virus	North Sea	Osterhaus and Vedder, 1988
1989	Sea Otters (*Enhydra lutris*) and some harbor seals (*Phoca vitulina*)	Oil spill--Exxon Valdez	Prince William Sound, Alaska	Loughlin, 1994
1990-91	Striped dolphins (*Stenella coeruleoalba*)	Morbillivirus	Mediterranean Sea	Domingo et al., 1990
1992	Northeast phocids	Phocine distemper virus	U.S. east coast	Geraci et al., 1990
1992	Bottlenose dolphins (*Tursiops truncatus*) (Associated mortalities of fish and birds. Pesticide aldicarb detected in trace amounts in water.)	Cause not determined	Calhoun and Aransas Counties, Texas	Pers. comm. A Jennings
1992-93	Several species of pinnipeds	El Niño	California	Pers.comm. K. Hanni
1993	Harbor seals (*Phoca vitulina*), Steller sea lions (*Eumatopias jubatus*), and California sea lions (*Zalophus californianus*)	Human interaction--gunshot wounds	Central Washington coast	Pers. comm. B. Norberg
1994	Bottlenose dolphins (*Tursiops truncatus*)	Morbillivirus	Gulf of Mexico	Lipscomb et al., in press
1994	Common dolphins (*Delphinus delphis*)	Cause not determined	California coast	Pers. comm. J. Cordaro
1995	Common dolphins (*Delphinus delphis*) and California sea lions (*Zalophus californianus*) (Associated mortalities of birds)	Probable toxic discharge	Gulf of California, Mexico	Vidal and Gallo, in press
1996	Manatees (*Trichechus manatus*)	Investigation ongoing	Southwest Florida	Pers. comm R. Turner

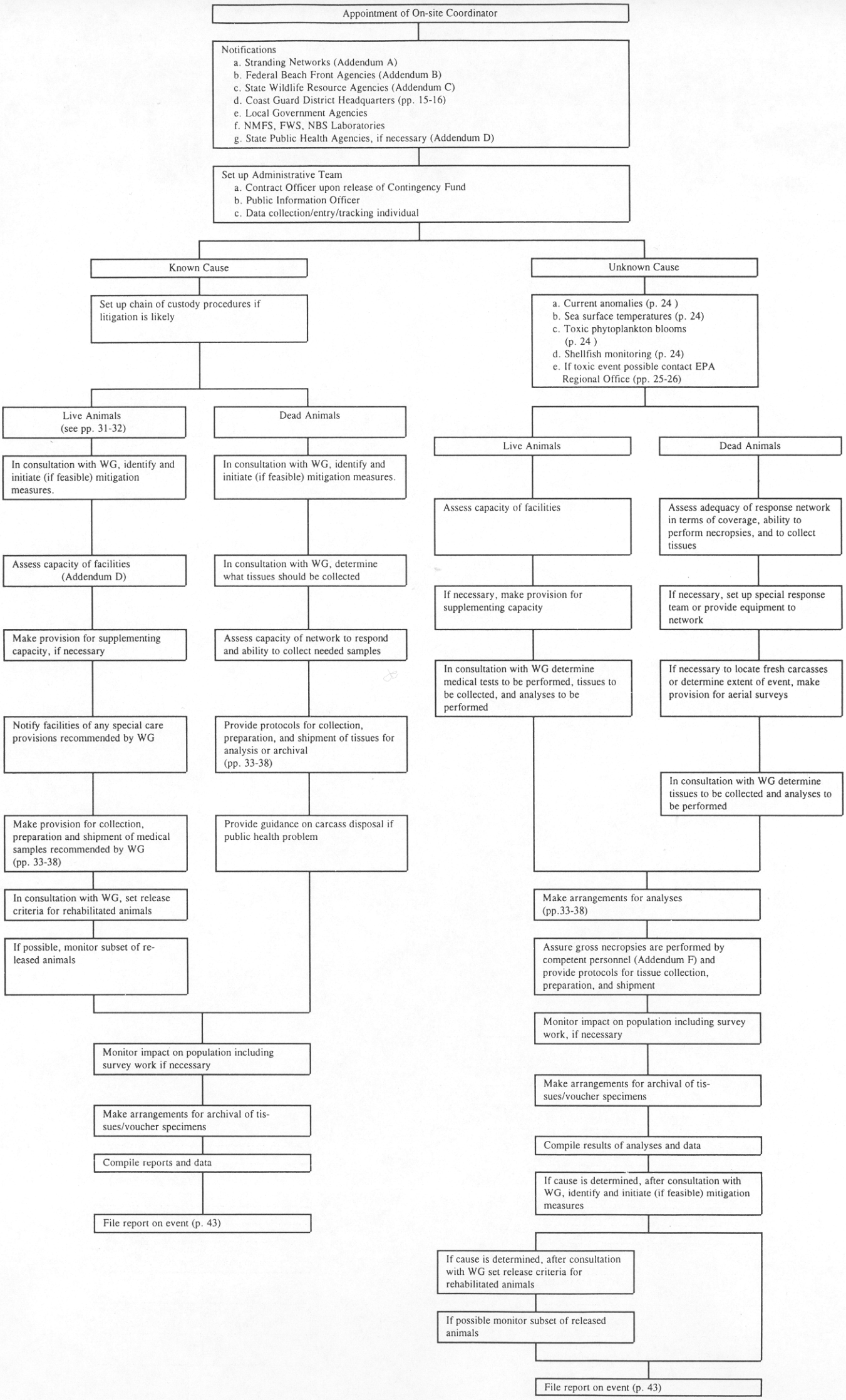

Appointment of On-site Coordinator
Notifications
a. Stranding Networks (Addendum A)
b. Federal Beach Front Agencies (Addendum B)
c. State Wildlife Resource Agencies (Addendum C)
d. Coast Guard District Headquarters (pp. 15-16)
e. Local Government Agencies
f. NMFS, FWS, NBS Laboratories
g. State Public Health Agencies, if necessary (Addendum D)
Set up Administrative Team
a. Contract Officer upon release of Contingency Fund
b. Public Information Officer
c. Data collection/entry/tracking individual
Known Cause
Set up chain of custody procedures if litigation is likely
Live Animals (see pp. 31-32)
In consultation with WG, identify and initiate (if feasible) mitigation measures.
Assess capacity of facilities (Addendum D)
Make provision for supplementing capacity, if necessary
Notify facilities of any special care provisions recommended by WG
Make provision for collection, preparation and shipment of medical samples recommended by WG (pp. 33-38)
In consultation with WG, set release criteria for rehabilitated animals
If possible, monitor subset of released animals
Dead Animals
In consultation with WG, identify and initiate (if feasible) mitigation measures.
In consultation with WG, determine what tissues should be collected
Assess capacity of network to respond and ability to collect needed samples
Provide protocols for collection, preparation, and shipment of tissues for analysis or archival (pp. 33-38)
Provide guidance on carcass disposal if public health problem
Monitor impact on population including survey work if necessary
Make arrangements for archival of tissues/voucher specimens
Compile reports and data
File report on event (p. 43)
Unknown Cause
a. Current anomalies (p. 24)
b. Sea surface temperatures (p. 24)
c. Toxic phytoplankton blooms (p. 24)
d. Shellfish monitoring (p. 24)
e. If toxic event possible contact EPA Regional Office (pp. 25-26)
Live Animals
Assess capacity of facilities
If necessary, make provision for supplementing capacity
In consultation with WG determine medical tests to be performed, tissues to be collected, and analyses to be performed
Dead Animals
Assess adequacy of response network in terms of coverage, ability to perform necropsies, and to collect tissues
If necessary, set up special response team or provide equipment to network
If necessary to locate fresh carcasses or determine extent of event, make provision for aerial surveys
In consultation with WG determine tissues to be collected and analyses to be performed
Make arrangements for analyses (pp.33-38)
Assure gross necropsies are performed by competent personnel (Addendum F) and provide protocols for tissue collection, preparation, and shipment
Monitor impact on population including survey work, if necessary
Make arrangements for archival of tissues/voucher specimens
Compile results of analyses and data
If cause is determined, after consultation with WG, identify and initiate (if feasible) mitigation measures
If cause is determined, after consultation with WG set release criteria for rehabilitated animals
If possible monitor subset of released animals
File report on event (p. 43)

Table I

Tissue Bank. The Tissue Bank is located at the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland. The tissues are collected following a rigorous protocol and stored in liquid nitrogen. Because of uncertainties as to whether singly stranded animals are representative of populations as a whole and whether health conditions may have an impact on results from analyses, collections for the Tissue Bank currently have been restricted to presumably healthy marine mammals either taken in the subsistence harvest by Alaskan natives, incidentally taken in fisheries, or, in the case of cetaceans, mass stranded. To ensure uniform standards of analyses, NIST has set up a Quality Assurance program involving interlaboratory comparison exercises and the preparation of Standard Reference Materials.

As a second step toward improving response, a program review of the Marine Mammal Stranding Networks was conducted. To respond to marine mammal strandings, networks of volunteers have been authorized by NMFS for cetaceans and pinnipeds and by FWS for manatees and sea otters. Members of the Stranding Networks are issued Letters of Authorization by the NMFS Regional Offices. NMFS Regions are shown on the next page. Most of the volunteers are professionals with marine mammal experience. They may be researchers affiliated with State agencies or universities, individuals associated with public display facilities, or individuals with animal rehabilitation experience. The members of the Networks rehabilitate sick and injured marine mammals, and collect basic biological data and tissues from dead marine mammals. Addendum A contains a list of Stranding Network members by State.

Network members are the first line of response to any marine mammal strandings. They have capabilities to treat animals and collect tissues for analyses. Therefore, they are likely to be heavily involved in any response to an unusual mortality event. The program review identified strengths and weaknesses of the Networks and made recommendations to improve the administration of the Networks by NMFS and enhance the capabilities of individual members (Wilkinson, 1991).

Objectives of Contingency Plan

To develop the expertise necessary to respond to mortality events, NMFS established a Task Group on Unusual Marine Mammal Mortalities in April 1991. The Task Group was similar in function to the Working Group on Unusual Marine Mammal Mortalities set up under the Marine Mammal Health and Stranding Response Act. Whenever an unusual event was suspected, NMFS consulted with the members of the Task Group for guidance on what steps should be taken to respond to the event. The Task Group was consulted seven times between April 1991 and April 1993, when it was succeeded by the statutory Working Group.

The purpose of this contingency plan is to outline actions that can/should be taken to:

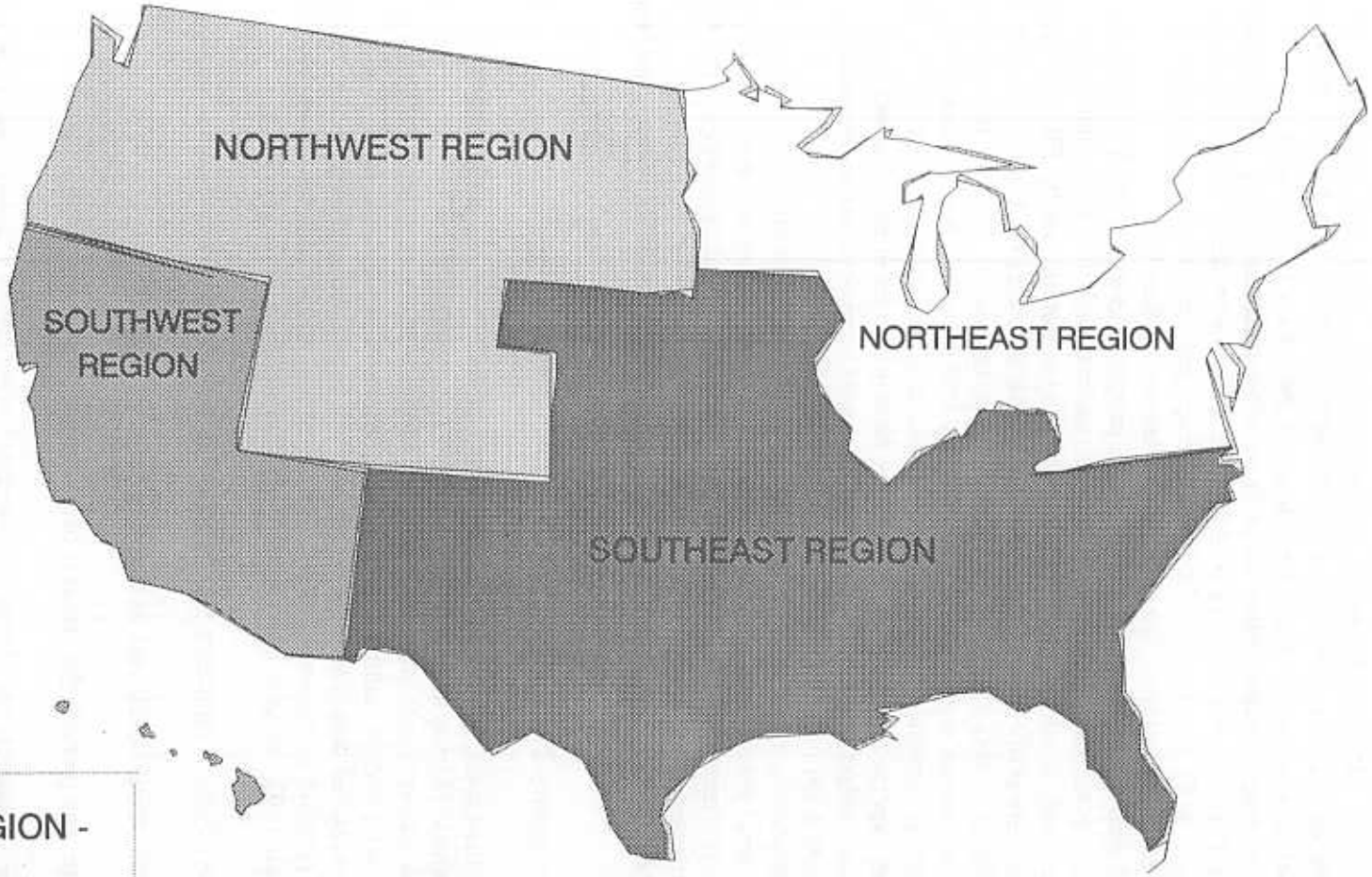
1) Protect the public health and welfare;

2) Investigate and identify the cause(s) of a mortality event;

3) Minimize or mitigate the effects of a mortality event on the affected population(s) and provide for the rehabilitation of individual animals; and

4) Determine the impact of a mortality event on the affected population(s).

National Marine Fisheries Service Regions



- ALASKA REGION -

Although there is considerable public interest in appropriate response to marine mammal mortality events, achieving these goals is the responsibility of the Onsite Coordinator, and this plan is intended to provide guidance for the Onsite Coordinator by detailing responsibilities, providing a general framework for response, and listing activities and resources.

Because of variations in appropriate response actions and available resources, a national contingency plan must be flexible. A prescribed protocol applicable to all events could actually inhibit an effective response. A contingency plan should identify actions and resources needed to increase the level and timeliness of response and provide procedures for a range of analyses that may be required. In some instances, the emphasis may be on mitigation, rehabilitation, documentation of effects, and assessment of impacts on the population(s). In others, the highest priority will be determination of the cause(s).

Discharges of Oil and Hazardous Chemicals

There is one type of unusual mortality event during which procedures laid out in the Act including responsibilities, appointment of Onsite Coordinators, and funding will not be followed. Responses to oil discharges or releases of hazardous substances are governed by either the Clean Water Act, as amended, the Oil Pollution Act of 1990, or the Comprehensive Environmental Response, Compensation and Liability Act. The U.S. Coast Guard has primary responsibility for response to spills and releases within or threatening the coastal zone. Coast Guard District Offices are listed on pages 15-16. Although not specifically addressed in the Marine Mammal Health and Stranding Response Act, the House Report stated that the authority of the Act would not supersede, modify, or limit the duties and responsibilities conveyed by the other Acts. Such an interpretation is logical in order to avoid competing and conflicting response activities and contingency plans.

Many of the resources identified for response under the Marine Mammal Health and Stranding Response Act also will be utilized in spill emergencies. An effort has been made by the Working Group to help those developing regional and state oil spill contingency plans identify those individuals and facilities that can provide treatment for impacted marine mammals and collect tissues for analyses. In the northeast, California, and Alaska, oil spill response procedures and personnel to be utilized closely parallel those set out in this contingency plan.

Resources

This contingency plan assumes that adequate funding for a response will be available. The Act created a special fund to be applied for response to mortality events. In addition to authorizing appropriations, it allows acceptance of private donations. Such donations can be sent to:

Office of Protected Resources
National Marine Fisheries Service
1335 East-West Highway
Silver Spring, MD 20910-3226
ATTN. Unusual Mortality Event Fund
Telephone: (301) 713-2322

To date no funds have been appropriated or donated to the fund. Although advance planning can enhance the response to a mortality event, lack of funds or the necessity to reprogram funds can delay or limit the magnitude of the response.

PUBLIC HEALTH AND WELFARE

The first priority in responding to an Unusual Marine Mammal Mortality Event is public health and welfare. There are several ways in which a marine mammal mortality event could have an impact on public health or safety.

Safety and Hygienic Precautions

Although not common, if basic safety and hygienic precautions are not observed, stranded animals can cause physical injury or transmit disease to humans. Under §300.150 of the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300) which references the OSHA regulation at 29 CFR 1910.120, participants in a response to oil discharges or releases of hazardous chemicals are required to have OSHA training. Most of the individuals responding to mortality events under the Marine Mammal Health and Stranding Response Act will have previous experience in handling stranded animals. Stranding Network members have received safety protocols and reminders of safety precautions and should not need special training. Despite such steps, however, even the most experienced personnel may forget safety precautions. If less experienced personnel are utilized, the Onsite Coordinator should ensure that they are informed of safety measures. When the cause of an event is unknown, extra precautions should be taken. In January 1992, a letter on safety precautions was distributed to Stranding Network members. If a mortality event should occur, participants in a response should be reminded of the points contained in that letter:

1) Recognize your physical limitations. Guard against overexposure to cold water and weather as well as to sun and heat. Do not attempt to lift more weight than you can without injury.

2) Precautions against injury should be taken at the site of a live stranding. Pinnipeds can be aggressive, and respondents should guard against being bitten. Distance is the only safeguard against the thrashing flukes of a cetacean.

3) Wear gloves when touching animals, conducting dissections, and handling tissues and fluids. Cover any cuts, scratches, or abrasions with waterproof protective dressings before handling animals or parts. Use waterproof outerwear to protect clothing from fluid contamination.

4) Wash your skin after handling either live or dead animals. Clothing and footwear should also be washed.

5) If you are bitten, cut, or injured while handling an animal or tissues, seek professional medical attention. Do not rely on first aid alone.

6) If you become ill after handling a marine mammal or tissues from a marine mammal, inform your physician that you have had contact with such animals. Some of the diseases that could be transmitted are rarely encountered (e.g., sealfinger), and may not be correctly diagnosed if a physician is not provided with an adequate history.

Aviation Safety

In the section below entitled Initial Steps, there are two circumstances when aerial survey work may be undertaken: to help in locating fresh carcasses and to determine the possible impact of an event on population abundance. Some Federal agencies currently have safety guidelines for aviation, and Federal employees should strictly follow these guidelines. In some instances, however, private individuals and aircraft may be used. Such individuals also should be conscious of safety measures. To provide guidance to them, the following list has been adapted from draft guidelines prepared by the National Biological Service. As a guiding principle, safety is paramount. **Mission urgency should never override sound safety requirements.**

General Requirements:

1) The mission to be flown shall be necessary, and flight planning for the mission shall be appropriate.

2) Only personnel necessary to the mission are to be on board the aircraft.

3) The configuration of the aircraft will be appropriate to the mission.

4) The pilot must have proficiency and experience for the type of mission to be flown.

5) The weather must be good enough to accomplish the mission safely. If weather conditions deteriorate so that safety becomes an issue, the mission will be terminated.

6) All passengers will follow instructions from the pilot.

Safety Briefing:

The pilot shall conduct a safety briefing prior to each flight. If the pilot does not do so, it is the responsibility of passengers to remind the pilot of this responsibility. The subjects of the briefing should include:

Mandatory

1) Location and operation of the fire extinguisher.

2) Location and contents of the first aid kit.

3) Location and operation of the emergency exits.

4) Location and operation of the Emergency Locator Transmitter.

5) Emergency crash and aircraft exiting procedures.

6) Proper use of seatbelts and shoulder harnesses.

7) Location and use of survival gear.

Recommended

1) Location and operation of emergency fuel shut off.

2) Location and operation of avionics master switch and electrical master switch.

3) Location and operation of communications radio.

Personal Safety Equipment:

1) Adequate hearing protection, e.g., earplugs, earphones, or helmets equipped with headphones.

2) Helmet.

3) Fire-retardant clothing. Note: Nylon, dacron, or polyester garments or undergarments which have direct contact with the wearer's skin should not be worn because they present an unacceptable exposure to post-mishap fire injury.

4) Personal flotation devices must be worn for over water work in single-engine airplanes and helicopters. Personal Flotation Devices need not be worn but must be immediately accessible to each person in multiengined aircraft operating over water.

5) Properly fitting anti-exposure suits must be worn in all single-engine aircraft and must be readily accessible to occupants of multi-engined aircraft when water temperatures are estimated to be 50°F (10°C) or less.

Carcass Disposal

Carcasses of dead animals could be a source of either pathogens or toxins that might affect wildlife and domestic animals. Steps should be taken to avoid such possibilities, including proper isolation and disposal of carcasses. In normal circumstances, carcasses sometimes are left on the beach to decompose naturally. If there is the possibility of a transmissible pathogen or serious toxin, unused portions of carcasses should be buried, taken to a sanitary landfill, or fully destroyed by incineration. If carcasses are buried, they should be in an area where fluids will not leach into groundwater and deep enough so that they will not be dug up by scavengers or uncovered by wave action.

Live Animals

Live animals moved to research or display facilities should be quarantined in an area or enclosure with a separate source of water and waste water run-off. Hygienic measures should be taken to prevent the spread of pathogens to display animals. These should include footbaths,

protective clothing, washing after handling animals, and changing and disinfecting clothing and footwear.

If a serious health or safety hazard is identified, the Onsite Coordinator will be responsible for issuing special requirements in terms of collecting and handling animals and carcasses, providing quarantine instructions, and setting up specific measures for carcass disposal. In such cases, consideration should be given to appointment of a safety/sanitation officer to assist, monitor, and supervise such activities.

ADVANCE PLANNING

The Marine Mammal Health and Stranding Response Act provides that the Onsite Coordinator will be one or more Regional Directors of NMFS or FWS or their designees. Although the Act emphasizes response to unusual mortalities, there are steps that should be taken by Regional Offices well in advance of a mortality event in order to facilitate the response. These include purchase of equipment and development of a list of support services and contacts to be made when such events occur.

In most instances, the individuals best placed to rapidly respond to marine mammal strandings are the members of the Stranding Networks. However, all that is required under Letters of Authorization in normal circumstances is for members to collect basic information such as date and site of a stranding, the species involved, the condition of the animal or carcass, its length and sex, any evidence of human interaction, and disposition of the animal or carcass. Although many of the members work beyond collection of such basic data and collect tissues for research, not all members of the Networks have the equipment and training necessary for necropsy or specialized tissue collection.

Equipment

Experience with past events has shown that identification of equipment needs, location of vendors, and completion of purchase arrangements takes valuable time when response to an event may require immediate action. To address this problem, the NMFS Southeast Fisheries Science Center created 20 kits (Table 2) that were prepositioned in the Southeast to be used in unusual mortality events.

Although the list is not intended to be all-inclusive, it does convey examples of the types of equipment that may be needed. Such kits may vary depending on the Region, species, and equipment normally available. Among suggestions for additional equipment that have been made are flensing knives and blue ice for cooling. A similar list of equipment drawn from numerous protocols is contained in the field guide prepared for Stranding Network members (Pages 287-289 in Geraci and Lounsbury, 1993).

Each NMFS and FWS Regional Office should consider following the example of the Southeast Fisheries Science Center and purchase equipment that may be needed in advance. At a minimum, the Regional Offices should identify sources where equipment can be obtained and develop streamlined procedures for its rapid deployment in the field. The equipment should be appropriate for a variety of tasks covering the range of information that might be needed to determine the cause of a mortality event.

TABLE 2
SOUTHEAST STRANDING KIT INVENTORY

100 quart cooler
2 large sharp knives
long-handled pruners
large bow saw
knife sharpener/stone
plastic scalpel handles (2)
box of surgical blades
titanium knife
vacutainer holders (5)
sterile vacutainers
  (20 EDTA 5 cc)
  (20 plain 10 cc)
  (20 heparin 10 cc)
  (20 serum-separator)
vacutainer needles
  (30 @ 20 ga.x1-1/2)
syringes (sterile)
  (10 @ 5cc)
  (10 @ 10cc)
  (10 @ 20 or 30 cc)
  (10 @ 50 or 60 cc)
needles (sterile)
  (10 @ 18 ga.x1-1/2)
  (10 @ 22 ga.x1)
  (1 @ 14 or 15ga.x3-1/2)
  (5 @ 18 ga.x3-1/2)
vacutainer needle disposer
butterfly 19x7/8, 12" tubing
  infusion set (10)
metric ruler
flashlight
size D batteries
30 m fiberglass tape measure
heavy rope
2 short meat hooks
16" selecting hook
12"x12" plastic ziploc bags
6"x6" plastic ziploc bags
aluminum foil
blank polypaper labels
permanent markers
large heavy duty plastic bags
heavy rubber gloves (2 pr.)
powder-free latex gloves
surgical masks
disposable cover-alls (4)
surgical scissors
500 ml teflon bottles (2)
glass jars, formalin samples (12)
buffered 10% formalin (4L)
pre-soaked alcohol wipes
spool of twist ties
10" teflon-coated tongs
titanium forceps
teflon forceps
teflon bags (6"x8")
polyfoam container for blood shipment

Protocols and Training

The availability of equipment does not ensure that necropsies will be properly performed or that high quality tissue samples will be collected for analysis. To accomplish this task, detailed protocols and training are needed. Three such protocols have been developed for distribution to Stranding Network members. The stranding field guide (Geraci and Lounsbury, 1993) was distributed to NMFS Stranding Network members in 1993. The guide contains basic protocols for necropsies and collection and preservation of tissues for a variety of analyses. The guide covers cetaceans, pinnipeds, manatees, and sea otters. NMFS has also prepared and distributed more detailed laboratory manuals to be used for cetaceans (Galloway and Ahlquist, in press) and pinnipeds (Dierauf, 1994). FWS also has prepared a manual on necropsy of manatees (Bonde et al., 1983). These guides contain information on how to perform necropsies and how to collect and preserve tissues for: histopathology; life history; bacteriology; virology; mycology;

parasitology; biotoxins; contaminants; and genetics. The manuals also contain chain of custody instructions. Although not a formal part of this contingency plan, these protocols are incorporated by reference. It is recommended that these guides be kept together at each Stranding Network facility and that Network members should incorporate these documents into their curricula and training courses for personnel who might be involved in a response to an unusual mortality event.

To avoid delays and improper collection and preparation of tissues, another part of preplanning activities should be training of individuals who are likely to be participants in a response to an unusual mortality event. Using the protocols, training should be given in gross necropsy procedures and the collection and preparation of samples for the range of analyses discussed in the section below entitled "Necropsy, Tissue Collection, Preservation, and Analyses." Two other topics should be presented in training sessions: following chain of custody procedures and a review of safety procedures.

Compilation of Lists

This contingency plan contains lists of organizations and people to be notified when an unusual mortality event occurs. Stranding Network members are listed in Addendum A. (Because lists containing information such as Stranding Network membership and individuals who can perform necropsies are likely to be subject to change, they have been incorporated as addenda rather than appendices so that they can be changed without amending the entire document). Depending on the Region involved, NMFS and FWS representatives have telephone numbers, FAX numbers, and, in some instances, the capacity to communicate via e-mail with each Stranding Network member within their Regions. A list of Federal agencies with jurisdiction over beach areas is contained in Addendum B. There are eight Coast Guard Districts in marine areas. These are:

First Coast Guard District (ME, NH, MA, CT, RI, NY)
Coast Guard Building
408 Atlantic Ave.
Boston, MA 02110-3350
(617) 223-8480

Fifth Coast Guard District (NJ, DE, MD, VA, NC)
Federal Building
431 Crawford St.
Portsmouth, VA 23704-5004
(804) 398-6000

Seventh Coast Guard District (SC, GA, Peninsular FL)
909 SE First Ave.
Brickell Plaza Federal Bldg.
Miami, FL 33131-3050
(305) 536-5683

Eighth Coast Guard District (FL Panhandle, AL, MS, LA, TX)

Hale Boggs Federal Bldg.
501 Magazine St.
New Orleans, LA 70130-3396
(504) 589-6230

Eleventh Coast Guard District (CA)
501 West Ocean, Suite 7170
Long Beach, CA 90822-5399
(310) 980-4300

Thirteenth Coast Guard District (OR, WA)
Jackson Federal Bldg.
915 Second Ave.
Seattle, WA 98174-1067

Fourteenth Coast Guard District (HI)
Prince Kalanianaole Federal Bldg.
300 Ala Moana Blvd., 9th Floor
Honolulu, HI 96850-4982
(808) 541-2260

Seventeenth Coast Guard District (AK)
P.O. Box 25517
Juneau, AK 99802-5517
(907) 586-7298

Although the Coast Guard Operations Manual has instructions to report stranded marine mammals, and some units/stations are included on the list of Stranding Network members, the appropriate District Headquarters should be notified when there is an unusual mortality event. Upon receipt of reports of stranded animals, the Coast Guard will contact the appropriate Network representatives and provide the information needed for response. Operations permitting, they may also be available to assist in salvage, rescue, or disposal of animals, as well as for providing security or other assistance.

Addendum C contains a list of State agencies with jurisdiction over natural resources as contact points for State governments. Addendum D lists State public health agencies to be contacted should there be concern that a mortality event might affect human public health. Addendum E lists Native American organizations to be contacted if a mortality event occurs in either the Pacific northwest or Alaska.

Early Monitoring Activities

There may be a period of time between an initial observation that marine mammal mortalities are increasing and the determination that a full-fledged mortality event is in progress. In some cases, the actions taken during this period ultimately may determine the success of a subsequent investigation into the cause(s) of a mortality event.

When there is reason to believe that there may be an incipient mortality event, the agency with jurisdiction over the species should take steps to ensure that strandings are reported on a real-time basis so that numbers of mortalities can be closely monitored. An effort should be made to ensure that experienced specialists perform gross necropsies on all carcasses.

In some mortality events, early collection and preservation of samples for later analysis may be critical. For example, if a mortality event is precipitated by a toxic discharge, water sampling two or three weeks after the discharge may not detect the toxic compound. In order to enhance the potential of finding the cause of a mortality event, an effort should be made during the monitoring phase to collect and preserve samples that could be used later for diagnosis. If mortalities are localized, water samples should be collected. Sets of tissues appropriate for a range of analyses should be collected. Depending on the type of anticipated analysis, some tissues may be fixed in formalin, and some may be frozen. If available, blood serum from fresh carcasses and affected live animals should be collected and frozen.

Because early monitoring activities will take place before the appointment of an Onsite Coordinator, each NMFS and FWS Region should prepare a basic protocol appropriate for its species and available resources to be used during this period.

INITIAL STEPS

The Marine Mammal Health and Stranding Response Act sets up an initial procedure to be followed if an unusual mortality event is suspected. Members of the Working Group on Unusual Marine Mammal Mortalities are to be consulted to determine if a mortality event actually is occurring.

Criteria for Determining Unusual Mortality Event

The Working Group has developed a set of criteria to be utilized in making this judgment. A single criterion or combination of criteria may indicate the occurrence of an unusual mortality event. The criteria are:

1) A marked increase in the magnitude of strandings when compared with prior records. There is no set formula for determining what magnitude would trigger a response. The NMFS Southeast Region has used a formula of the historic mean plus two times the standard deviation to determine a threshold level. The Working Group stated that magnitude must be weighed against other knowledge. As a pragmatic method, it was suggested that if a pulse in strandings is spread over an area or timeframe that strains the capacity of the Stranding Networks to respond, it should be cause for concern.

2) Animals are stranding at a time of the year when strandings are unusual.

3) An increase in strandings is occurring in a very localized area (possibly suggesting a localized problem), is occurring throughout the geographical range of the species/population, or spreads geographically with time.

4) The species, age, or sex composition of the stranded animals is different than that of animals that normally strand in the area at that time of the year.

5) Stranded animals exhibit similar or unusual pathologic findings or the general physical condition (e.g., blubber thickness) of stranded animals is different from what is normally seen.

6) Mortality is accompanied by behavior patterns observed among living individuals in the wild that are unusual, such as occurrence in habitats normally avoided or abnormal patterns of swimming and diving.

7) Critically endangered species are stranding. Stranding of three or four right whales, for example, may be cause for great concern whereas stranding of a similar number of fin whales may not.

Appointment of Onsite Coordinator

When the determination is made that an unusual mortality event is occurring, NMFS or FWS is responsible for appointing an Onsite Coordinator. The Onsite Coordinator is to be one

or more of the appropriate Regional Directors of NMFS or FWS or their designees. The Onsite Coordinator is responsible for directing the response.

The Onsite Coordinator should have the background and knowledge needed to coordinate a scientific investigation. The Working Group on Unusual Marine Mammal Mortality listed the qualities/skills that the Onsite Coordinator should have:

1) Strong management and leadership abilities including the ability to coordinate a range of support services. The Onsite Coordinator will be responsible for implementing an event-specific plan. In addition, it will be necessary to consult and cooperate with agency headquarters, the Working Group, and other appropriate individuals;

2) Strong communications skills. The Onsite Coordinator will be the primary contact for members of the Working Group and the primary recipient of daily information and reports. (S)he should be diplomatic and calm when working with individuals in a crisis situation;

3) The ability to make decisions with minimal use of intermediaries;

4) The ability to access information and expertise including interagency expertise (e.g., NMFS, FWS, Environmental Protection Agency, U.S. Department of Agriculture, National Biological Service), scientific contacts, and logistical contacts;

5) Familiarity with this contingency plan and associated protocols; and

6) Familiarity with and ability to work with the Marine Mammal Stranding Networks.

Notifications to Accelerate Response

In all mortality events, it is important to accelerate the response, and there are a number of notifications that should take place under the direction of the Onsite Coordinator:

1) Stranding Network members (Addendum A) should be notified that a response to an unusual mortality event has been initiated and that they will be acting under the direction of the Onsite Coordinator. They should be given specific instructions as to steps to be taken in the response.

2) Federal beachfront agencies (Addendum B) should be alerted and provided with instructions as to whom to contact if an animal should strand on their beaches. As in the case of State Wildlife Resource Agencies, it should be determined if such agencies have additional resources, e.g., biological personnel, boats, etc. that can supplement the response.

3) State Wildlife Resource Agencies (Addendum C) should be contacted to alert them to the mortality event and to determine if they can provide resources to assist in responding. The Onsite Coordinator should obtain the names and telephone numbers of field

supervisors in the area who could be contacted for various types of assistance, e.g., biologists, boats and operators, law enforcement personnel.

4) Coast Guard District Headquarters should be alerted and given instructions as to who should be contacted if they observe a stranded animal. They should be notified if a formal enforcement case is likely because the Coast Guard provides joint support to the responsible agencies in law enforcement/fisheries related cases.

5) Potential public health problems may be present during a mortality event. In many instances notification of the appropriate local authorities will be necessary for assistance in restricting access to live animals and rotting carcasses and to ensure that carcasses are disposed of properly. If a serious health hazard, e.g., a serious disease transmissible to humans, is identified, the State Public Health Department should be contacted. In some instances it may be necessary to notify the Centers for Disease Control in Atlanta. The Onsite Coordinator is responsible for reducing safety risks to those working in the field whether those risks are exposure to the animals themselves, to pathogens, or to contaminants.

6) In many areas, local governments serve as the conduit for information on initial reports of stranded animals. In the Northeast, the NMFS Regional Office has prepared a list of all local government police forces. Similarly, local governments have played a major role in areas such as California. Contacts with local agencies that may receive reports of strandings will help to accelerate the response.

7) The FWS (or supporting National Biological Service Science Centers) and NMFS have Regional Laboratories that can provide specific services such as tissue collection, processing, and analyses for toxins and disease-causing agents. Such laboratories should be involved in both advance planning and response.

8) In the Pacific northwest and Alaska, Native American groups are actively involved in marine mammal management, and, in some areas, are dependent on marine mammals for subsistence harvest. In addition, permission from tribal authorities may be necessary to enter specific coastal areas. If a mortality event occurs in such areas, tribal governments or management units such as the Eskimo Walrus Commission should be notified. A list of these groups is included in Addendum E. In addition, an effort should be made to involve Native Americans in the response.

Assessment of Capacities, Capabilities

When live animals are involved, an Onsite Coordinator must make provision for care or, if appropriate, euthanasia of such animals. Among the first actions should be an effort to determine what capacity is currently available in those facilities authorized to rehabilitate stranded animals. If capacity is insufficient, the Coordinator should either make arrangements for expanding capacity or locate backup facilities. In instances when the unusual mortality event is characterized by large numbers of dead animals, the primary foci of activity should be

expeditious recovery and examination of carcasses, complete necropsy of the freshest animals, collection of tissues for relevant analyses, and proper handling and disposal of carcasses.

The response for an event of known cause is likely to be directed primarily toward treatment of affected animals, documentation of specific effects on animals, and, if feasible, intervention to prevent additional mortalities. The Onsite Coordinator should make provision for rescuing live animals and recovering carcasses. Provisions should be made to rehabilitate what may be large numbers of animals under conditions that prevent the spread of pathogens to healthy animals and to prevent animals being rehabilitated from being infected with pathogens from other sources. Possible pathways for infection include not only animals of the same species but humans, domestic animals, and other wild terrestrial and aquatic animals. After consultation with the Working Group, the Onsite Coordinator will be responsible for communicating to facilities any medical tests to be performed and any special provisions for care.

When appropriate, instructions should be provided on tissue collection and chain of custody protocols if legal action is possible. When all other provisions are in place, plans may be made for collecting tissues for opportunistic research.

When the reason for a mortality event is unknown, the primary task will be to identify the cause(s). The Onsite Coordinator must make arrangements for collection, preservation, and storage of tissues until an investigative plan is developed covering all possible causes. Assistance from a variety of specialists may be necessary. An effort must be made to step up the response including carcass recovery so that tissues may be collected in a timely fashion. The condition of a carcass often deteriorates rapidly limiting its suitability for analyses. Therefore, expeditious response is particularly important. The Coordinator must also ensure that necropsies are performed and tissues are collected for analyses following prescribed protocols. Provisions must be made for proper preservation and shipment of tissues to researchers using proper chain of custody procedures.

The Onsite Coordinator will have to determine whether existing human and material resources in the area are adequate. In some areas, the Stranding Networks may be able to provide an adequate response and collect tissues for analysis. There are at least three instances when existing coverage may have to be supplemented: (1) There may be a geographic gap in Network coverage in the area; (2) The magnitude of an event may be such that it is beyond the capacity of the Network to cover effectively; and (3) The necropsy/tissue collection requirements may be beyond the expertise and/or resources of some Network members.

If local resources are inadequate, a response team incorporating the necessary levels of expertise should be mobilized. In specific Regions, such teams may be constituted from NMFS or National Biological Service laboratory personnel. The NMFS Southeast Region developed such a team in responding to the mortality event in Texas in 1992. Similar capacity also exists in NMFS Northwest Region if personnel from the National Marine Mammal Laboratory are used. The National Biological Service's National Wildlife Health Center in Madison, Wisconsin, serves a similar role for species under Interior jurisdiction.

Particularly in the case of cetaceans, the material with which investigators work is likely to be of less than ideal quality. Often, the only carcasses available are those that have washed in and are in varying stages of autolysis. Table 3 adapted from the cetacean laboratory forensic manual shows analyses that can be conducted by condition of a carcass.

TABLE 3.

Guide To Data and Sample Collection for Condition Code 1-5 Marine Mammals

Sample Type	CONDITION CODE 1[1]	2[2]	3[3,4]	4[3]	5
Clinical	■	■			
Respiration rate	■				
Heart rate	■				
Urine sample	■				
Blood sample	■	■			
Life History		■	■	■	■
Stomach & contents		■	■	■	
Jawbone/teeth		■	■	■	■
Skull		■	■	■	■
Rib/spinal section		■	■	■	■
Morphometrics		■	■	■	
Reproductive organs		■	■	■	
Parasites		■	■	■	
Blubber thickness		■	■		
Genetics	■	■	■	■	■
Parasitology	■	■	■	■	
Microbiology	■	■			
Toxicology		■	■		
Histopathology	■	■			
Necropsy		■	■		
External observations					
Site observations		■	■		
Ectoparasites		■	■		
Gross lesions		■	■		
Gross dissection					
Parasites		■	■		
Gross lesions		■	■		
Organs		■			

1. Code 1 animals are reassigned to Code 2 at death.
2. Heart blood collected shortly after death.
3. Morphometrics should be taken on late Code 3 and Code 4 animals only for those measurements that are not altered by decomposition of the soft tissues.
4. Some tissues degrade quickly and will not yield samples suitable for histopathology; judgement is required.

The condition codes are:

Code 1--Live animal

Code 2--Dead, extremely fresh, no bloating, organs fresh

Code 3--Early--minor bloating, skin peeling, organs intact
Late--moderate decomposition, bloating, skin peeling

Code 4--Advanced decomposition, bone exposed, major bloating
skin peeling, internal organs decomposed

Code 5--Mummified or skeletal remains, no organs present

The number of analyses that can be conducted decreases rapidly as a carcass deteriorates. It is, therefore, imperative that an effort be made to recover carcasses quickly.

Aerial Surveys

Because beaches in some areas may be remote or only have limited beach traffic, aerial surveys may help in the detection of carcasses. Such surveys also can provide initial information on the magnitude of an event. The Onsite Coordinator should consider such surveys when an event is occurring in a low traffic area. Among the resources that may be available are NOAA or Coast Guard airplanes and helicopters. The Onsite Coordinator should be aware that while such agencies provide assistance when possible, their primary mission does not include such aerial overflights, and search and rescue operations always take priority. To determine if they can provide assistance, the Onsite Coordinator should contact the appropriate Coast Guard District Headquarters listed above or the NOAA Aircraft Operations Center at (813) 830-3310. If the Onsite Coordinator is unable to use official aircraft, it may be possible to contract for private aircraft or utilize offers from private organizations. Aerial surveys can also provide information on whether carcasses are being reported in a timely fashion in areas where coverage is assumed to be adequate.

The Onsite Coordinator also will be responsible for determining what additional equipment may be needed. Such equipment may range from transportation equipment to make sure that both live animals and carcasses are rapidly retrieved to the equipment necessary to collect tissue samples for analysis. In the past, when existing transportation equipment has not been adequate, trucks have been rented. Because response to an unusual mortality event entails collection of materials beyond the minimum information requirements of normal strandings, respondents may need additional equipment to collect and preserve tissues. As noted above, it is recommended that such equipment be purchased in advance and prepositioned. Whether such a step is taken or not, the Onsite Coordinator will be responsible for provision of equipment when needed.

Environmental Parameters

When the cause of a mortality event is unknown, possible environmental factors that could account for an increase in strandings should be evaluated. It is possible that an increase may be an artifact of changes in current or wind patterns resulting in a higher percentage of carcasses being washed ashore than would normally be the case.

To check on current anomalies, the Coordinator may contact:
NMFS Monterey Laboratory at (408) 656-3311.

Changes in the water temperature may also have an impact on certain species of marine mammals. As an example, in January 1990, over 30 bottlenose dolphins were found dead in Matagorda Bay, Texas, following a cold snap during which ice formed on the Bay (Miller, 1993).

To obtain real time information on sea surface temperatures, the Coordinator may contact the Coast Watch Program of the National Environmental Satellite, Data, and Information Service at (301) 713-3277.

If there are reports of unusual deaths of other animal species such as fish or birds or if the mortality is extremely localized, there is the possibility that a toxic event might be responsible. When initial contacts are made with State wildlife agencies and Federal beachfront agencies, inquiries should be made to determine if they have observed increased mortality of other species. In such instances the Onsite Coordinator will take steps to determine if a toxic phytoplankton bloom has occurred in the vicinity of the mortality event.

The Onsite Coordinator should check with the shellfish monitoring program to determine if there have been shellfish bed closures. Information on shellfish monitoring can be obtained from the State resources agencies that have responsibility for shellfish monitoring in each State.

The Office of the Executive Director of the Interstate Shellfish Sanitation Conference, (803) 788-7559, can provide points of contact within each State.

The Onsite Coordinator also may contact the Marine Biotoxins Program at the NMFS Charleston Laboratory, (803) 762-8529, to initiate investigations into the potential role of a toxic phytoplankton bloom.

The Marine Biotoxins Program has analytical capabilities for rapid response to suspected toxic blooms and has established a network with regional experts and State regulatory agencies to coordinate sample collection, phytoplankton identification, and toxin analysis. Instructions for tissue collection for biotoxin analysis are given below.

It should be noted that biotoxins can pose a human health hazard. They have been responsible for paralytic shellfish poisoning, amnesic shellfish poisoning, and ciguatera poisoning. If there is evidence that such agents may be responsible for a mortality event, seafood safety personnel should be contacted immediately.

Indicators of a direct toxic event caused by anthropogenic contaminants are similar to those for biotoxins. If it is suspected that chemicals in the water may be contributing to a

mortality event, the Coordinator should contact the nearest Regional Office of the Environmental Protection Agency to make arrangements for an initial investigation including water sampling.

EPA Region 1 (ME, NH, MA, CT, RI)
Water Management Division
John F. Kennedy Federal Building
One Congress Street
Boston, MA 02203
(617) 565-3420

EPA Region 2 (NY, NJ, PR, VI)
Water Management Division
Jacob K. Javits Federal Building
26 Federal Plaza
New York, NY 10278
(212) 264-2513

EPA Region 3 (DE, MD, VA)
Water Management Division
841 Chestnut Building
Philadelphia, PA 19107
(215) 597-9410

EPA Region 4 (NC, SC, GA, FL, AL, MS)
Water Management Division
345 Courtland Street, N.E.
Atlanta, GA 30365
(404) 347-4450

EPA Region 6 (LA, TX)
Water Management Division
First Interstate Bank Tower at Fountain Place
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733
(214) 655-7101

EPA Region 9 (CA, HI, GU)
Water Management Division
75 Hawthorne Street
San Francisco, CA 94105
(415) 744-2125

EPA Region 10 (OR, WA, AK)
Water Division
1200 Sixth Avenue
Seattle, WA 98101
(206) 553-1233

In the Southeast Region, the NMFS Laboratory in Charleston, (803) 762-8500, has also conducted water quality analyses. In addition to water quality analyses, it may be necessary to analyze sediments and indigenous fish and invertebrates for the presence of anthropogenic contaminants.

Data Requirements

The Onsite Coordinator also will be responsible for taking such action as will be necessary to determine the impact of a mortality event on the marine mammal population(s) affected. In order to accomplish this task, it will be necessary to compile data on the number of marine mammals affected. In addition, information on the geographic extent of the mortality and factors in population dynamics such as age and sex of animals affected should be collected. Much of this information may be gathered from stranding report forms, but arrangements to compile the information should be made.

If the mortality event is large-scale in relation to the size of the specific population(s) affected, it may be necessary to conduct surveys to determine the impact. Strandings may provide an indication of the magnitude of an event, but they only account for animals that reach shore. To determine the geographic extent of a mortality event, offshore survey work may be necessary. It also may be necessary to prepare abundance estimates for comparison with pre-event population estimates.

ADMINISTRATIVE TASKS

In addition to conducting the investigation, there are a variety of administrative tasks involved in responding to a large-scale unusual mortality event. In past events, NMFS has learned that administrative activities can have an impact on the response to an event. When equipment cannot be ordered in a timely fashion, samples are not carefully tracked, or requests for information impinge on investigative time, the failure to address administrative issues adequately can hinder an investigation. At best, it is difficult to handle both the research tasks and the administrative tasks; at worst, attempting to handle both simultaneously may mean that neither is adequately addressed. A separate team should be set up to work with the Onsite Coordinator on administrative tasks. The size of the team will vary depending on the magnitude of the event, but provision should be made for financial coordination, public information coordination, and tracking of animals and samples. The administrative team must work closely with the Onsite Coordinator in order to meet the needs of the investigation.

Financial Administration

As indicated above, the Act creates a Marine Mammal Unusual Mortality Event Fund to cover the "special" costs incurred in responding to such events. Upon designation of an unusual mortality event the Assistant Administrator for Fisheries may release funds for response. The Onsite Coordinator will determine which expenses will be eligible for reimbursement. The Fund may be used to reimbuse costs not normally part of operating expenses. For example, if it should be necessary to dispatch a response team to the site of a mortality event, the costs incurred other than usual salary expenses could be covered. In addition, once the Onsite Coordinator designates facilities for analyses, contracts for reimbursement will be set up.

The Act also provides that Stranding Network participants shall be reimbursed for costs incurred in the preparation of tissues and shipment of tissues. Such costs may include equipment that must be purchased. The House Report accompanying the bill stated that such reimbursement would be limited to costs beyond normal stranding response. Stranding Network members will not be reimbursed for time, gasoline expenses for response, or for carcass disposal. The House Report details the procedures for reimbursement. The Stranding Network participant must receive authorization from the Onsite Coordinator to incur such expenses, save the receipts, and file a claim for reimbursement. If there are insufficient amounts available in the Fund to satisfy pending claims, they will remain pending until such time as sufficient funds are available. All authorized pending claims will be satisfied in the order received.

Upon release of funds from the contingency fund or after other financial provisions are made, a financial officer will be appointed by the appropriate Regional Office to work with the Onsite Coordinator. The financial officer shall be a certified Contracting Officer's Technical Representative and will work with a certified Contracting Officer to:

1) Negotiate and enter into agreements for reimbursement for services performed in the course of a response to an unusual mortality event. Whenever possible, such agreements should be in writing and describe exactly what services will be performed and what the rate of reimbursement shall be. As an example, it should be determined in advance what types of expenses will be reimbursed for care and rehabilitation of live animals. Contracts will include language stating that disclosure of results without clearance from

the Onsite Coordinator is prohibited. It is also recommended that an initial ceiling level be determined on individual contracts. Without such a ceiling, it may be difficult to control costs. If the ceiling level is reached, an opportunity for reassessment is available.

2) If requested by the Onsite Coordinator, be responsible for locating and ordering supplies and equipment as they are needed.

3) Be responsible for prompt payment for contracted services, purchase orders, and reimbursement for expenses such as travel.

Public Information

Whenever an unusual mortality event occurs, it should be anticipated that there will be public concern and inquiries. It should be emphasized that public interest is legitimate and that the agencies have a responsibility to convey accurate information in a timely manner. Accurate information can help to educate the public and may help in accelerating a response. Speculation and/or inaccurate information may raise undue alarm and do more harm than good, including damaging potential legal aspects of an investigation.

There are two types of situations that should be anticipated: (1) an on-the-beach situation involving interested bystanders and/or (2) media and general public inquiries during the course of an investigation.

The first situation is most likely to occur during mass stranding events, but is also possible during ongoing events. In order to prevent interference with rescue operations and other activities, it is recommended that, when possible (or necessary), an onsite spokesperson be designated. This person should be knowledgeable and able to provide basic information on the species involved, the procedures being undertaken, and operation of Stranding Networks.

Participants in the response to unusual mortality events should be encouraged not to speculate on causes and not to attempt to answer questions beyond their level of knowledge. If an individual does not know the answer to a question, it is acceptable to answer, "I don't know." Even better, take the individual's name and telephone number and promise to get back to them with an answer. The NMFS Office of Public Affairs, (301) 713-2370, or the FWS State or Regional Office, will make an effort to find the answer to specific questions and get back to an individual.

It should be anticipated that there will be media inquiries during the investigation of an unusual mortality event. To the extent feasible, an effort should be made to funnel requests for information to a single individual. That individual may be a public affairs officer designated by the agency or an individual involved in the response. Participants in the response should receive a telephone number where the designated media contact can be reached and should be encouraged to refer inquiries to that individual. The designated media contact should be briefed regularly by the Onsite Coordinator as to progress in the investigation. The media contact should immediately contact local media if there is a public health concern. Whenever working with local media, the media contact should emphasize the importance of a rapid response and emphasize that the general public can provide assistance by reporting strandings as soon as possible.

The media contact should make every effort to be helpful to the media but should avoid speculation as to the cause(s) of an event. Because they can be misleading, partial results of the investigation should not be disclosed without clearance from the Onsite Coordinator. Instead, it

may be worthwhile to discuss the types of analyses being conducted and, using examples of past mortality events, to explain why specific analyses are being conducted. The media contact should not disclose the names of specific researchers involved. During past mortality events, individual researchers have expressed frustration that interruptions from the media have made their task more difficult. If technical questions are received, the media contact may communicate with a researcher in order to answer a media inquiry if such a course of action is recommended by the Onsite Coordinator. In some cases with the approval of the Onsite Coordinator, technical inquiries may be referred to individuals involved in the investigation.

The designated media contact should keep a list of inquiries so that follow-up calls can be made when significant findings occur or when an event is determined to be over.

Tracking of Animals and Samples

It may be necessary to appoint an individual specifically dedicated to tracking live animals and samples. As indicated above, multiple samples may be taken from a single animal and sent to different facilities for analysis. It is important that all analyses from an individual marine mammal be accessible if the goal is to obtain a total picture of an animal's health. All shipments, analyses, and results should be collected in a central data base with all information on an individual animal accessible under a single unique number. Photocopies of all stranding reports, gross necropsies, shipments of tissues, and analytical results should be sent to a central location designated by the Onsite Coordinator for data entry.

Arrangements also should be made to retain voucher specimens, i.e., photographs and skulls. To avoid confusion, the master file should have a single number for all materials from a single animal even if those receiving tissues may assign their own accession number. It is recommended that this number be the field number assigned by the individual who initially collects the animal. When there is a possibility of litigation, special care must be taken to keep a record of the movement of samples, and the protocol for chain of custody should be strictly observed. Arrangements should be made with those participating in the response to provide duplicates of stranding reports and all transmittal forms to the individual responsible for tracking. In addition, copies should be made of all correspondence, analytical results/reports, notes, data sheets, and any other documentation. These copies should be placed in a secure location so that there is complete documentation of the investigation.

In order to facilitate movement of tissues for analysis, the individual responsible for tracking should make arrangements for overnight shipment. This can either be done by furnishing preprinted forms or an account number to participants in the response.

Just as written records of analyses are important, permanently archiving duplicate sets of tissues may assist future investigators. Upon the recommendation of the Onsite Coordinator, the individual responsible for tracking should make arrangements for such archival. Permanent archival may entail making arrangements for formalin-fixed tissues, frozen tissues, and osseous materials. Archival arrangements should be made with institutions rather than with individuals. The Armed Forces Institute of Pathology (202) 782-2600 has indicated a willingness to be a repository for pathology tissue samples. Various museums and institutional members of the Stranding Network maintain collections of skulls and life history materials. As examples, the Smithsonian Institution, Natural History Museum of Los Angeles County, University of Washington Burke Museum, Texas A&M University, and Sea World of Florida all maintain collections of materials from cetaceans. The New England Aquarium has maintained a collection

containing both cetaceans and east coast pinnipeds. The University of Alaska-Fairbanks Museum archives materials from Alaskan marine mammals. Various NMFS laboratories have limited capacity for storage of formalin fixed and frozen tissues. A permanent record of archived materials should be maintained and combined with the records of tissues shipped for analysis.

LIVE ANIMALS

The initial decision involving live stranded animals takes place on the beach. An expert assessment of an animal's condition is necessary before making a decision to take an animal in for rehabilitation, to euthanize it, or to treat it and release it on site. With the exception of mass strandings, the third of these options will be inappropriate in most instances. Such decisions shall only be made by competent professionals.

Available Facilities and Requirements

A list of facilities with experience in treating stranded marine mammals is included as Addendum F. The procedures in this contingency plan are predicated on the assumption that those with previous experience in treating marine mammals are most competent to treat live animals. Nevertheless, such facilities and their veterinarians should make an effort to maintain up to date references on diagnosis and treatment of marine mammal diseases. In addition to the protocol manuals mentioned above, an extremely detailed protocol on care and rehabilitation of sea otters has been prepared (Williams and Davis, 1995). Although designed for response to oil spills, much of the information is applicable to other types of mortality events and to other species of marine mammals. Materials such as the Handbook on Marine Mammal Medicine (Dierauf, 1990) also are useful. The Working Group may prescribe appropriate event-specific treatment measures.

Precautions should be taken to ensure that animals being treated are quarantined from healthy captive animals and that personnel take measures to avoid cross-contamination within the facility.

Although some facilities can accommodate relatively large numbers of pinnipeds and/or sea otters, the physical facility requirements for maintenance of cetaceans are such that only limited numbers of small cetaceans can be treated during a mortality event. Cetaceans and manatees require, at a minimum, pools large enough to accommodate them. Pools should be on a separate water system so that disease cannot be spread to healthy animals within the facility. In the case of an emergency, sea otters and pinnipeds are not totally dependent on pools, and in past epizootics such as the leptospirosis outbreak in 1984, pinnipeds have been accommodated in dry areas with access to fresh drinking water and saltwater baths. Even in such circumstances facilities must have the ability to isolate animals from display animals and terrestrial animals that may either transmit or be exposed to pathogens. The facilities that are authorized to provide treatment for marine mammals and have veterinary services (except for those designated as short-term) are listed in Addendum F.

This list has been provided to the agencies responsible for developing oil spill contingency plans. The Northeast, California, Washington, Oregon, and Alaska have provisions in oil spill contingency plans for involving Stranding Network members in the recovery of carcasses and the rescue and rehabilitation of live animals. In Florida, provisions are in place for manatees, but no arrangements have been made for cetaceans in any of the southeastern states.

Each facility listed in Addendum F has resources for activities such as live animal retrieval, medical diagnostic analyses, and food and pharmaceutical provisions. The costs of such services in an unusual mortality event may be beyond normal operating costs, however, and may create a financial burden. Arrangements for partial reimbursement for special costs should be specifically defined and implemented early in the response.

It should be recognized, however, that even under the best of circumstances, a facility's physical capacity for treatment of live animals is limited. In the case of cetaceans, few facilities can manage more than an animal or two at a time. The 1992-93 El Niño event demonstrated that, even in the case of pinnipeds, facilities can be filled to capacity in a relatively short time. Therefore, attention should be given to methods by which capacity can be expanded in the event of an epizootic. In the case of cetaceans, live stranded animals have occasionally been accommodated in open ocean net pens. Purchase of materials for construction of such pens in advance will expedite expansion of capacity during an unusual mortality event. In the case of pinnipeds, manatees, and sea otters, advance procurement of materials for temporary pools and fencing will help expand capacity.

Release Conditions

To safeguard wild populations of marine mammals, no rehabilitated animals will be released that do not meet the guidelines for release of rehabilitated animals under § 402(b) of the MMPA. In addition, the Working Group will be consulted to determine if there should be event-specific release standards. The release standards should give priority to the health of the wild population over the health of an individual animal. Provision should be made to monitor at least a representative subset of released animals to determine if they survive and resume being functional components of the affected population.

NECROPSY, TISSUE COLLECTION, PRESERVATION, AND ANALYSES

The Onsite Coordinator will be responsible for setting up procedures for necropsy and collection of tissues for analysis. The tissues to be collected and analyses to be performed shall be determined in consultation with the Working Group. The Onsite Coordinator will be responsible for communicating procedures for tissue collection, preservation, and shipment to those involved in responding to strandings.

Tissue samples should be obtained from selected animals during a mortality event in order to: (1) confirm the cause(s) of death when a putative cause has been established from preliminary findings and history; (2) establish the cause(s) of mortality when the origin of the event is unknown; (3) establish the pattern and progression of lesions and other parameters; (4) establish baseline values for such things as contaminants; and (5) provide specimens to be archived for future studies of epizootics. Tissue samples constitute a valuable resource even for events when the etiology appears clear, e.g., environmental disturbance (El Niño, marked changes in water temperature), trauma, biotoxin, or fisheries interaction.

Protocols and Available Trained Personnel

As a necessary first step, complete necropsies should be performed by trained personnel following the protocols contained in the manuals (pages 187-199 in Geraci and Lounsbury, 1993; pages 18-50 in Dierauf, 1994, and section 2.3.4 in Galloway and Ahlquist, in press. Also see Jefferson et al., (1994). Each Region has a list of those individuals with the training necessary to conduct necropsies and their locations. In most instances, these individuals will be able to perform gross necropsies and to collect and prepare tissues for analysis. In instances when an extreme health hazard may be present or the possibility of litigation requires rigorous chain-of-custody procedures, the Onsite Coordinator may have to make special arrangements. Addendum G contains an initial list of Stranding Network members with the expertise necessary to conduct necropsies. The list should be updated periodically. In addition to those listed and agency personnel that might make up a response team, it may be possible to work with veterinary schools and local veterinarians if technical training is provided. A list of veterinary organizations and schools is contained in Addendum H. Regional Stranding Coordinators should contact veterinary schools in advance to determine if there is interest and the ability to perform such functions. As an additional resource, the American Veterinary Medical Association has an Emergency Preparedness unit (800-248-2862 x287).

Sea Otter Provisions

Procedures for sea otters differ from other species. Necropsies and analyses for California sea otters will be performed by the National Wildlife Health Center of the National Biological Service in Madison, Wisconsin. They have an ongoing program to determine the causes of southern sea otter mortality. Sea otter carcasses should not be altered in any way. Carcasses should be cooled (NOT FROZEN) by immersion in iced water and shipped in an insulated container cooled by blue ice.

For sea otter mortalities in Alaska, contact U.S. Fish and Wildlife Service, Marine Mammals Management, (907) 271-2348.

Sample Shipment and Tracking

The Onsite Coordinator should make arrangements for shipment of preserved tissues for analysis. (S)he should determine whether the tissues are to be sent to a central location before shipment for analysis or sent directly to the facility performing a specific analysis. Although not covered by this contingency plan, it should be noted that in the event of a discharge of an anthropogenic contaminant, a resource trustee will be designated to store tissues prior to analysis so that a proper chain-of-custody protocol will be followed. Some analyses such as viral and bacterial analyses are time sensitive, and samples should be shipped directly to the facility performing the analysis. In other instances such as contaminant analysis, tissues do not have to be analyzed within hours and may be preserved at a common collection site. If there are special requirements such as an ultra-cold freezer, the Onsite Coordinator should make such arrangements. Shipping instructions and labels with overnight mail account numbers should be provided to those involved in the collection and preservation of tissues.

Although, as indicated under Administrative Tasks, another individual may actually be responsible for tracking tissues, it will be the responsibility of the Onsite Coordinator to see that this is accomplished. In certain cases such as shipment to the Armed Forces Institute of Pathology, a photocopy of the standard transmittal sheet may be sufficient. When such standard forms are not used, a record of the shipment, the individual animal, and the tissue(s) should be kept so that it is possible to trace results back to the specific marine mammal. It is important that a unique identification number be assigned to each animal and that all tissues from an animal have the same number. Analyses from a single animal may be performed by more than one facility. As an example, certain life history information such as age and reproductive status are required to complement analyses of anthropogenic contaminants. If there is the possibility that litigation may be involved, the chain-of-custody protocol contained in the laboratory manuals should be followed. Recognizing that individual members of Stranding Networks may not have specific items required for adequate chain of command/custody protocols, e.g., a locked freezer with limited access, it is recommended that the chain-of-custody protocol still be followed as closely as possible because it provides an accurate record of where tissues are stored and where tissues are sent.

Specific Types of Analyses

Although by no means exhaustive, the following list includes specific types of analyses that may be required and facilities that have been used in past. Page numbers corresponding to protocols in the previously mentioned manuals are listed.

Blood from live marine mammals

Hematology and serum chemistries can be used to determine if blood values are within normal ranges. Because blood values are used routinely to monitor the health of captive animals, many of the facilities involved in rehabilitation of marine mammals either have their own capacity to conduct such analyses or have made arrangements with clinical laboratories to conduct such analyses. Such analyses also can be conducted by veterinary clinical laboratories or even hospitals that treat humans.

Serum can also be analyzed for the presence/absence of antibodies to specific pathogens. The laboratory needs to be told for which antibodies the serum is to be analyzed. Tests may be run for a specific pathogen or for a suite of pathogens. In the past, the Department of Agriculture's National Veterinary Services Laboratories in Ames, Iowa, (515) 239-8599, USDA's Foreign Animal Disease Diagnostic Laboratory at Plum Island, New York, (516) 323-2500, and Cornell University's Veterinary Diagnostic Laboratory have performed analyses for NMFS. A number of veterinary colleges and clinical laboratories may be able to perform the analyses. If feasible, frozen serum also should be archived for future research.

Geraci and Lounsbury, 1993, pp. 178-181, 200-201
Dierauf, 1994, pp. 4-10

Histopathology

Microscopic examination of tissues is an essential procedure in determination of cause of death and often provides evidence of infectious agents, toxicity or other changes such as immunosuppression. In some areas, there is a practice of freezing carcasses in order to preserve them until a necropsy can be performed at a more convenient time. Freezing of carcasses greatly reduces the usefulness of tissues for histopathology. If necessary, carcasses may be refrigerated (but not frozen) temporarily prior to necropsy. A complete set of tissues should be collected in accordance with the necropsy protocol being utilized. When possible, multiple sets of tissues should be collected from each organ. The tissues should be fixed in 10 percent buffered formalin. In the case of NMFS species, it is highly recommended that examination arrangements be made with the Armed Forces Institute of Pathology (202) 782-2600 through the NMFS National Stranding Coordinator (301) 713-2322.

Geraci and Lounsbury, 1993, pp. 186-187, 216-219
Dierauf, 1994, pp. 51-54
Galloway and Ahlquist, in press, section 2.3.3.3
Bonde et al., 1983, pp. 57-58

Life history

Although the size of cetaceans and pinnipeds can provide a rough estimate of age, teeth should be collected to determine ages in adult animals particularly if contaminant analysis is to be performed. For toothed cetaceans, contact Dr. Aleta Hohn in the NMFS Beaufort Laboratory (919) 728-3595 to make arrangements for reading of growth layer groups from teeth. Similarly, the National Marine Mammal Laboratory (206) 526-4045 can perform the same task for both pinnipeds and cetaceans. Sea otter teeth are read by the National Biological Service in San Simeon (805) 927-3893. For manatees, the Marine Mammal Pathobiology Laboratory of the Florida Department of Environmental Protection (813) 893-2904 uses the periotic bone for age determination.

Stomach contents should be collected and frozen to identify prey species. Among those who have analyzed prey species from stomach contents are Nelio Barros of the Hubbs-Sea World Research Institute (407) 363-2664, James Craddock of Woods Hole Oceanographic Institute, and NMFS' National Marine Mammal Laboratory (206) 526-4045. Intact prey and slurry may also be required for biotoxin analyses or for analysis of ingested toxins such as organophosphate pesticides in instances when acute toxicity is suspected.

Reproductive tracts should be collected and preserved in formalin following the protocols mentioned above. For cetaceans, contact Dr. Aleta Hohn (301) 713-2322 or the National Marine Mammal Laboratory (206) 526-4045.

Geraci and Lounsbury, 1993, pp. 186-187, 199, 202-205
Dierauf, 1994, pp. 13-15, 66
Galloway and Ahlquist, in press, sections 2.3.4.4 and 2.3.5
Bonde et al., 1983, pp 58-59
For preparation of reproductive tracts, also see Akin et al., 1993.

Biotoxins

A number of biotoxins such as saxitoxin (Geraci et al., 1989 and De Gange and Vacca, 1989), brevetoxin (Geraci, 1989 and O'Shea et al., 1991), ciguatoxin (Gilmartin, 1987), and domoic acid could possibly be responsible for mortality events. If biotoxins are present, they are often preceded by an algal bloom and may be accompanied by mortality of other species. If discolored water (red or brown) is noted, whole water samples (100 ml.) should be collected for identification of the bloom organism. Samples should be fixed by the addition of Lugol's iodine or 5% buffered formalin and stored at room temperature until shipment. If possible, 4-gallon whole water samples from discolored areas should be collected for analysis of the toxicity of phytoplankton and stored at room temperature until shipment. (Note that these samples must be shipped to an analytical laboratory within two days, or bloom organisms may die or be overgrown by other species).

Analysis of biotoxins in marine mammals may be complicated by matrix problems, depending on the tissue being analyzed and the condition of the carcass. Therefore, collection of prey and indicator organisms from the area of the stranding may be important. Filterfeeding shellfish (mussels, clams, and oysters) in the area may be good indicators of toxic blooms because they accumulate toxins rapidly and to high levels. In addition, standard analytical procedures are established for shellfish tissue. In order to collect an adequate sample, two dozen shellfish or enough to give 100 g wet weight of tissue should be collected. Whole shellfish samples may be stored refrigerated several days before shipment. Prey fish species should also be collected if possible. Fish should be stored frozen until shipment. Marine mammal tissues potentially suitable for biotoxin analysis include serum, whole blood, liver, whole prey from stomach contents, and stomach content slurries. All samples should be collected in polyethylene tubes (blood) or bags and stored frozen until shipment. Contact the Marine Biotoxins Program of the NMFS Charleston Laboratory, (803) 762-8529 for analytical assistance.

Geraci and Lounsbury, 1993, pp. 205-211
Dierauf, 1994, pp. 59-60
Galloway and Ahlquist, in press, section 2.3.3.4

Heavy metals/organic contaminants

Tissues to be collected for heavy metal/organochlorine analysis include liver, kidney, and blubber. Brain tissue should be collected if direct mortality from organochlorine poisoning is suspected. The protocols set up for such collections are rigorous in order to avoid contamination. If the necessary equipment is not available, larger pieces of tissue should be collected that can be subsampled by the laboratory conducting the analysis. Tissues are to be frozen before shipment. For NMFS species, any laboratory performing contaminant analyses should participate in the Quality Assurance program set up in conjunction with the National Marine Mammal Tissue Bank. The Environmental Conservation Division of the Northwest Fisheries Science Center (206) 860-3330 and the Charleston Laboratory (803) 762-1200 have performed such analyses in the past. Research for FWS on contaminants has been performed by the Patuxent Wildlife Research Center of the National Biological Service (301) 497-5720.

Geraci and Lounsbury, 1993, pp. 205-211
Dierauf, 1994, pp. 60-63
Galloway and Ahlquist, in press, section 2.3.3.4
Bonde et al., 1983, pp. 59-60

Virology/bacteriology/mycology

Samples for such analyses can only be collected from live or recently dead marine mammals. The sampling protocols contained in the field guide and laboratory forensic manuals should be followed. Among possible sources for such analyses are the National Veterinary Services Laboratories of the Department of Agriculture (515) 239-8266, the American Type Culture Collection (301) 881-2600, the National Wildlife Health Center of the National Biological Service (608) 264-5411, the NMFS Charleston Laboratory (803) 762-1200, Dr. Mel Eklund of the Northwest Fisheries Science Center (206) 860-3380, and Dr. John Buck of Mote Marine Laboratory (813) 388-4441.

Geraci and Lounsbury, 1993, pp. 186-187, 211-216
Dierauf, 1994, pp. 54-55, 57-59
Galloway and Ahlquist, in press, section 2.3.3.5
Bonde et al., 1983, pp. 60-61

The list of analyses discussed here is general in nature. It may be necessary to collect additional tissues and perform additional analyses depending on the nature of the event. As an example, if there is a question as to whether an organophosphate or a carbamate pesticide compound may have been responsible for an acute mortality, it might be necessary to collect extremely fresh brain tissue or blood to test for acetylcholinesterase inhibition and stomach

contents for residue analyses. In such instances, it may also be necessary to obtain blood from healthy animals to determine "normal" acetylcholinesterase activity. Additional analyses may be prescribed in consultation with the Working Group. For additional analyses, a specific tissue collection protocol should be prepared.

Conditions on Disclosure of Results

Without authorization from the Onsite Coordinator, individuals who are reimbursed for performing analyses as part of an investigation may not disclose results to outside parties. Disclosure of partial results may be misleading. Additionally, no facility may withhold information from the Onsite Coordinator. Such conditions should be included in any contracts issued in the course of a response to a mortality event. If an individual or facility is unwilling to abide by such conditions, the Onsite Coordinator will use another facility.

In the past, there sometimes has been a question as to the availability of research data because individual researchers have a proprietary interest in publishing their own results. Because a declared unusual marine mammal mortality event is an emergency situation, all results of research will be provided as soon as it is feasible to the Federal agency responsible for the response. Currently, Letters of Authorization provide that Stranding Network members must cooperate with NMFS. A refusal to provide information during a mortality event should be viewed as non-cooperation. While NMFS and FWS are sensitive to the desire of individual researchers to receive the credit for research that they have conducted, in an investigation of an unusual mortality event, timely receipt of information becomes paramount.

In order to protect the interests of individual researchers, it is the position of NMFS and FWS that partial results of an investigation shall not be released to the general public without compelling circumstances. Once an investigation has been completed, however, the investigative results may be subject to disclosure.

SPECIAL CIRCUMSTANCES

This contingency plan is structured to anticipate common actions that can be undertaken with a degree of flexibility. However, in some mortality events, special circumstances may dictate additional actions. These include: an event when there may be litigation; an event when a live capture is recommended; and mass strandings.

Possibility of Litigation

If there is evidence that a mortality event may have been caused by human action such as an oil discharge, toxic chemical release, or pesticide runoff, it is possible that litigation may result. Even though other agencies have responsibility for mounting a response to known oil discharge or hazardous chemical release, there are instances when such events may not be obvious, and it is important to maintain an evidentiary record. An extremely localized event with a number of different species affected may indicate such a cause. If the Onsite Coordinator suspects that human action may be responsible, consultations should be undertaken with the NOAA Office of General Counsel or the Office of the Solicitor in the Department of the Interior.

Live Capture

There may be instances when the capture of live animals may be necessary to provide information that cannot be gained from stranded carcasses. Capture and sampling of live animals may provide baseline information with which to make comparisons. Blood serum samples can provide information on past disease exposure and help determine if a disease is enzootic in a particular population. Collection of information on bacteriology and virology from autolyzed tissues can be problematic. Sampling of orifices from live animals can provide materials to be analyzed for microbiology. Impression smears and fine needle aspirates of lesions can provide material for cytologic diagnosis. Biopsies can provide samples for microbiology, contaminant analysis, and histopathology.

Capture of moribund animals that are still capable of swimming may also help determine the etiology of a mortality event. In addition to observing the progression of the medical condition, medical diagnostic tests can be performed that might not be possible if dead animals are the only source of samples. If moribund animals die or are sacrificed, individuals performing gross necropsies or harvesting tissues may have high quality materials for analysis.

During past mortality events, there have been instances when emergency authorizations have been given to capture live animals. Such operations require special equipment and trained individuals. Capturing a free swimming dolphin or a pinniped hauled out on a rock is difficult and potentially dangerous.

When live capture recommendations were made during past dolphin mortality events, the need to obtain equipment and experienced personnel caused delay. In some areas, the responsible agencies have adequate resources for live capture operations. In the case of manatees, FWS has both the necessary equipment and personnel. As a result of the sea otter translocation project, FWS has both the personnel and equipment needed for the live capture of sea otters off the coast of California. The NMFS Southeast Science Center has personnel with experience, and much of the equipment required. In addition, Mote Marine Laboratory has personnel with experience and

immediate access to the equipment required, and Texas A&M University has personnel experienced in live cetacean capture. On the west coast, NMFS personnel have been involved with live capture of pinnipeds for collection of scientific information but have little experience with cetaceans. In Alaska, the Alaska Department of Fish and Game has live capture experience with pinnipeds and belugas (*Delphinapterus leucas*). The University of Alaska-Fairbanks and the North Slope Borough also have captured pinnipeds for scientific research. FWS has experience in Alaska with the capture of walrus, sea otters, and polar bears.

It is recommended that NMFS develop teams that can carry out live capture operations on all coasts for cetaceans and pinnipeds. Each capture team should have individuals experienced in taking samples and cooperating veterinary personnel to monitor and ensure the safety and humane handling of the animals. A list of veterinarians who would be willing to participate in such operations should be developed in advance.

NMFS also should locate sources of specialized equipment needed for each of the teams and/or purchase such equipment. Depending on the local area, such equipment may be available from a number of different sources. Although it can be assumed that boats can be located relatively easily in the area of a capture, equipment such as specialized netting may be difficult to obtain in a timely fashion.

Live capture emergency authorizations may be issued by the NMFS Office of Protected Resources (301) 713-2289 or the FWS Permit Office (703) 358-2104. Such authorizations will only be issued if the Working Group has recommended such action in order to determine the cause of an event. Requests for live capture authorizations must contain the following information:

1) The questions or uncertainties that can be addressed by a live capture operation;

2) The location(s) of captures and the numbers of animals proposed to be captured. If variables such as age or sex of animals are to be considered in capture operations, they should be noted;

3) If the request involves sacrifice of animals, an explanation of why non-lethal methods are unacceptable must be included;

4) A description of the methods, equipment, and personnel to be involved in the capture. The proposal must contain adequate measures to ensure the safety of the marine mammals and humans involved. It should also identify veterinary personnel involved; and

5) A complete protocol listing the tissues to be collected, how they will be collected and preserved, and the analyses to be performed. The request for such an authorization must also specify what facility or facilities will perform the analyses.

Before issuing an emergency authorization, FWS or NMFS will forward the request as soon as feasible to the Marine Mammal Commission for independent review and comment.

Independent Research

FWS and NMFS recognize that mortality events may provide an opportunity to conduct independent research related to the ongoing investigation or to address other scientific questions. To the extent feasible, NMFS and FWS will attempt to accommodate outside requests for tissues if they do not inhibit the ongoing investigation. Even if approved, the availability of tissues will be subject to the willingness of participants in the response to collect and preserve tissues for the independent researcher. It should be recognized that time constraints may prevent such actions, and the individuals harvesting tissues are under no compulsion to provide samples for independent research. Requests for utilization of tissues will be approved under the following conditions:

1) An acceptable scientific protocol must be submitted that describes the analyses to be performed, their objectives, a description of the methodology to be used, and the methods used to preserve the tissues. If the proposed research is related to the ongoing investigation, it will be reviewed by the Onsite Coordinator and the Working Group. If unrelated to the ongoing investigation, the proposed research will be reviewed by the NMFS Office of Protected Resources (301) 713-2322 or the FWS Office of Management Authority (703) 358-2104 in consultation with the Marine Mammal Commission.

2) Requests for tissues may not compromise the availability of tissues for other analyses being conducted under the authority of the Onsite Coordinator including the maintenance of replicate samples.

3) Until the completion of the investigation, data obtained from authorized independent research projects may not be released to the public without the advance approval of the Onsite Coordinator.

4) Unless explicitly authorized by the Onsite Coordinator, approval of an independent research proposal will not include the authority to collect stranded animals or tissues therefrom.

5) Participants in the response who are collecting tissues are under no compulsion to provide tissues to independent researchers. It is recommended that independent researchers provide tissue collection, preparation, and mailing materials to the individual or organization harvesting tissues.

Mass Strandings

Odontocete species periodically mass strand. A mass stranding is a simultaneous stranding of an entire group of marine mammals. Although they are not necessarily unusual, mass strandings do represent a special circumstance when a mobilization is necessary to rescue as many of the animals as feasible. The response must be rapid, and the procedures of consulting the Working Group and appointing an Onsite Coordinator will not be possible. Protocols are currently in place for responding to mass strandings in Massachusetts, Florida, California,

Oregon, and Washington. The protocols differ according to available resources. On Cape Cod, where there are more mass strandings than in any other area, an elaborate protocol has been set up including a phone tree for over 500 volunteers, check-in procedures at the site, triage procedures, ocean holding sites for live animals, and a list of local jurisdictions that are willing to provide assistance. In California, where few mass strandings have occurred, the protocol is primarily designed to ensure that lines of authority are established and local resources are identified.

Although the first priority of a response to a mass stranding is human safety and the welfare of the animals, such an event may provide the opportunity to gain knowledge about particular species. Knowledge of the biology of the Atlantic white-sided dolphin (*Lagenorhynchus acutus*) (St. Aubin and Geraci, 1979 and Sergeant et al, 1980), the spinner dolphin (*Stenella longirostris*) (Mead et al, 1980), and the false killer whale (*Pseudorca crassidens*) (Odell et al, 1980) increased markedly as a result of information gained from mass strandings. If an unusual species is involved in a mass stranding, an effort should be made to collect a maximum amount of information from each animal.

Mass strandings have also been approved as a source of tissues for the National Marine Mammal Tissue Bank (NMMTB). The NMMTB has been set up to archive tissues that can be used for contaminant analysis. The tissues are collected following a rigorous protocol (available from the Office of Protected Resources (301) 713-2322) and preserved in liquid nitrogen at the National Institute of Standards and Technology for retrospective analysis. Whenever a mass stranding occurs, the NMMTB should be contacted to determine if collection of tissues is feasible (301) 975-6291 or (301) 975-3112.

Because of the special circumstances involved and the difficulty in controlling costs, funds from the Marine Mammal Unusual Mortality Event Fund will not routinely be released for a response to a mass stranding. At the discretion of the Secretary of Commerce, compensation may be provided for specific expenses incurred in responding to a mass strandings.

POST-EVENT ACTIVITIES

Report

The Onsite Coordinator will be responsible for preparing a report of the unusual mortality event. The report will be prepared in draft for peer review by the Working Group or any individuals that the Working Group may designate as peer reviewers.

The report will contain results of analyses even if they are not directly relevant to the ultimate finding(s) because they may contain valuable baseline information. The report also should provide an assessment of the response and suggestions for improving responses in the future, including suggestions for revisions in protocols and/or the Contingency Plan. The report should also acknowledge all of those who made a contribution.

The report also will contain an assessment of the impact of the mortality event on the affected population(s). In some instances when a limited mortality event has affected a large marine mammal population, the conclusion may be that the event only had a minimal impact. If there has been a large-scale mortality or a vulnerable population has been affected, a more detailed analysis will be necessary. In order to accomplish such a task, it may be necessary to develop an estimate of total mortality in relation to abundance estimates and information on population dynamics, e.g., have specific age cohorts been disproportionately affected. If there is evidence of a significant impact, the report may contain recommendations for population monitoring. Such recommendations may include survey and research projects to better characterize population abundance and dynamics. Because such activities are part of the general management mandates given to FWS and NMFS, they should be incorporated into the more generic management programs of the agencies.

As a general principle, monitoring activities and/or specific recovery actions (and possibly preparation of a conservation or recovery plan) probably are warranted if there is evidence that a mortality event has reduced a population beneath its Optimum Sustainable Population (OSP) level. For species that are beneath OSP, i.e., depleted, threatened, or endangered, a mortality event that affects more animals than an annual net recruitment level may require population monitoring. In the case of cetaceans, the default value for this figure will be a mortality level of two percent of the population. In the case of pinnipeds, the same threshold would be a mortality level of six percent of the population.

Follow-up Activities

Once the report is finalized, copies will be provided to those who contributed, and it will be released to the public. When the report is released, all data, information, and results of analyses will be available to the public.

In past mortality events, one of the post-event activities that is easiest to accomplish has sometimes been neglected. The participants in a response should receive thanks for their efforts. Given the volunteer nature of the Stranding Network, receipt of information on the results of their efforts and an acknowledgement that their efforts have been appreciated provide incentives for continuing participation. The Onsite Coordinator is responsible for these actions.

Tissue Access

The agency responsible for the response will set conditions for access to tissues used in the investigation. In instances when researchers want to examine things such as histopathology slides, access should be unimpeded. If a researcher requests tissues that could result in destructive analysis of the tissue, a decision will be made based on an assessment of the proposed research activity, the availability of appropriate tissues, and the need to retain archival tissues.

Post-Event Monitoring

Even after an unusual mortality event has run its course, there may be a reason to continue monitoring an individual population for additional impacts. If continued monitoring is determined to be necessary, the Working Group will prescribe which tissues should be collected and what analyses should be performed. It is not intended that the full set of analyses performed during the response to the mortality event should be prescribed. Post-event collection activities shall be communicated to members of the Stranding Networks. Such post-event monitoring activities will not be funded from the Marine Mammal Unusual Mortality Event Fund. Instead, such activities should be considered part of the individual agency's normal management responsibilities under other provisions of the MMPA or, when appropriate, the Endangered Species Act.

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ADDENDUM A
STRANDING NETWORK MEMBERS BY STATE

Note: To safeguard the privacy of non-governmental Stranding Network members, addresses are limited to the city, and telephone numbers are not provided when there may be an issue of personal privacy. FWS and NMFS Regional Offices have this information as well as FAX numbers and, in some instances, the capability of communicating with Network members via computer. It should be noted that Stranding Network members may be authorized for different levels of activity depending on their level of expertise.

MANATEES

A toll-free number has been set up in Florida to report manatee strandings. It is 1-800-342-5367.

The Manatee Coordinator for U.S. Fish and Wildlife Service is in the Jacksonville, FL, office, (904) 232-2580. Other FWS Offices in the Region are:

Endangered Species Division
U.S. Fish and Wildlife Service
75 Spring Street, S.W.
Atlanta, GA 30303
(404) 679-7096

Chassahowitzka National Wildlife Refuge
7798 S. Suncoast Blvd.
Homosassa, FL 32646
(904) 563-2088

Network Members

Marine Mammal Pathobiology Laboratory
Florida Department of Environmental Protection
3700 54th Ave., S.
St. Petersburg, FL 33711
(813) 893-2904

Jacksonville Field Station
Florida Department of Environmental Protection
7825 Baymeadows Way
Central Building, Suite 200B
Jacksonville, FL 32256-7577
(904) 723-5845

Tequesta Field Station
Florida Department of Environmental Protection
19100 S.E. Federal Highway
Tequesta, FL 33469-1712
(407) 575-5407

Melbourne Field Station
Florida Department of Environmental Protection
Melbourne, FL
(407) 984-7757

Port Charlotte Field Station
Florida Department of Environmental Protection
Port Charlotte, FL
(941) 255-0777

Office of Protected Species Management
Florida Department of Environmental Protection
Marjory Stoneman Douglas Bldg.
3900 Commonwealth Blvd.
Tallahassee, FL 32399
(904) 922-4330

Sirenia Project Laboratory
National Biological Service
412 N.E. 16th Ave., Room 250
Gainesville, FL 32601
(904) 372-2571

Dr. John E. Reynolds, III
Department of Biology and Marine Science
Eckerd College
St. Petersburg, FL 33733
(813) 864-8431

Miami Seaquarium
4406 Rickenbacker Causeway
Miami, FL 33149
(305) 361-5705 ext. 240

Living Sea/Epcot Center
P.O. Box 10,000
Lake Buena Vista, FL 38830-1000
(407) 560-7688

Sea World of Florida
7007 Sea World Drive
Orlando, FL 32821
(407) 363-2364

Lowry Park Zoo
7530 North Blvd.
Tampa, FL 33604
(813) 935-8552

Homosassa Springs State Wildlife Park
9225 West Fishbowl Drive
Homosassa, FL 32646
(904) 628-5343

Florida Marine Patrol
1-800-DIAL-FMP

Blue Spring State Park
2100 West French Ave.
Orange City, FL 32763
(904) 775-3663

Dolphin Research Center
P.O. Box 2875
Marathon Shores, FL 33052
(305) 289-0002

Rookery Bay National Estuarine Research Reserve
10 Shell Island Road
Naples, FL 33962
(941) 775-8845

Amber Lake Wildlife Refuge and Rehabilitation Center
297 Artists Ave.
Englewood, FL 34223
(941) 475-4585

Mote Marine Laboratory
1600 Thompson Parkway
Sarasota, FL 34236
(941) 388-4441

Marineland of Florida
9507 Ocean Shore Blvd.
Marineland, FL 32086-9602
(904) 471-1111

Caribbean Stranding Network
Department of Marine Sciences
University of Puerto Rico, RUM
P.O. Box 908
Lajas, Puerto Rico 00667-0908
(809) 899-2048

SEA OTTERS IN CALIFORNIA

The Sea Otter Hotline Number is (408) 648-4829. The U.S. Fish and Wildlife Office in Ventura, CA, is responsible for administration, (805) 644-1766.

Network Members--Live Sea Otters

Marine Mammal Center (Sausalito) (415) 289-7325

Monterey Bay Aquarium (Monterey) (408) 648-4829 or (408) 649-4840

Sea World of California (San Diego) (619) 226-3830 or (619) 222-6362

Network Members--Dead Sea Otters

Ano Nuevo Area:	
Ray Bandar-California Academy of Sciences	(415) 334-6341
Karen Cebra-California Academy of Sciences	(415) 750-7177
Burney Le Boeuf-U.of Cal., Santa Cruz	(408) 459-2845
Santa Cruz Area:	
Jim Estes-National Biological Service	(408) 459-2820
Mike Kenner-National Biological Service	(408) 459-3244
Monterey Area:	
Michelle Staedler-Monterey Bay Aquarium	(408) 648-4976
Alisa Giles-Monterey Bay Aquarium	(408) 648-4973
Jack Ames-Cal. Dept. of Fish and Game	(408) 649-2893
Cambria and San Simeon Area:	
Brian Hatfield-National Biological Service	(805) 927-3893
Morro Bay Area:	
Fred Wendell-Cal. Dept. of Fish and Game	(805) 772-1714
Michael Harris-Cal. Dept of Fish & Game	(805) 772-1135
Santa Barbara and Ventura Area:	
Kate Symonds-U.S. Fish & Wildlife Service	(805) 644-1766

POLAR BEARS, SEA OTTERS, AND WALRUS IN ALASKA

Marine Mammals Management
U.S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, AK 99503-6199
(907) 786-3800

NMFS NORTHEAST REGION

The NMFS Northeast Regional Stranding Coordinator is in the NMFS Regional Office in Gloucester, MA, (508) 281-9138.

Maine

Tom Fernald
Allied Whale
College of the Atlantic
105 Eden Street
Bar Harbor, ME 04609
(207) 288-5015

James Gilbert
University of Maine
School of Forest Resources
Orono, ME 04469
(207) 581-2866

Massachusetts

Governmental Units

NMFS Northeast Region
One Blackburn Drive
Gloucester, MA 01930-2298
(508) 281-9138 or (508) 281-9328

Marine Mammal Investigation
NMFS Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026
(508) 548-5123

National Park Service
Cape Cod National Seashore
South Wellfleet, MA 02663
(508) 349-3785

U.S. Fish and Wildlife Service--Region 5
300 Westgate Center Drive
Hadley, MA 01035-9589
(413) 253-8615

Massachusetts Division of Fish and Wildlife
Nongame and Endangered Species
100 Cambridge Street
Boston, MA 02202
(617) 727-3151

Massachusetts Coastal Zone Management
100 Cambridge Street, Room 2000
Boston, MA 02202
(617) 727-9530

Non-governmental Units

New England Aquarium
Central Wharf
Boston, MA 02110
(617) 973-5246, Hotline: (617) 973-5247
Note: the Aquarium is the Letterholder for the State. Others are those who may be called upon for mass strandings and/or to supplement response.

Mason Weinrich
Cetacean Research Unit
P.O. Box 159
Gloucester, MA 01930
(508) 281-6351

New England Whale Watch
54 Merrimack Street
Newburyport, MA 01912
(508) 465-7165

Center for Coastal Studies
P.O. Box 1036
Provincetown, MA 02657
(508) 487-3622

Cape Marine Animal Rescue and
Conservation, Inc.
Box 1524
Brewster, MA 02631
(508) 896-3328

International Wildlife Coalition
70 E. Falmouth Highway
E. Falmouth, MA 02536
(508) 548-8328, Ext. 220 or 200

International Fund for Animal Welfare
382 Woods Hole Road
Falmouth, MA 02540
(508) 540-8335

Woods Hole Oceanographic Institute
Woods Hole, MA 02543
(508) 457-2000

Connecticut

Mystic Aquarium
55 Coogan Blvd.
Mystic, CT 06355-1997
(203) 536-9631, Ext. 107
Note: Also provides coverage for Rhode Island.

New York

Wildlife Resources Center
NYSDEC - Nongame Unit
Delmar, NY 12054-9767
(518) 439-0198

OKEANOS Ocean Research Foundation
431 East Main Street
Riverhead, NY 11901
(516) 369-9840

Aquarium for Wildlife Conservation
Surf Avenue and West 8th Street
Brooklyn, NY 11224
(718) 265-3440

New Jersey

Marine Mammal Stranding Center
P.O. Box 773
Brigantine, NJ 08203
(609) 266-0538

Delaware

Delaware Division of Fish and Wildlife
P.O. Box 1401
Dover, DE 19903
(302) 739-4782

Maryland

Oxford Cooperative Laboratory
Maryland Department of Natural Resources
904 S. Morris Street
Oxford, MD 21654
(410) 576-3853

National Aquarium in Baltimore
Pier 3, 501 E. Pratt Street
Baltimore, MD 21202
(410) 450-3852

Assateague Island National Seashore
7206 National Seashore Lane
Berlin, MD 21811
(410) 641-1443

Virginia

Virginia Marine Science Museum
717 General Booth Blvd.
Virginia Beach, VA 23451
(804) 437-4949

Virginia Institute of Marine Science
College of William and Mary
Gloucester Point, VA 23062
(804) 642-7313

Virginia Department of Game and Inland Fisheries
4010 Broad Street
P.O. Box 11104
Richmond, VA 23230-1104
(804) 367-1000

Other

Dr. James Mead and Charles Potter of the Division of Mammals, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560, (202) 357-1923, have as much experience in responding to stranded animals and collecting tissues from them as anyone in the country.

NMFS SOUTHEAST REGION

The Regional Coordinator for the Southeast Stranding Network is in the NMFS Regional Office in St. Petersburg, FL, (813) 570-5312. In addition, the NMFS Southeast Fisheries Science Center has assumed the major role in working with the Network. They have set up a NMFS State Representative system based out of NMFS laboratories to work with Network members and move reporting closer to real time. The Coordinator of this system is based at the NMFS Southeast Fisheries Science Center in Miami, FL, (305) 361-4299 or (305) 361-4264. The current NMFS Stranding Network Representatives are:

North Carolina

Vicky Thayer
NMFS Beaufort Laboratory
101 Pivers Island Road
Beaufort, NC 28516-9722
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In addition, a scientific coordinator has been designated for the Southeast Region. He is Dan Odell, Sea World of Florida, Orlando, Florida, (407) 363-2662.

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North Carolina Division of Marine Fisheries
Morehead City
(919) 726-7021

North Carolina Office of Marine Affairs
417 Blount Street
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North Carolina State Museum of Natural History
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Environmental Management Dept.
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Bald Head Island Conservancy
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Bald Head Island, NC 28461
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Awendaw
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Watson McCaskill
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(407) 853-3281

Florida Department of Environmental Protection
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Florida Marine Conservation Corporation
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Dolphin Research Center
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The Florida Aquarium
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Florida Department of Environmental Protection
Marine Mammal Pathobiology Laboratory
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Dr. Bill Goldston
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Gulf World
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Panama City Beach, FL 32407
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Gulfarium
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Ft. Walton Beach, FL 32548
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Gulf Islands National Seashore
1801 Gulf Breeze Parkway
Gulf Breeze, FL 32561
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EPA Laboratory
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Stranding Hotline (800) 799-6637

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Gulf Coast Research Laboratory
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Ocean Springs, MS 39566
(601) 872-4211

Marine Life Oceanarium
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Gulfport, MS 39502-4078
(601) 864-2511

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Stranding Hotline (800) 799-6637

Louisiana Department of Wildlife and Fisheries
Louisiana Natural Heritage Program
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Stranding Hotline (800) 9-MAMMAL

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Texas Marine Mammal Stranding Network
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Note: The Texas Network is administratively centralized through Texas A&M University, but there are Network participants along the coast including:

University of Texas Medical Branch
Galveston

Texas Department of Parks and Wildlife
Austin

Marine Science Institute
University of Texas
Port Aransas

Texas A&M University-Corpus Christi
Corpus Christi

University of Texas-Pan American
South Padre Island

Padre Island National Seashore
Corpus Christi

Sea World of Texas
San Antonio

Gladys Porter Zoo
Brownsville

Puerto Rico

Caribbean Stranding Network
Department of Marine Science
University of Puerto Rico
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(809) 899-2048

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Humboldt State University
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(707) 826-4872

Northcoast Marine Mammal Center
424 Howe Drive
Crescent City, CA 95531
(707) 464-7448

The Marine Mammal Center
Marin Headlands
Golden Gate National Recreation Area
Sausalito, CA 94965
(415) 289-7325

Marine World Africa USA
100 Marine World Parkway
Vallejo, CA 94589
(707) 644-4000, Ext. 242

Northcoast Redwoods District
California Department of Parks and Recreation
600-A West Clark Street
Eureka, CA 95501
(707) 445-6547

Redwood National Park
P.O. Box 7
Orick, CA 95555
(707) 464-6101

Humboldt Wildlife Care Center
Arcata
(707) 826-1583

Marine Resources Division
California Department of Fish and Game
619 2nd Street
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(707) 445-6499

U.S. Coast Guard
Group Humboldt Bay
McKinleyville, 95521
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Department of Biology
Mendocino Coast Branch
College of the Redwoods
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(707) 961-1001

Marine Resources Division
California Department of Fish and Game
19160 South Harbor Drive
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California Department of Parks and Recreation
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Mendocino, CA 95460
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California Academy of Sciences
Golden Gate Park
San Francisco, CA 94118
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University of California
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4990 Shoreline Highway
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Point Reyes National Seashore
Point Reyes, CA 94956
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Bodega Marine Laboratory
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Bodega, CA 94293
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Russian River District
California Department of Parks and Recreation
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Doran Regional Park
P.O. Box 372
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MSO San Francisco Bay
Coast Guard Island, Building 14
Alameda, CA 94501
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U.S. Coast Guard, Pt. Brower
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Station Rio Vista
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San Francisco Bay National Wildlife Refuge
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Animal Care Services
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Marine Resources Division
California Department of Fish and Game
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Animal Control
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Animal Control
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Beach Maintenance
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Naval Weapons Station
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City of Huntington Beach
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Huntington Beach, CA 92648
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561 City Drive South
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Orange County Sheriff's Department
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Corona del Mar, CA 92625
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Lifeguard Service
City of Newport Beach
3300 Newport Blvd.
Newport Beach, CA 92659-1761
(714) 673-3360

Newport Beach Animal Shelter
125 Mesa Drive
Costa Mesa, CA 92627
(714) 644-3656

Animal Shelter
City of San Clemente
320 Avenida Pico
San Clemente, CA 92672
(714) 361-8205

Newport Beach Animal Control
870 Santa Barbara Drive
Newport Beach, CA 92658-7000
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(310) 510-0221

University of Southern California Marine Science Center
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Avalon, CA 90704
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Catalina Island Marine Institute
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Avalon, CA 90704
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Fort MacArthur Marine Mammal Care Center
3601 South Gaffey Street
San Pedro, CA 90731
(310) 548-5667

Beach Lifeguard Service
City of Seal Beach
211 Eighth Street
Seal Beach, CA 90740
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Catalina Island Lifeguard Headquarters
Department of Beaches and Harbors
County of Los Angeles
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North County Humane Society
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(619) 757-4357

Animal Services
City of Coronado
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(619) 522-7371

Department of Marine Safety
City of Solana Beach
P.O. Box 311
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Office of Oil Spill Prevention and Response
California Department of Fish and Game
P.O. Box 944209
Sacramento, CA 94244-2090
(916) 445-8285

Hawaii

All stranding responses in Hawaii are centrally coordinated by the NMFS Pacific Area Protected Species Program Coordinator, (808) 973-2987. All calls should initially be made to this office, and the office will make the follow-up calls. By island, Stranding Network participants include:

Kauai

Division of Aquatic Resources
Hawaii Department of Land and Natural Resources
3060 Eiwa Street, Room 306
Lihue, HI 96766

Walter Haas, DVM and David Haas, DVM
Lihue Veterinary Hospital
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Kauai National Wildlife Refuge
P.O. Box 87
Kilauea, HI 96754

Kauai County Public Works
3021 Umi Street
Lihue, HI 96766

Hawaii

Division of Aquatic Resources
Hawaii Department of Land and Natural Resources
P.O. Box 936
Hilo, HI 96721

Hawaii County Public Works
630 Lanikaula Street
Hilo, HI 96720

U.S. Coast Guard
P.O. Box 4819
Hilo, HI 96720

Hawaii Preparatory Academy
P.O. Box 428
Kamuala, HI 96743

Marta Lepes, DVM
Hilo Veterinary Clinic
701 Kanoelehua Avenue
Hilo, HI 96720

Maui

Roger Kehler, DVM
Kihei Veterinary Clinic
P.O. Box 1669
Kihei, HI 96753

Division of Aquatic Resources
Hawaii Department of Land and Natural Resources
70 S. High Street
Wailuku, HI 96793

Maui County Department of Public Works
200 S. High Street
Wailuku, HI 96793

U.S. Coast Guard
BMC Leavitt
Maalaea Road
Wailuku, HI 96793

Hawaiian Islands Humpback Whale National Marine Sanctuary
726 South Kihei Road
Kihei, HI 96753

Molokai

Division of Aquatic Resources
Hawaii Department of Land and Natural Resources
Hoolehua, HI 96729

Maui County Department of Public Works
P.O. Box 526
Kaunakakai, HI 96748

Lanai

Hawaii Department of Land and Natural Resources
P.O. Box 1
Lanai, HI 96763

Maui County Department of Public Works
P.O. Box 793
Lanai, HI 96763

Oahu

NMFS Pacific Area Office
2570 Dole Street, Room 105
Honolulu, HI 96822

Sea Life Park
Makapuu Point
Waimanalo, HI 96795

Waikiki Aquarium
2777 Kalakaua Street
Honolulu, HI 96815

Dave McKay, DVM
Kaneohe Veterinary Clinic
45-480 Kaneohe Bay Drive
Kaneohe, HI 96744

Howard Blatt, DVM
Honolulu

Michelle Magee, DVM
NOSC
P.O. Box 997
Kailua, HI 96734

Charla Jones, DVM
Kaneohe

Tom Sawa, DVM
Division of Animal Husbandry
Department of Agriculture
99-762 Moanalua Road
Aiea, HI 96701

Honolulu County Department of Public Works
650 S. King Street
Honolulu, HI 96813

U.S. Coast Guard OLE
300 Ala Moana Blvd., Ninth Floor
Honolulu, HI 96850

Thierry Work, DVM
USFWS
3 Waterfront Plaza, Suite 580
500 Ala Moana Blvd.
Honolulu, HI 96813

Division of Aquatic Resources
Hawaii Department of Land and Natural Resources
1151 Punchbowl Street, Room 330
Honolulu, HI 96813

Annette Freeman, DVM
NOSC
P.O. Box 997
Kailua, HI 96734

Hawaiian Islands Humpback Whale National Marine Sanctuary
P.O. Box 50186
Honolulu, HI 96850

Northwestern Hawaiian Islands

Marc Webber
USFWS
Tern Island National Wildlife Refuge
P.O. Box 50167
Honolulu, HI 96850

NMFS NORTHWEST REGION

The Northwest Regional Stranding Coordinator is in the NMFS Northwest Regional Office, (206) 526-6733. Participants in the Stranding Network include:

Oregon

Oregon State Police
Central Dispatch
3710 Portland Road, N.E.
Salem, OR 97310
(800) 452-7888

Wildlife Division
Oregon Department of Fish and Wildlife
P.O. Box 59
Portland, OR 97207

Oregon Department of Fish and Wildlife
Marine Science Drive, Bldg. 3
Newport, OR 97365
(503) 867-4741

Oregon Department of Fish and Wildlife
P.O. Box 5430
Charleston, OR 97420
(503) 888-5515

Oregon Department of Fish and Wildlife
P.O. Box 642
Gold Beach, OR 97444
(503) 247-2112

Oregon Department of Fish and Wildlife
Hamlet Route, Box 360
Seaside, OR 97138
(503) 738-7066

Oregon Department of Fish and Wildlife
4909 Third Street
Tillamook, OR 97141
(503) 842-2741

Oregon Department of Fish and Wildlife
575N North Bank Road
Otis, OR 97368
(503) 994-8606

Oregon Department of Fish and Wildlife
17730 S.E. Evelyn Street
Clackamas, OR 97015
(503) 657-2000

Northwest Wildlife Rehabilitation Center
6265 Brickyard Road
Tillamook, OR 97141
(503) 842-2111

Free Flight Wildlife Rehabilitation Center
1185 Portland Avenue
Bandon, OR 97411
(503) 347-3882

Oregon Institute of Marine Biology
P.O. Box 5389
Charleston, OR 97420
(503) 888-2581

Oregon State University
2030 S. Marine Science Drive
Newport, OR 97365
(503) 270-2381 or (503) 867-0202

Oregon Coast Aquarium
P.O. Box 2000
Newport, OR 97365
(503) 867-3474

U.S. Coast Guard
2185 S.E. Airport Road
Warrenton, OR 97146-9693
(503) 861-0211

U.S. Coast Guard
P.O. Box 167
Garibaldi, OR 97118
(503) 322-3531

U.S. Coast Guard
P.O. Box 97
Depoe Bay, OR 97341
(503) 765-2124

U.S. Coast Guard
P.O. Box 1010
Newport, OR 97365
(503) 265-5381

U.S. Coast Guard
P.O. Box 1008
Winchester Bay, OR 97467
(503) 271-2138

U.S. Coast Guard
2000 Connecticut Avenue
North Bend, OR 97459
(503) 756-9220

U.S. Coast Guard
4645 Eel Avenue
Charleston, OR 97420
(503) 888-3266

U.S. Coast Guard
19206 Carpenterville Road
Brookings, OR 97415

U.S. Coast Guard
6767 N. Basin Avenue
Portland, OR 97217
(503) 240-9305

Yaquina Head Outstanding Natural Area
2030 S. Marine Science Drive
Newport, OR 97365

Oregon Dunes National Recreation Area
Reedsport, OR 97467

Oregon Islands National Wildlife Refuge
2030 S. Marine Science Drive
Newport, OR 97365
(503) 867-4550

NMFS Office of Enforcement
2030 S. Marine Science Drive
Newport, OR 97365
(503) 867-3777

NMFS Office of Enforcement
P.O. Box 27
Astoria, OR 97103
(503) 325-5934

NMFS Office of Enforcement
Coos Bay
(503) 269-1861

NMFS Office of Enforcement
911 Northeast 11th Avenue, Room 620
Portland, OR 97232
(503) 230-5427

Oregon State Park, Region II
3600 E. Third Street
Tillamook, OR 97141

Oregon State Park, Region III
365 N.E. Fourth Street, Suite A
Coos Bay, OR 97420

Oregon State Park, Ocean Beaches
Vick Building
525 Trade Street, S.E.
Salem, OR 97310

Fort Stevens State Park
Hammond, OR 97121

Cape Lookout State Park
13000 Whiskey Creek Road W.
Tillamook, OR 97141

Beverly Beach State Park
198 N.E. 123rd Street
Newport, OR 97365

South Beach State Park
5580 S. Coast Highway
South Beach, OR 97366

Devils Lake State Park
c/o Beverly Beach State Park
198 N.E. 123rd Street
Newport, OR 97365

Jessie M. Honeyman State Park
84505 Highway 101 South
Florence, OR 97439

Sunset Bay State Park
10965 Cape Arago Highway
Coos Bay, OR 97420

Bullards Beach State Park
P.O. Box 25
Bandon, OR 97411

Cape Blanco State Park
P.O. Box 1345
Port Orford, OR 97465

Harris Beach State Park
1655 Highway 101
Brookings, OR 97415

Department of Biology
Portland State University
Portland, OR 97207
(503) 464-3851

Washington

NMFS Northwest Regional Office
7600 Sand Point Way, N.E.
BIN C15700, Bldg. 1
Seattle, WA 98115-0070
(206) 526-6733

NMFS Northwest Fisheries Science Center
2725 Montlake Blvd., E.
West Building, Room 363
Seattle, WA 98112
(206) 860-3200

NMFS Enforcement
P.O. Box 2369
Bellingham, WA 98227
(360) 676-9268

NMFS Enforcement
138 W. 1st Street, Room 209
Port Angeles, WA 98362
(360) 457-0229

National Marine Mammal Laboratory
7600 Sand Point Way, N.E.
Seattle, WA 98115-0070
(206) 526-4045

Cascadia Research Collective
Waterstreet Building, Suite 201
218½ W. Fourth Avenue
Olympia, WA 98501
(360) 943-7325

Washington Department of Fish and Wildlife
7810 Phillips Road, S.W.
Tacoma, WA 98498
(206) 589-7235

Washington State Patrol
4242 Martin Way
Olympia, WA 98504

The Whale Museum
P.O. Box 945
Friday Harbor, WA 98250
(360) 378-4710
Whale Hotline--1-800-562-8832

Wolf Hollow Wildlife Rehabilitation Centre
P.O. Box 391
Friday Harbor, WA 98250
(360) 378-5000

Sardis Wildlife Center
7472 Valley View Road
Ferndale, WA 98248
(360) 366-3863

Pt. Defiance Zoo and Aquarium
5400 N. Pearl Street
Tacoma, WA 98407
(206) 591-5337

Ocean Shores Police Department
P.O. Box 100
Ocean Shores, WA 98569

San Juan Islands National Wildlife Refuge
100 Brown Farm Road
Olympia, WA 98506
(360) 753-9467

Olympic Coast National Marine Sanctuary
138 W. First Street
Port Angeles, WA 98362-2600
(360) 457-6622

Nisqually National Wildlife Refuge
100 Brown Farm Road
Olympia, WA 98506
(360) 753-9467

Dungeness National Wildlife Refuge
33 S. Barr Road
Port Angeles, WA 98382

Fort Canby State Park
P.O. Box 488
Ilwaco, WA 98624
(360) 642-3078

Ocean City State Park
148 State Route 115
Hoquiam, WA 98550
(360) 289-3553

Twin Harbors State Park
Westport, WA 98595
(360) 268-9717

Fort Flagler State Park
Nordland, WA 98358
(360) 385-1259

Camano Island State Park
2269 Lowell Point Road
Stanwood, WA 98292
(360) 387-3031

Deception Pass State Park
5175 NSH 20
Oak Harbor, WA 98277
(360) 675-2417

Fort Casey State Park
1280 S. Fort Casey Road
Coupeville, WA 98239
(360) 678-4519

Fort Ebey State Park
395 N. Fort Ebey Road
Coupeville, WA 98239
(360) 678-4636

Larrabee State Park
245 Chuckanut Drive
Bellingham, WA 98226
(360) 676-2093

Moran State Park
Star Route, Box 22
East Sound, WA 98245
(360) 376-2326

Sequim Bay State Park
1872 Highway 101 E.
Sequim, WA 98382
(360) 683-4235

South Whidby State Park
4128 Smugglers Cove Road
Freeland, WA 98249
(360) 331-4559

Sucia Island State Park
Star Route, Box 177
Olga, WA 98279
(360) 376-2073

Olympic National Park
Rural Route 1, Box 5749
Forks, WA 98331
(360) 374-5450

Marine Animal Resource Center
2201 34th Avenue, W.
Seattle, WA 98199
(206) 285-7325

U.S. Coast Guard
13th District
915 2nd Avenue
Seattle, WA 98174
(206) 220-7090

U.S. Coast Guard
Neah Bay Coast Guard Station
Neah Bay, WA 98357
(360) 645-2236

U.S. Coast Guard
Gray's Harbor Coast Guard Station
Westport, WA 98595
(360) 268-0121

U.S. Coast Guard
Cape Disappointment Coast Guard Station
P.O. Box 460
Ilwaco, WA 98624
(360) 642-2382

NMFS ALASKA REGION

The NMFS Alaska Stranding Coordinator is in the Alaska Regional Office, Juneau, AK, (907) 586-7510. Stranding Network participants include:

NMFS Alaska Regional Office
P.O. Box 21668
Juneau, AK 99802-1668
(907) 586-7510

NMFS Anchorage Office
222 West 7th, #43
Anchorage, AK 99513
(907) 271-5006

NMFS Kodiak Office
P.O. Box 1903
Kodiak, AK 99615
(907) 487-4961

NMFS Dutch Harbor Office
P.O. Box 946
Dutch Harbor, AK 99692
(907) 581-2062

Jan Straley
Sitka

Tory O'Connell
Sitka

Glacier Bay National Park
P.O. Box 140
Gustavus, AK 99826
(907) 697-2230

University of Alaska Museum
907 Yukon Drive
Fairbanks, AK 99775-1200
(907) 474-6947

Alaska Department of Fish and Game
Division of Wildlife Conservation
1300 College Road
Fairbanks, AK 99701
(907) 456-5156

Beth Mathews
University of Alaska-Southeast
Education and Liberal Arts and Sciences
11120 Glacier Highway
Juneau, AK 99801
(907) 465-6407

Elizabeth Kunibe
Marine Wildlife Rescue Team, Inc.
9503 Antler Way
Juneau, AK 99801

Gary Freitag
Ketchikan

Kate Wynne
MAP, FITC
900 Trident Way
Kodiak, AK 99615
(907) 486-1517

Alaska Maritime National Wildlife Refuge
2355 Kachemak Bay Drive, Suite 101
Homer, AK 99603
(907) 235-6546

Alaska Maritime National Wildlife Refuge
Aleutian Islands Unit
FPO AP 96506-5251

Izembeck National Wildlife Refuge
P.O. Box 127
Cold Bay, AK 99571
(907) 532-2445

Katmai National Park
P.O. Box 7
King Salmon, AK 99613
(907) 246-3305

North Gulf Oceanic Society
P.O. Box 15244
Homer, AK 99603
(907) 235-6590

Glacier Ranger Station
Chugach National Forest
P.O. Box 129
Girdwood, AK 99587
(907) 783-3242

Alpine Veterinary Clinic
12531 Seward
Anchorage, AK 99515
(907) 345-1515

Anchorage Zoo
4731 O'Malley Road
Anchorage, AK 99516
(907) 346-2133

Beth Trowbridge
Prince William Sound Science Center
P.O. Box 705
Cordova, AK 99574
(907) 424-5800

Marian Beck
Halibut Cove

Department of Wildlife Management
North Slope Borough
P.O. Box 69
Barrow, AK 99723
(907) 852-2611

Marine Mammals Management
U.S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, AK 99503-6199
(907) 786-3800

Kenai Fjords National Park
P.O. Box 1727
Seward, AK 99664
(907) 224-3175

ADDENDUM B

FEDERAL AGENCIES WITH BEACHFRONT AUTHORITY

Maine

Acadia National Park
Bar Harbor

Rachel Carson National Wildlife Refuge
Wells

Pond Island National Wildlife Refuge

Franklin Island National Wildlife Refuge
Calais

Seal Island National Wildlife Refuge

Cross Island National Wildlife Refuge
Calais

Petit Manan National Wildlife Refuge
Calais

Massachusetts

Cape Cod National Seashore
South Wellfleet

Nomans Land Island National Wildlife Refuge

Nantucket National Wildlife Refuge
Newburyport

Monomy National Wildlife Refuge
Newburyport

Thacher Island National Wildlife Refuge

Parker River National Wildlife Refuge
Newburyport

Rhode Island

Block Island National Wildlife Refuge
Charlestown

Sachuest Point National Wildlife Refuge
Charlestown

Ninigret National Wildlife Refuge
Charlestown

Trustom Pond National Wildlife Refuge
Charlestown

Connecticut

Salt Meadow National Wildlife Refuge
Charlestown, RI

New York

Gateway National Recreation Area
Brooklyn

Fire Island National Seashore
Patchogue

Amagansett National Wildlife Refuge

Wertheim National Wildlife Refuge

Conscience Point National Wildlife Refuge

Morton National Wildlife Refuge
Sag Harbor

Oyster Bay National Wildlife Refuge
Shirley

Target Rock National Wildlife Refuge
Shirley

New Jersey

Cape May National Wildlife Refuge

Edwin B. Forsythe National Wildlife Refuge
Oceanville

Barnegat National Wildlife Refuge
Barnegat

Maryland

Assateague Island National Seashore
Berlin

Virginia

Back Bay National Wildlife Refuge
Virginia Beach

Plum Tree Island National Wildlife Refuge

Eastern Shore of Virginia National Wildlife Refuge

Wallops Island National Wildlife Refuge

Chincoteague National Wildlife Refuge
Chincoteague

North Carolina

Cape Hatteras National Seashore
Manteo

Cape Lookout National Seashore
Beaufort

Pea Island National Wildlife Refuge
Rodanthe

Cedar Island National Wildlife Refuge
Swanquarter

Swanquarter National Wildlife Refuge
Swanquarter

Camp LeJeune Marine Corps Base
Camp LeJeune

South Carolina

Cape Romain National Wildlife Refuge
Awendaw

Currituck National Wildlife Refuge

MacKay Island National Wildlife Refuge
Knotts Island

Georgia

Cumberland Island National Seashore
St. Marys

Blackbeard Island National Wildlife Refuge
Savannah

Harris Neck National Wildlife Refuge
Savannah

Savannah National Wildlife Refuge
Savannah

Tybee National Wildlife Refuge
Savannah

Wolf Island National Wildlife Refuge
Savannah

Wassaw Island National Wildlife Refuge
Savannah

Grays Reef National Marine Sanctuary
Savannah

Florida

Biscayne National Park
Homestead

Canaveral National Seashore
Titusville

Gulf Islands National Seashore
Gulf Breeze

Fort Jefferson National Monument
Homestead

Rookery Bay National Estuarine Research Reserve
Naples

Merritt Island National Wildlife Refuge
Titusville

Pelican Island National Wildlife Refuge
Titusville

Hobe Sound National Wildlife Refuge
Hobe Sound

Great White Heron National Wildlife Refuge
Big Pine Key

Key West National Wildlife Refuge
Big Pine Key

National Key Deer Wildlife Refuge
Big Pine Key

J.N. "Ding" Darling National Wildlife Refuge
Sanibel

Caloosahatchee National Wildlife Refuge
Sanibel

Island Bay National Wildlife Refuge
Sanibel

Matlacha Pass National Wildlife Refuge
Sanibel

Pine Island National Wildlife Refuge
Sanibel

Egmont Key National Wildlife Refuge
Homosassa

Chassahowitzka National Wildlife Refuge
Homosassa

Cedar Keys National Wildlife Refuge
Homosassa

Crystal River National Wildlife Refuge
Homosassa

Passage Key National Wildlife Refuge
Homosassa

Pinellas National Wildlife Refuge
Homosassa

St. Marks National Wildlife Refuge
St. Marks

St. Vincent National Wildlife Refuge
Apalachicola

Puerto Rico

Desecho National Wildlife Refuge
Boqueron

Cabo Rojo National Wildlife Refuge
Boqueron

Culebra National Wildlife Refuge
Boqueron

Virgin Islands

Buck Island National Wildlife Refuge
Boqueron, PR

Green Cay National Wildlife Refuge
Boqueron, PR

Sandy Point National Wildlife Refuge
Boqueron, PR

Alabama

Bon Secour National Wildlife Refuge
Gulf Shores

Mississippi

Gulf Islands National Seashore
Ocean Springs

Louisiana

Breton National Wildlife Refuge
Venice

Texas

Padre Island National Seashore
Corpus Christi

McFaddin and Texas Point National Wildlife Refuge
Anahuac

Anahuac National Wildlife Refuge
Anahuac

Brazoria National Wildlife Refuge
Angleton

San Bernard National Wildlife Refuge
Angleton

Aransas National Wildlife Refuge
Austwell

California

Channel Islands National Park
Ventura

Redwood National Park
Crescent City

Point Reyes National Seashore
Point Reyes

Golden Gate National Recreation Area
San Francisco

Cabrillo National Monument
San Diego

Santa Monica Mountains National Recreation Area
Woodland Hills

Channel Islands National Marine Sanctuary
Santa Barbara

Gulf of the Farallones National Marine Sanctuary
San Francisco

Monterey Bay National Marine Sanctuary
Monterey

San Francisco Bay National Wildlife Refuge
Newark

Humboldt Bay National Wildlife Refuge
Newark

San Pablo Bay National Wildlife Refuge
Newark

Vandenberg Air Force Base
Vandenberg Air Force Base

Point Mugu Naval Air Station
Pt. Mugu

Naval Weapons Station
Seal Beach

Long Beach Naval Station
Long Beach

Camp Pendleton Marine Corps Base
Camp Pendleton

Naval Ocean Systems Center
San Diego

Naval Air Station
San Diego

Naval Amphibious Base
Coronado

Hawaii

Haleakala National Park
Makawao

Hawaiian Islands Humpback Whale National Marine Sanctuary
Kihei

Hawaiian Islands National Wildlife Refuge
Honolulu

Hanalei National Wildlife Refuge
Kauai

Kilauea National Wildlife Refuge
Kauai

James C. Campbell National Wildlife Refuge
Honolulu

Kakahaia National Wildlife Refuge
Honolulu

Midway National Wildlife Refuge
Honolulu

Johnston Atoll National Wildlife Refuge
Honolulu

Rose Atoll National Wildlife Refuge
Honolulu

Howland Island National Wildlife Refuge
Honolulu

Baker Island National Wildlife Refuge
Honolulu

National Park Service, National War Memorial of the Pacific
Agana

Pearl Harbor Naval Base

Pacific Missile Range Facility
Barking Sands, Kauai

Kaneohe Marine Corps Air Station
Kaneohe, Oahu

Hickam Air Force Base
Honolulu

Barbers Point Naval Air Station
Barbers Point, Oahu

Anderson Air Force Base
Guam

Wake Island Air Force Base
Wake Island

Oregon

Suislaw National Forest
Corvallis

Oregon Dunes National Recreation Area
Reedsport

Yaquina Head Natural Area
Newport

Oregon Islands National Wildlife Refuge
Newport

Three Arch Rocks National Wildlife Refuge

Cape Meares National Wildlife Refuge
Corvallis

Washington

Olympic National Park
Forks

Willapa National Wildlife Refuge
Ilwaco

Copalis National Wildlife Refuge

Quillayute Needles National Wildlife Refuge

Flattery Rocks National Wildlife Refuge

Jones Island National Wildlife Refuge

San Juan Islands National Wildlife Refuge
Olympia

Nisqually National Wildlife Refuge
Olympia

Dungeness National Wildlife Refuge
Port Angeles

Olympic Coast National Marine Sanctuary
Port Angeles

Bangor Naval Submarine Base
Silverdale

Alaska

Glacier Bay National Park
Gustavus

Kenai Fjords National Park
Seward

Lake Clark National Park
Anchorage

Katmai National Park
King Salmon

Chugach National Forest
Anchorage

Tongass National Forest
Petersburg

Bering Land Bridge National Preserve
Nome

Cape Krusenstern National Monument
Kotzebue

Alaska Maritime National Wildlife Refuge
(all units)
Homer

Alaska Peninsula National Wildlife Refuge
King Salmon

Becharof National Wildlife Refuge
King Salmon

Izembeck National Wildlife Refuge
Cold Bay

Kodiak National Wildlife Refuge
Kodiak

Kenai National Wildlife Wildlife Refuge
Soldotna

Togiak National Wildlife Refuge
Dillingham

Yukon Delta National Wildlife Refuge
Bethel

Arctic National Wildlife Refuge
Fairbanks

ADDENDUM C

STATE WILDLIFE RESOURCE AGENCIES

Maine Department of Marine Resources
Augusta, ME
(207) 624-6550

New Hampshire Department of Fish and Game
Concord, NH
(603) 271-3421

Massachusetts Department of Natural Resources
Division of Fisheries and Wildlife
Boston, MA
(617) 727-3151

Connecticut Department of Environmental Protection
Hartford, CT
(203) 566-7404

Rhode Island Department of Environmental Management
Division of Marine Fisheries
Providence, RI
(401) 294-4524

New York Department of Environmental Conservation
Division of Marine Resources
Albany, NY
(516) 751-7775

New Jersey Department of Environmental Protection and Energy
Division of Fish Game and Wildlife
Trenton, NJ
(609) 292-2965

Delaware Division of Fish and Wildlife
Dover, DE
(302) 739-4782

Maryland Department of Natural Resources
Oxford, MD
(410) 226-5193

Virginia Department of Game and Inland Fisheries
Richmond, VA
(804) 367-1000

Virginia Marine Resources Commission
Newport News, VA
(804) 247-2200

North Carolina Department of Environmental Health, and Natural Resources
Division of Marine Fisheries
Morehead City, NC
(919) 726-7021

North Carolina State Office of Marine Affairs
417 N. Blount Street
Raleigh, NC 27601
(919) 733-2290

South Carolina Wildlife and Marine Resources Department
Charleston, SC
(803) 795-6350

Florida Department of Environmental Protection
Marine Mammal Pathobiology Laboratory
St. Petersburg
(813) 893-2904

Alabama Department of Conservation and Natural Resources
Division of Marine Resources
Dauphin Island, AL
(205) 861-2882

Mississippi Bureau of Marine Resources
Biloxi, MS
(601) 385-5860

Louisiana Department of Wildlife and Fisheries
Louisiana Natural Heritage Program
Baton Rouge, LA
(504) 765-2821

Texas Department of Parks and Wildlife
Division of Fisheries and Wildlife
Austin, TX
(512) 389-4971

Puerto Rico Department of Natural Resources
P.O. Box 5887
Puerta de Tierra Station
San Juan, PR 00906
(809) 724-8774

Virgin Islands Department of Planning and Natural Resources
Suite 231, Nisky Center
St. Thomas, VI 00803
(809) 774-3320

California Department of Fish and Game
Marine Resources Division
Sacramento, CA
(916) 445-8386

Hawaii Department of Land and Natural Resources
Division of Aquatic Resources
Honolulu, HI
(808) 587-0100

Guam Division of Aquatic and Wildlife Resources
Agana, GU
671, 734-3944

Oregon Department of Fish and Wildlife
Newport, OR
(503) 867-4741

Washington Department of Fish and Wildlife
Tacoma
(206) 589-7235

Alaska Department of Fish and Game
Division of Wildlife Conservation
Marine Mammals Coordinator
Fairbanks, AK
(907) 456-5156

ADDENDUM D

STATE PUBLIC HEALTH AGENCIES

Maine Department of Human Resources
State House Station 11
Augusta, ME 04333

New Hampshire Department of Health and Human Services
6 Hazen Drive
Concord NH 03301

Massachusetts Department of Public Health
150 Tremont Street, 10th Floor
Boston, MA 02111

Connecticut Department of Public Health and Addiction Services
150 Washington Street
Hartford, CT 06106

Rhode Island Department of Health
Cannon Bldg, 3 Capitol Hill, Room 401
Providence, RI 02908

New York State Department of Health
Corning Tower Bldg, Empire State Plaza, Room 1482
Albany, NY 12237

New Jersey Department of Health
CN 360
Trenton, NJ 08625

Division of Public Health
Delaware Department of Health and Social Services
P.O. Box 637
Dover, DE 19903

Maryland Department of Health and Mental Hygiene
201 West Preston Street
Baltimore, MD 21201

Virginia Department of Health
1500 East Main Street, Suite 214
P.O. Box 2448
Richmond, VA 23219

North Carolina Department of Environmental, Health and Natural Resources
P.O. Box 27687
Raleigh, NC 27611

South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Georgia Department of Human Resources
2 Peachtree Street, NE, Suite 7-300
Atlanta, GA 30303

Florida Department of Health and Rehabilitation Services
1323 Winewood Blvd.
Tallahassee, FL 32399

Alabama Department of Public Health
434 Monroe Street
Montgomery, AL 36130

Mississippi State Department of Health
P.O. Box 1700
Jackson, MS 39215

Louisiana Department of Health and Hospitals
P.O. Box 3214
Baton Rouge, LA 70821

Texas Department of Health
1100 West 49th Street
Austin, TX 78756

Puerto Rico Department of Health
P.O. Box 70184
San Juan, PR 00936

Virgin Islands Department of Social and
Health Services
St. Thomas Hospital
St. Thomas, VI 00802

California Department of Health Services
714 P Street, Room 1253
Sacramento, CA 95814

Hawaii Department of Health
1250 Punchbowl Street
P.O. Box 3378
Honolulu, HI 96801

Guam Department of Public Health and
Social Services
P.O. Box 2816
Agana, GU 96910

Oregon Health Division
800 NE Oregon Street, #21, Suite 950
Portland, OR 97232

Washington Department of Social and Health
Services
P.O. Box 47890
Olympia, WA 98504

Alaska Department of Health and Social
Services
P.O. Box 110610
Juneau, AK 99811

ADDENDUM E

NATIVE AMERICAN ORGANIZATION CONTACTS

Washington

Quinault Tribe
P.O. Box 189
Tahola, WA 98587
(360) 276-8211

Hoh Tribe
HC80, Box 917
Forks, WA 98331
(360) 374-6582

Quileute Tribe
P.O. Box 279
LaPush, WA 98350
(360) 374-6163

Makah Tribe
P.O. Box 115
Neah Bay, WA 98357
(360) 645-2205

Lower Elwha S'Klallam Tribe
2851 Lower Elwha Road
Port Angeles, WA 98362
(360) 452-8471

Jameston S'Klallam Tribe
305 Old Blyn Highway
Sequim, WA 98382
(360) 683-1109

Port Gamble S'Klallam Tribe
P.O. Box 280
Kingston, WA 98346
(360) 297-2646

Skokomish Tribe
N. 80 Tribal Center Road
Shelton, WA 98584
(360) 426-4232

Suquamish Tribe
P.O. Box 498
Suquamish, WA 98392
(206) 598-3311

Squaxin Island Tribe
West 81 Highway 108
Shelton, WA 98584
(360) 426-9781

Tulalip Tribe
6700 Totem Beach Road
Marysville, WA 98270
(360) 653-4585

Swinomish Tribe
P.O. Box 817
LaConner, WA 98257
(360) 466-3163

Lummi Tribe
2616 Kwina Road
Bellingham, WA 98226
(360) 734-8180

Alaska

Alaska and Inuvialuit Beluga Whale Committee
c/o North Slope Borough
P.O. Box 69
Barrow, AK 99723

Alaska Eskimo Whaling Commission
P.O. Box 570
Barrow, AK 99723

Alaska Nanuuq Commission
P.O. Box 69
Barrow, AK 99723

Alaska Native Harbor Seal Commission
P.O. Box 1005
Cordova, AK 99574

Alaska Sea Otter Commission
P.O. Box 83177
Fairbanks, AK 99708

Arctic Marine Resources Commission
c/o NANA Regional Corporation
P.O. Box 49
Kotzebue, AK 99752

Cook Inlet Marine Mammal Commission
17414 Monte #3
Eagle River, AK 99577

Eskimo Walrus Commission
P.O. Box 948
Nome, AK 99762

Indigenous People's Council for Marine Mammals
P.O. Box 200908
Anchorage, AK 99520

Inuit Circumpolar Conference
Calais Building One, Suite 608
3201 C Street
Anchorage, AK 99513

Nome, Elim and Shaktoolik
Beluga Whale Commission
c/o Kawerak Corporation
P.O. Box 948
Nome, AK 99762

Pribilof Aleut Fur Seal Commission
P.O. Box 901
St. Paul, AK 99660

Southeast Native Subsistence Commission
Central Council of Tlingit and Haida Indian Tribes of Alaska
320 W. Willoughby Avenue
Juneau, AK 99801

Unalaska Native Fishermen's Association
P.O. Box 591
Unalaska, AK 99685

President
Agdaagux Tribe of King Cove
P.O. Box 38
King Cove, AK 99612

President
Akiachak Native Community
P.O. Box 70
Akiachak, AK 99551

President
Akiak Native Community
P.O. Box 51265
Akiak, AK 99552

Alaska Federation of Natives
Suite 100
1577 C Street
Anchorage, AK 99501

Alaska Native Coalition
P.O. Box 104024
Anchorage, AK 99510-4024

Executive Director
Alaskan Inter-Tribal Council
Suite 225
308 G Street
Anchorage, AK 99501

President
Aleut Community of St. Paul Island
P.O. Box 86
St. Paul Island, AK 99660

Aleutian-Pribilof Islands Association
Suite 201
401 E. Fireweed Lane
Anchorage, AK 99503-2111

President
Angoon Community Association
P.O. Box 188
Angoon, AK 99820

Chief
Anvik Village
General Delivery
Anvik, AK 99558

President
Association of Village Council Presidents
P.O. Box 219
Bethel, AK 99559

President
Atqasuk Village
General Delivery via
Barrow, AK 99723

Executive Director
Bristol Bay Native Association
P.O. Box 310
Dillingham, AK 99576

President
Caswell Native Association
1202 Old Seward Highway
Anchorage, AK 99515

President
Central Council of Tlingit and Haida Indian
Tribes of Alaska
Suite 300
320 W. Willoughby Avenue
Juneau, AK 99801

President
Chevak Native Village
P.O. Box 5514
Chevak, AK 99563

President
Chignik Lake Village
P.O. Box 33
Chignik Lake, AK 99548

President
Chilkat Indian Village of Klukwan
P.O. Box 525
Haines, AK 99827-0210

President
Chilkoot Indian Association of Haines
P.O. Box 235
Haines, AK 99827

President
Chinik Eskimo Community
General Delivery
Golovin, AK 99762

Director
Chugachmuit
The North Pacific Rim
330 C Street
Anchorage, AK 99503

City Manager
City of St. Paul
Pouch 1
St. Paul, AK 99660

President
Cook Inlet Tribal Council
670 W. Fireweed Lane
Anchorage, AK 99503

Copper River Delta
P.O. Box 1460
Cordova, AK 99574

Executive Director
Copper River Native Association
Drawer H
Copper River, AK 99573

Vice President
Craig Community Association
P.O. Box 244
Craig, AK 99921

President
Douglas Indian Association
P.O. Box 434
Douglas, AK 99824

President
Egegik Village
P.O. Box 189
Egegik, AK 99579

President
Eklutna Native Village
26339 Eklutna Village Road
Chugiak, AK 99567

President
Ekwok Village
P.O. Box 49
Ekwok, AK 99580

President
Emmonak Village
P.O. Box 126
Emmonak, AK 99581

President
Eyak Native Village
P.O. Box 1388
Cordova, AK 99574

President
Gold Creek-Susitna
Gold Creek via
Talkeetna, AK 99676

President
Gulkana Village
P.O. Box 254
Gakona, AK 99586

President
Hoonah Indian Association
P.O. Box 144
Hoonah, AK 99829

President
Igiugig Village
P.O. Box 4008
Igiugig, AK 99613

Inupiat Community of the Arctic Slope
P.O. Box 934
Barrow, AK 99762

President
Ivanof Bay Village
P.O. Box KIB
Ivanof Bay, AK 99502

President
Kaktovik Village
P.O. Box 8
Kaktovik, AK 99747

Tribal Chairperson
Kenaitze Indian Tribe
P.O. Box 988
Kenai, AK 99611

Chief
King Island Native Community
P.O. Box 992
Nome, AK 99762

President
Knik Village
P.O. Box 872130
Wasilla, AK 99687

President
Kodiak Area Native Association
402 Center Avenue
Kodiak, AK 99615-1277

President
Kodiak Tribal Council
P.O. Box 1974
Kodiak, AK 99615

President
Kokhanok Village
P.O. Box 1007
Kokhanok, AK 99606

President
Koliganek Village
Koliganek, AK 99576

President
Kongiganak Native Village
P.O. Box 5069
Kongiganak, AK 99559

Kotzebue IRA Council
P.O. Box 296
Kotzebue, AK 99752

President
Levelock Village
General Delivery
Levelock, AK 99625

President
Maniilaq Association
P.O. Box 256
Kotzebue, AK 99752

President
Manokotak Village
P.O. Box 169
Manokotak, AK 99628

President
Mentasta Lake Village
General Delivery
Tok, AK 99780

Metlatka Indian Community
P.O. Box 439
Metlatka, AK 99926

President
Montana Creek Native Association
P.O. Box 200267
Anchorage, AK 99520-0267

Mount Marathon Native Association
P.O. Box 995
Seward, AK 99664

North Slope Borough Department of Wildlife Management
P.O. Box 69
Barrow, AK 99723

President
Naknek Native village
P.O. Box 106
Naknek, AK 99633

President
Nanwalek Village Council
General Delivery
English Bay, AK 99603

Native American Fish and Wildlife Society
Suite 204
4141 B Street
Anchorage, AK 99503

President
Native Village of Chickaloon
P.O. Box 1105
Chickaloon, AK 99674

President
Native Village of Port Heiden
P.O. Box 49007
Port Heiden, AK 99459

President
Native Village Council
P.O. Box 244
Nome, AK 99762

President
Native Village of Akhiok
P.O. Box 5030
Akhiok, AK 99615

President
Native Village of Akutan
P.O. Box 89
Akutan, AK 99553

President
Native Village of Aleknagik
P.O. Box 115
Aleknagik, AK 99555

President
Native Village of Ambler
P.O. Box 47
Ambler, AK 99786

President
Native Village of Andreafski
P.O. Box 368
St. Mary's, AK 99658

President
Native Village of Atka
Atka Rural Branch
Atka, AK 99502

President
Native Village of Barrow
P.O. Box 1139
Barrow, AK 99723

President
Native Village of Belkofski
General Delivery
Belkofski, AK 99695

Tribal Chairman
Native Village of Bill Moore's Slough
P.O. Box 20037
Kotlik, AK 99620

President
Native Village of Brevig Mission
General Delivery
Brevig Mission, AK 99785

President
Native Village of Buckland
General Delivery
Buckland, AK 99727

President
Native Village of Cantwell
P.O. Box 94
Cantwell, AK 99729

President
Native Village of Chenega
P.O. Box 8079
Chenega, AK 99574

President
Native Village of Chefornak
P.O. Box 29
Chefornak, AK 99561

President
Native Village of Chignik
General Delivery
Chignik, AK 99563

President
Native Village of Chignik Lagoon
General Delivery
Chignik Lagoon, AK 99565

President
Native Village of Chistochina
P.O. Box 241
Gakona, AK 99586

President
Native Village of Chitina
P.O. Box 31
Chitina, AK 99566

Chief
Native Village of Chuathbaluk
P.O. Box CHU
Chuathbaluk, AK 99557

President
Native Village of Chuloonawick
General Delivery
Chuloonawick, AK 99581

President
Native Village of Crooked Creek
P.O. Box 69
Crooked Creek, AK 99575

President
Native Village of Deering
General Delivery
Deering, AK 99736

President
Native Village of Dillingham
P.O. Box 216
Dillingham, AK 99576

President
Native Village of Diomede
General Delivery
Diomede, AK 99762

President
Native Village of Eek
P.O. Box 087
Eek, AK 99578

President
Native Village of Ekuk
General Delivery
Ekuk, AK 99576

President
Native Village of Elim
P.O. Box 39070
Elim, AK 99739

Vice President
Native Village of False Pass
P.O. Box 29
False Pass, AK 99583

President
Native Village of Gakona
P.O. Box 124
Gakona, AK 99586

President
Native Village of Gambell
P.O. Box 133
Gambell, AK 99742

President
Native Village of Georgetown
General Delivery
Red Devil, AK 99656

President
Native Village of Goodnews Bay
P.O. Box 03
Goodnews Bay, AK 99589

President
Native Village of Hamilton
General Delivery
Kotlik, AK 99620

President
Native Village of Hooper Bay
P.O. Box 2193
Hooper Bay, AK 99604

President
Native Village of Kanatak
c/o BIA Anchorage Agency
1675 C Street
Anchorage, AK 99501

President
Native Village of Karluk
P.O. Box 22
Karluk, AK 99608

President
Native Village of Kasiglik
P.O. Box 19
Kasiglik, AK 99609

President
Native Village of Kiana
P.O. Box 69
Kiana, AK 99749

President
Native Village of Kipnuk
P.O. Box 57
Kipnuk, AK 99614

President
Native Village of Kivalina
P.O. Box 50051
Kivalina, AK 99750

President
Native Village of Kobuk
General Delivery
Kobuk, AK 99751

Chairman
Native Village of Kotzebue
P.O. Box 296
Kotzebue, AK 99752

President
Native Village of Koyuk
P.O. Box 30
Koyuk, AK 99753

President
Native Village of Kuti-kaah
P.O. Box 68
Copper Center, AK 99573

President
Native Village of Kwigillingok
P.O. Box 49
Kwigillingok, AK 99622

President
Native Village of Kwinhagak
General Delivery
Quinhagak, AK 99655

President
Native Village of Larsen Bay
P.O. Box 35
Larsen Bay, AK 99624

President
Native Village of Marshall
P.O. Box 10
Fortuna Ledge, AK 99585

President
Native Village of Mary's Igloo
P.O. Box 571
Teller, AK 99778

President
Native Village of Mekoryuk
P.O. Box 66
Mekoryuk, AK 99630

President
Native Village of Mountain Village
P.O. Box 32249
Mountain Village, AK 99632

President
Native Village of Napakiak
General Delivery
Napakiak, AK 99634

President
Native Village of Napamute
P.O. Box 96
Aniak, AK 99557

President
Native Village of Napaskiak
P.O. Box 6109
Napaskiak, AK 99559

President
Native Village of Nelson Lagoon
General Delivery
Nelson Lagoon, AK 99571

President
Native Village of Nightmute
General Delivery
Nightmute, AK 99690

President
Native Village of Nikolski
General Delivery
Nikolski, AK 99638

President
Native Village of Noatak
General Delivery
Noatak, AK 99761

Mayor
Native Village of Nuiqsut
General Delivery
Nuiqsut, AK 99723

President
Native Village of Nunapitchuk
P.O. Box 130
Nunupitchuk, AK 99641

President
Native Village of Ouzinkie
P.O. Box 13
Ouzinkie, AK 99644

President
Native Village of Perryville
P.O. Box 101
Perryville, AK 99648

President
Native Village of Piamuit
General Delivery
Hooper Bay, AK 99604

President
Native Village of Pilot Point
P.O. Box 449
Pilot Point, AK 99649

President
Native Village of Pitka's Point
P.O. Box 127
Pitka's Point, AK 99658

President
Native Village of Point Hope
P.O. Box 91
Point Hope, AK 99766

Village Coordinator
Native Village of Point Lay
P.O. Box 101
Point Lay, AK 99759

President
Native Village of Port Lions
P.O. Box 253
Port Lions, AK 99550

President
Native Village of Russian Mission
P.O. Box 09
Russian Mission, AK 99657

President
Native Village of Savoonga
P.O. Box 129
Savoonga, AK 99769

President
Native Village of Scammon Bay
P.O. Box 126
Scammon Bay, AK 99662

President
Native Village of Selawik
P.O. Box 59
Selawik, AK 99770

President
Native Village of Shaktoolik
General Delivery
Shaktoolik, AK 99771

President
Native Village of Sheldon's Point
General Delivery
Sheldon's Point, AK 99666

President
Native Village of Shishmaref
General Delivery
Shishmaref, AK 99772

President
Native Village of Shungnak
General Delivery
Shungnak, AK 99773

President
Native Village of Solomon
P.O. Box 243
Nome, AK 99762

President
Native Village of St. Michael
General Delivery
St. Michael, AK 99659

President
Native Village of Tanana
P.O. Box 77093
Tanana, AK 99777

President
Native Village of Tooksook Bay
Nelson Island
Tooksook Bay, AK 99637

President
Native Village of Tuntutuliak
P.O. Box 77
Tununak, AK 99681

President
Native Village of Tyonek
P.O. Box 82009
Tyonek, AK 99862-0009

President
Native Village of Unalakleet
P.O. Box 70
Unalakleet, AK 99684

President
Native Village of Wales
General Delivery
Wales, AK 99783

President
Native Village of White Mountain
P.O. Box 84082
White Mountain, AK 99784

President
Native Village of Yakutat
P.O. Box 418
Yakutat, AK 99689

President
New Stuyahok Village
P.O. Box 49
New Stuyahok, AK 99636

President
Newhalen Village
P.O. Box 207
Iliamna, AK 99606

President
Newtok Village
P.O. Box WWT
Newtok, AK 99559

President
Ninilchik Village Traditional Council
P.O. Box 39070
Ninilchik, AK 99639

President
Nome Eskimo Community
P.O. Box 401
Nome, AK 99762

President
Nondalton Village
General Delivery
Nondalton, AK 99640

President
Noorvik Native Community
P.O. Box 71
Noorvik, AK 99763

President
Organized Village of Kake
P.O. Box 316
Kake, AK 99830-0316

President
Organized Village of Kasaan
General Delivery
Kasaan, AK 99924

President
Organized Village of Kwethluk
P.O. Box 84
Kwethluk, AK 99621

President
Organized Village of Saxman
Route 2, Box 2
Ketchikan, AK 99901

Chairman
Orutsararmuit Native Council
835 Ridgecrest Drive
P.O. Box 927
Bethel, AK 99559

President
Oscarville Traditional Council
P.O. Box 1554
Oscarville, AK 99559

President
Pedro Bay Village
P.O. Box 47020
Pedro Bay, AK 99647

President
Petersburg Indian Association
P.O. Box 1418
Petersburg, AK 99883

President
Pilot Station Traditional Council
P.O. Box 5040
Pilot Station, AK 99650

President
Platinum Traditional Village
General Delivery
Platinum, AK 99651

President
Port Graham Village
P.O. Box PGM
Port Graham, AK 99603-8998

President
Portage Creek Village
General Delivery
Portage Creek, AK 99576

President
Qagan Tayagungin Tribe of Sand Point
P.O. Box 189
Sand Point, AK 99661

President
Qawalingen Tribe of Unalaska
P.O. Box 334
Unalaska, AK 99685

Chief
Rampart Village
P.O. Box 67029
Rampart, AK 99767

Chairperson
Rural Alaska Resources Association
P.O. Box 200908
Anchorage, AK 99520

President
Seldovia Village Tribe
P.O. Drawer L
Seldovia, AK 99663

Chief
Shageluk Native Village
General Delivery
Shageluk, AK 99665

President
Shoonaq' Tribe of Kodiak
P.O. Box 1974
Kodiak, AK 99615

President
Sitka Tribe of Alaska
456 Katlian Street
Sitka, AK 99835

President
South Naknek Village
P.O. Box 70106
South Naknek, AK 99670

President
St. George Traditional Council
P.O. Box 940
St. George, AK 99660

President
Stebbins Community Association
P.O. Box 2
Stebbins Village, AK 99671

First Chief
Takotna Village
P.O. Box TYC
Takotna, AK 99675

Tanana IRA Council
General Delivery
Tanana, AK 99777

President
Native Village of Tatitlek
P.O. Box 650
Cordova, AK 99574

President
Traditional Village of Teller
P.O. Box 590
Teller, AK 99778

President
Traditional Village of Togiak
P.O. Box 209
Togiak, AK 99678

President
Twin Hills Village
General Delivery
Twin Hills, AK 99576

President
Ugashik Village
General Delivery via
King Salmon, AK 99613

President
Umkumiut Native Village
General Delivery
Nightmute, AK 99690

Administrator
Unalaska IRA Council
Unalaska, AK 99685

President
Valdez Native Association
P.O. Box 1108
Valdez, AK 99686

President
Village of Alaknut
P.O. Box 167
Aluknut, AK 99554

President
Village of Aniak
P.O. Box 176
Aniak, AK 99557

President
Village of Atmautluak
P.O. Box ATT
Atmautluak, AK 99559

President
Village of Clark's Point
P.O. Box 16
Clark's Point, AK 99569

President
Village of Iliamna
P.O. Box 286
Iliamna, AK 99606

President
Village of Kalskag
General Delivery
Kalskag, AK 99607

Chief
Village of Kaltag
P.O. Box 9
Kaltag, AK 99748

President
Village of Kotlik
P.O. Box 20096
Kotlik, AK 99620

President
Village of Lower Kalskag
P.O. Box 27
Kalskag, AK 99626

President
Village of Ohogamiut
General Delivery
Fortuna Lodge, AK 99585

President
Village of Old Harbor
P.O. Box 62
Old Harbor, AK 99643

President
Village of Red Devil
P.O. Box 49
Red Devil, AK 99656

President
Village of Alamatof
P.O. Box 2682
Kenai, AK 99611

President
Village of Sleetmute
P.O. Box 21
Sleetmute, AK 99688

President
Village of Stoney River
P.O. Box SRV
Stoney River, AK 99557

President
Village of Wainwright
P.O. Box 184
Wainwright, AK 99782

Yakutat Native Association
P.O. Box 418
Yakutat, AK 99689

President
Kodiak Area Native Association
402 Center Avenue
Kodiak, AK 99615

Southwest Alaska Municap Conference
3300 Arctic Blvd.
Aneh, Alaska 99503

ADDENDUM F

FACILITIES APPROVED FOR HOLDING LIVE STRANDED MARINE MAMMALS

Maine, Massachusetts, and New Hampshire

New England Aquarium
Central Wharf
Boston, MA 02110
(617) 973-5246
Pinnipeds and cetaceans

Connecticut and Rhode Island

Mystic Aquarium
55 Coogan Blvd.
Mystic, CT 06355-1997
(203) 536-9631, Ext. 107
Pinnipeds and cetaceans

New York

OKEANOS Foundation
431 East Main Street
Riverhead, NY 11901
(516) 369-9840
Pinnipeds and short-term holding of single cetaceans

Aquarium for Wildlife Conservation
Surf Avenue and West 8th Street
Brooklyn, NY 11224
(718) 265-3440
Cetaceans and sea otters*

New Jersey and Delaware

Marine Mammal Stranding Center
P.O. Box 773
Brigantine, NJ 08203
(609) 266-0538
Pinnipeds and short-term holding of single cetaceans

Maryland and Virginia

National Aquarium in Baltimore
Pier 3, 501 E. Pratt Street
Baltimore, MD 21202
(410) 450-3852
Pinnipeds and cetaceans

North Carolina

North Carolina State Aquarium--Roanoke Island
P.O. Box 967
Manteo, NC 27954
(919) 473-3493
Short-term holding of single animals only

North Carolina State Aquarium--Ft. Fisher
P.O. Box 130
Kure Beach, NC 28449
(919) 458-8257
Short-term holding of single animals only

North Carolina State Aquarium--Pine Knoll Shores
P.O. Box 580
Atlantic Beach, NC 28512
(919) 247-4003
Short-term holding of single animals only

Florida

Marineland of Florida
9507 Ocean Shore Blvd.
Marineland, FL 32086-9602
(904) 471-1111
Cetaceans

Miami Seaquarium
4406 Rickenbacker Causeway
Miami, FL 33149
(305) 361-5705 ext. 240
Cetaceans and manatees

Living Seas/Epcot Center
P.O. Box 10,000
Lake Buena Vista, FL 38830-1000
(407) 560-7688
Manatees

Sea World of Florida
7007 Sea World Drive
Orlando, FL 32821
(407) 363-2364
Cetaceans and manatees

Dolphins Plus
P.O. Box 2728
Key Largo, FL 33037
(305) 451-1993
Cetaceans

Dolphin Research Center
P.O. Box 2875
Marathon Shores, FL 33052
(305) 289-0002
Cetaceans

Mote Marine Laboratory
1600 Thompson Parkway
Sarasota, FL 34236
(941) 388-4441
Cetaceans

Lowry Park Zoo
7530 North Blvd.
Tampa, FL 33604
(813) 935-8552
Manatees

Clearwater Marine Science Center
249 Windward Passage
Clearwater, FL 33515
(813) 447-0980
Cetaceans

Homosassa Springs State Wildlife Park
9225 West Fishbowl Drive
Homosassa, FL 32646
(904) 628-5343
Manatees

Gulf World
15412 West Highway 98
Panama City, FL 32407
(904) 234-5271
Cetaceans

Gulfarium
Highway 98 East
Ft. Walton Beach, FL 32548
(904) 243-9046
Cetaceans
(Can also provide some coverage for Alabama)

Mississippi and Louisiana

Marine Life Oceanarium
P.O. Box 4078
Gulfport, MS 39502-4078
(601) 864-2511
Cetaceans
(Can also provide some coverage for Alabama)

Texas

Sea World of Texas
10500 Sea World Drive
San Antonio, TX 78251
(512) 523-3000
Cetaceans

Marine Mammal Research Program
Department of Marine Biology
Texas A&M University
P.O. Box 1675
Galveston, TX 77553-1675
(409) 740-4455
Cetaceans

University of Texas Marine Science Institute
Port Aransas
Short-term holding of single cetaceans

Gladys Porter Zoo
Brownsville
Short-term holding of single cetaceans

Puerto Rico

Caribbean Aquatic Animal Health Project
Department of Marine Science
University of Puerto Rico
Apartado 980
Lajas, PR 00667-0908
(809) 899-2048
Cetaceans and manatees

California

Northcoast Marine Mammal Center
424 Howe Drive
Crescent City, CA 95531
(707) 464-7448
Pinnipeds

Marine World Africa USA
100 Marine World Parkway
Vallejo, CA 94589
(707) 644-4000, Ext. 242
Cetaceans

Humboldt Wildlife Care Center
Arcata
(707) 826-1583
Short-term holding of pinnipeds

The Marine Mammal Center
Marin Headlands
Golden Gate National Recreation Area
Sausalito, CA 94965
(415) 289-7325
Pinnipeds and sea otters

Long Marine Laboratory
Institute for Marine Studies
University of California
100 Shaffer Road
Santa Cruz, CA 95060
(408) 459-2883
Short-term holding of cetaceans

Monterey Bay Aquarium
886 Cannery Row
Monterey, CA 93940
(408) 648-4829
Sea otters

Santa Barbara Marine Mammal Center
3930 Harold Avenue
Santa Barbara, CA 93110
(805) 687-3255
Pinnipeds

Fort MacArthur Marine Mammal Care Center
3601 South Gaffey Street
San Pedro, CA 90731
(310) 548-5667
Pinnipeds

Friends of the Sea Lion Marine Mammal Center
20612 Laguna Canyon Road
Laguna Beach, CA 92651
(714) 494-3050
Pinnipeds

Sea World of California
1720 South Shores Road
San Diego, CA 92109
(800) 541-7325
Cetaceans, pinnipeds, and sea otters

Hawaii

Sea Life Park
Makapuu Point
Waimanalo, HI 96795
Cetaceans and pinnipeds

Oregon

Oregon Coast Aquarium
P.O. Box 2000
Newport, OR 97365
(503) 867-3474
Pinnipeds and sea otters*

Northwest Wildlife Rehabilitation Center
6265 Brickyard Road
Tillamook, OR 97141
(503) 842-2111
Pinnipeds

Free Flight Wildlife Rehabilitation Center
1185 Portland Avenue
Bandon, OR 97411
(503) 347-3882
Pinnipeds

Washington

Marine Animal Resource Center
2201 34th Avenue, W.
Seattle, WA 98199
(206) 285-7325
Pinnipeds

Pt. Defiance Zoo and Aquarium
5400 N. Pearl Street
Tacoma, WA 98407
(206) 591-5337
Cetaceans

Wolf Hollow Wildlife Rehabilitation Center
P.O. Box 391
Friday Harbor, WA 98250
(360) 378-5000
Pinnipeds

Alaska

Anchorage Zoo
4731 O'Malley Road
Anchorage, AK 99516
(907) 346-2133
Pinnipeds

Alpine Veterinary Clinic
12531 Seward
Anchorage, AK 99515
(907) 345-1515
Pinnipeds and sea otters

Marian Beck
Halibut Cove
Pinnipeds and sea otters

*In the case of California sea otters, those facilities marked with an asterisk are backup facilities to be used with specific authorization from FWS.

ADDENDUM G
SOURCES TO PERFORM GROSS NECROPSY AND TISSUE COLLECTION AND PREPARATION

For Manatees

Marine Mammal Pathobiology Laboratory
Florida Department of Environmental Protection
3700 54th Ave., S.
St. Petersburg, FL 33711
(813) 893-2904

For Sea Otters

National Wildlife Health Center
6006 Schroeder Road
Madison, WI 53711
(608) 264-5411

For Polar Bears, Sea Otters, and Walrus in Alaska

Marine Mammals Management
U.S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, AK 99503-6199
(907) 786-3800

National Biological Service
1011 East Tudor Road
Anchorage, AK 99503-6199
(907) 786-3512

Maine

Allied Whale
College of the Atlantic
105 Eden Street
Bar Harbor, ME 04609
(207) 288-5015

Massachusetts

New England Aquarium
Central Wharf
Boston, MA 02110
(617) 973-5246

Marine Mammal Investigations
National Marine Fisheries Service
Woods Hole Laboratory
166 Water Street
Woods Hole, MA 02543-1026
(508) 548-5123

Connecticut

Mystic Aquarium
55 Coogan Blvd.
Mystic, CT 06355-1997
(203) 536-9631, Ext. 107

Rhode Island

Dr. Romona Haebler
Environmental Protection Agency
27 Tarzwell Dr.
Narragansett, RI 02882
(401) 782-3095

New York

OKEANOS Ocean Research Foundation
431 East Main Street
Riverhead, NY 11901
(516) 369-9840

New Jersey

Marine Mammal Stranding Center
P.O. Box 773
Brigantine, NJ 08203
(609) 266-0538

Maryland

National Aquarium in Baltimore
Pier 3, 501 E. Pratt St.
Baltimore, MD 21202
(410) 450-3852

Maryland Department of Natural Resources
Oxford Cooperative Laboratory
904 S. Morris Street
Oxford, MD 21654
(410) 576-3853

Office of Protected Resources
National Marine Fisheries Service
1335 East-West Highway
Silver Spring, MD 20910
(301) 713-2322

District of Columbia

Dr. James Mead and Mr. Charles Potter
Division of Mammals
National Museum of Natural History
Smithsonian Institution
Washington, DC 20560
(202) 357-1923

Department of Veterinary Pathology
Armed Forces Institute of Pathology
Walter Reed Army Medical Center
Washington, DC 20306-6000
(202) 782-2600

Virginia

Virginia Marine Science Museum
717 General Booth Blvd.
Virginia Beach, VA 23451
(804) 437-4949

Virginia Institute of Marine Science
School of Marine Science
College of William and Mary
Gloucester Point, VA 23062
(804) 642-7313

North Carolina

NMFS Beaufort Laboratory
101 Pivers Island Road
Beaufort, NC 28516-9722
(919) 728-8740

William McLellan
Biological Sciences
University of North Carolina at Wilmington
601 South College Road
Wilmington, NC 29403
(910) 395-3487

Dr. Andrew Read
Duke University Marine Laboratory
111 Pivers Island Road
Beaufort, NC 28516
(919) 504-7590

South Carolina and Georgia

NMFS Charleston Laboratory
P.O. Box 12607
Charleston, SC 29422-2607
(803) 762-1200

Florida

NMFS Southeast Fisheries Science Center
75 Virginia Beach Drive
Miami, FL 33149
(305) 361-4586

NMFS Panama City Laboratory
3500 Delwood Beach Road
Panama City, FL 32408-7403
(904) 234-6541

Marineland of Florida
9507 Ocean Shore Blvd.
Marineland, FL 32086-9602
(904) 471-1111

Hubbs-Sea World Research Institute
P.O. Box 691-602
Orlando, FL 32869-1602
(407) 363-2662

Miami Seaquarium
4400 Rickenbacker Drive
Miami, FL 33149
(305) 361-5705, Ext. 240

Mote Marine Laboratory
1600 Thompson Parkway
Sarasota, FL 34236
(941) 388-4441

Florida Department of Environmental Protection
Marine Pathobiology Laboratory
3700 54th Ave., South
St. Petersburg, FL 33711
(813) 893-2904

R.T. Goldston, D.V.M.
3295 62nd Ave., North
St. Petersburg

Gulf World
15412 West Highway 98
Panama City Beach, FL 32407
(904) 234-5271

Gulfarium
Highway 98 East
Fort Walton Beach, FL 32548
(904) 243-9046

EPA Laboratory
Sabine Island
Gulf Breeze, FL 32561-5299
(904) 934-9200

Alabama

Dr. Gerald Regan
Spring Hill College
4000 Dauphin Street
Mobile, AL 36608
(205) 460-2239

Mississippi and Louisiana

NMFS Pascagoula Laboratory
P.O. Box 1207
Pascagoula, MS 39567
(601) 762-4591

Texas

Dr. Graham Worthy
Texas Marine Mammal Stranding Network
Texas A&M University
4700 Avenue U, Bldg. 303
Galveston, TX 77550
(409) 740-4721

Dr. Dan Cowan
Department of Pathology
University of Texas Medical Branch
2.180 John Sealy Hospital E88
Galveston, TX 77550

California

Vertebrate Museum
Department of Zoology
Humboldt State University
Arcata, CA 95521
(707) 826-4872

Northcoast Marine Mammal Center
424 Howe Drive
Crescent City, CA 95531
(707) 464-7448

The Marine Mammal Center
Marin Headlands
Golden Gate National Recreation Area
Sausalito, CA 94965
(415) 289-7325

Department of Biology
Mendocino Coast Branch
College of the Redwoods
1211 Del Mar Drive
Fort Bragg, CA 95437
(707) 961-1001

Department of Ornithology and Mammalogy
California Academy of Sciences
Golden Gate Park
San Francisco, CA 94118
(415) 750-7177

Museum of Vertebrate Zoology
University of California
2593 Life Sciences Building
Berkeley, CA 94720
(415) 642-1379

Monterey Bay Aquarium
886 Cannery Row
Monterey, CA 93940-1085
(415) 289-7325
(Sea Otters)

Long Marine Laboratory
Institute for Marine Studies
University of California
100 Shaffer Road
Santa Cruz, CA 95060
(408) 459-2883

Moss Landing Marine Laboratories
P.O. Box 450
Moss Landing, CA 95039
(408) 633-3304

Vertebrate Laboratory
Santa Barbara Museum of Natural History
2559 Puesta Del Sol Road
Santa Barbara, CA 93105
(805) 687-4065, Ext. 320

Santa Barbara Marine Mammal Center
3930 Harold Avenue
Santa Barbara, CA 93110
(805) 687-3255

Section of Mammals
Natural History Museum of Los Angeles County
900 Exposition Blvd.
Los Angeles, CA 90007
(213) 585-5105

Friends of the Sea Lion Marine Mammal Center
20612 Laguna Canyon Road
Laguna Beach, CA 92651
(714) 494-3050

Fort MacArthur Marine Mammal Care Center
3601 South Gaffey Street
San Pedro, CA 90731
(310) 548-5667

Department of Animal Care
Sea World
1720 South Shores Road
San Diego, CA 92109
(800) 541-7325

Southwest Fisheries Science Center
National Marine Fisheries Service
P.O. Box 271
La Jolla, CA 92038
(619) 546-7067

Naval Ocean Systems Center
Code 642
San Diego, CA 92152
(619) 553-1374

Hawaii

Dr. Annette Freeman
P.O. Box 1106
Kailua, HI 96734

Dr. David Haas
3113 Oihana St.
Lihue, HI 96766

Dr. Walter Haas
3113 Oihana Street
Lihue, HI 96766

John R. Henderson
Southwest Fisheries Science Center
2570 Dole St.
Honolulu, HI 96822

Dr. Charla Jones
Care Animal Hospital
1135 Kapahulu Ave.
Honolulu, HI 96816

Dr. Roger Kehler
Kihei Veterinary Clinic
P.O. Box 1669
Kihei, HI 96753

Dr. Marta Lepes
Hilo Veterinary Clinic
711 Kanoelehua Ave.
Hilo, HI 96720

Dr. David MacKay
45-480 Kaneohe Bay Drive
Kaneohe, HI 96744

Dr. Michelle Magee
P.O. Box 1106
Kailua, HI 96734

Dr. Robert Morris
420 Uluniu St.
Kailua, HI 96734

Eugene T. Nitta
NMFS, Southwest Region
2570 Dole Street
Honolulu, HI 96822

Dr. Tom Sawa
Division of Animal Industry
Dept. of Agriculture
99-762 Moanalua Road
Aiea, HI 96701

Dr. Thierry Work
U.S. Fish and Wildlife Service
3 Waterfront Plaza, Suite 580
500 Ala Moana Blvd.
Honolulu, HI 96813

Oregon

Robin Brown
Oregon Department of Fish and Wildlife
Marine Science Drive
Newport, OR 97365
(503) 867-4741

Susan Reimer
Oregon Department of Fish and Wildlife
53 Portway St.
Astoria, OR 97103

Jan Hodder
Oregon Institute of Marine Biology
P.O. Box 5389
Charleston, OR 97420
(503) 888-2581

Bruce Mate
Oregon State University
2030 S. Marine Science Drive
Newport, OR 97365
(503) 270-2381

Mike Glenn
Oregon Coast Aquarium
P.O. Box 2000
Newport, OR 97365
(503) 867-3474

Washington

National Marine Mammal Laboratory
National Marine Fisheries Service
7600 Sand Point Way, N.E.
Seattle, WA 98115-0070
(206) 526-4045

Cascadia Research Collective
Waterstreet Bldg., Suite 201
218 1/2 W. Fourth Ave.
Olympia, WA 98501
(360) 943-7325

Steve Jeffries
Washington Department of Fish and Wildlife
7801 Phillips Road, S.W.
Tacoma, WA 98498
(206) 589-7235

Marine Animal Resource Center
2201 34th Ave., W.
Seattle, WA 98199
(206) 285-7325

Alaska

Alaska Department of Fish and Game
Division of Wildlife Conservation
Marine Mammals Coordinator
1300 College Road
Fairbanks, AK 99701
(907) 456-5156

National Marine Fisheries Service
Alaska Regional Office
P.O. Box 21668
Juneau, AK 99802-1668
(907) 586-7510

National Marine Fisheries Service
Anchorage Office
222 West 7th, #43
Anchorage, AK 99513
(907) 271-5006

National Marine Fisheries Service
Kodiak Office
P.O. Box 1903
Kodiak, AK 99615
(907) 487-4961

Kate Wynne
FITC, MAP
900 Trident Way
Kodiak, AK 99615
(907) 486-1517

Jan Straley
P.O. Box 273
Sitka, AK 99835

Department of Wildlife Management
North Slope Borough
P.O. Box 69
Barrow, AK 99723
(907) 852-2611

North Gulf Oceanic Society
P.O. Box 15244
Homer, AK 99603
(907) 235-6590

University of Alaska Museum
907 Yukon Drive
Fairbanks, AK 99775-1200
(907) 474-6947

Beth Mathews
University of Alaska-Southeast
Education and Liberal Arts and Sciences
11120 Glacier Highway
Juneau, AK 99801
(907) 465-6407

Gary Freitag
P.O. Box 3181
Ketchikan, AK 99901

ADDENDUM H

VETERINARY ORGANIZATIONS AND COLLEGES

American Veterinary Medical Association
Emergency Preparedness Office
1023 15th Street, N.W., Suite 300
Washington, D.C. 20005-2602
(800) 248-2862, Ext. 287

Dr. Jim McBain
International Association for Aquatic Animal Medicine
c/o Sea World of California
1720 South Shores Road
San Diego, CA 92109
(619) 226-3833

Dr. Wilbur Amand
American Association of Zoological Veterinarians
c/o Philadelphia Zoological Society
3400 West Girard Avenue
Philadelphia, PA 19104-1960
(215) 387-9094

Dr. David Hunter
American Association of Wildlife Veterinarians
Idaho Department of Fish and Game
P.O. Box 25
Boise, ID 83707
(208) 454-7638

Dr. David Jessup
Wildlife Disease Association
California Department of Fish and Game
1701 Nimbus Road, Suite D
Rancho Cordova, CA 95670
(916) 355-0237

Except where noted otherwise, veterinary school telephone numbers are for the Dean's Office.

Auburn University
College of Veterinary Medicine
Auburn University, AL 36849
(205) 844-4546

University of California
School of Veterinary Medicine
Davis, CA 95616
(916) 752-1361

Colorado State University
College of Veterinary Medicine and Biomedical Sciences
Ft. Collins, CO 80523
(303) 491-7051

Cornell University
College of Veterinary Medicine
Ithaca, NY 14853
(607) 253-3771--Dean's Office
(607) 253-3365--Department of Avian and Aquatic Animal Medicine
(607) 253-3900--Diagnostic Laboratory

University of Florida
College of Veterinary Medicine
Gainesville, FL 32610-0125
(904) 392-4700, Ext. 5000

University of Georgia
College of Veterinary Medicine
Athens, GA 30602
(706) 542-3461

University of Illinois
College of Veterinary Medicine
2001 South Lincoln
Urbana, IL 61801
(217) 333-2760

Iowa State University
College of Veterinary Medicine
Ames, IA 50011
(515) 294-1242

Kansas State University
College of Veterinary Medicine
Manhattan, KS 66506
(913) 532-5660

Louisiana State University
School of Veterinary Medicine
Baton Rouge, LA 70803
(504) 346-3151

Michigan State University
College of Veterinary Medicine
East Lansing, MI 48824-1314
(517) 355-6509

University of Minnesota
College of Veterinary Medicine
St. Paul, MN 55108
(612) 624-9227

Mississippi State University
College of Veterinary Medicine
Mississippi State, MS 39762
(601) 325-1418

University of Missouri
College of Veterinay Medicine
Columbia, MO 65211
(314) 882-3768

North Carolina State University
College of Veterinary Medicine
4700 Hillsborough Street
Raleigh, NC 27606
(919) 289-4210--Dean's Office
(919) 829-4230--Companion Animals and Special Species Medicine

Ohio State University
College of Veterinary Medicine
Columbus, OH 43210
(614) 292-1171

Oklahoma State University
College of Veterinary Medicine
Stillwater, OK 74078
(405) 744-6648

College of Veterinary Medicine at Oregon State University
Corvallis, OR 97331
(503) 737-2098

University of Pennsylvania
School of Veterinary Medicine
3800 Spruce Street
Philadelphia, PA 19104-6044
(215) 898-8841

Purdue University
School of Veterinary Medicine
1240 Lynn Hall
West Lafayette, IN 47907
(317) 494-7607

University of Tennessee
College of Veterinary Medicine
Knoxville, TN 37901
(615) 974-7262

Texas A&M University
College of Veterinary Medicine
College Station, TX 77843-4461
(409) 845-5053

Tufts University
School of Veterinary Medicine
200 Westboro Road
North Grafton, MA 01536
(508) 839-5302

Tuskegee University
School of Veterinary Medicine
Tuskegee, AL 36088
(205) 727-8174

Virginia Tech and University of Maryland
Virginia-Maryland Regional College of
Veterinary Medicine
Blacksburg, VA 24061-0442
(703) 231-7910

Washington State University
College of Veterinary Medicine
Pullman, WA 99164
(509) 335-9515

University of Wisconsin-Madison
School of Veterinary Medicine
Madison, WI 53706
(608) 263-6716