NATIONAL TEMPLATE

MARINE MAMMAL STRANDING AGREEMENT BETWEEN

NATIONAL MARINE FISHERIES SERVICE OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION DEPARTMENT OF COMMERCE

AND

[Stranding Network Organization]

Prepared by Janet E. Whaley, DVM
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

January 2007

Shaded denotes reserved text at the discretion of the NMFS Regional Administrator

Articles III, IV, V, and VI are reserved and issued at the discretion of the NMFS Regional Administrator.

ARTICLE I
General Provisions

Authority

1. This Agreement is entered into between the National Oceanic and Atmospheric Administration, National Marine Fisheries Service [Region], (hereinafter NMFS) and the Stranding Network Participant [Stranding Network Organization] (hereinafter [Participant acronym]), under the authority of Sections 112(c) and 403 of U.S.C. 1421e, the Marine Mammal Protection Act of 1972, as amended (hereinafter the MMPA). **This Agreement supersedes all pre-existing Stranding Agreements between these parties. An organizational representative with signatory authority (e.g. Executive Director, President, CEO) must sign this Agreement on behalf of the Stranding Network Organization.**

2. NMFS has been delegated authority to administer the MMPA. Under the MMPA, NMFS is responsible for mammals of the **Order Cetacea** and the **Order Pinnipedia** other than walruses (hereinafter marine mammals).

3. To assist in the implementation and administration of the MMPA, the [Region] Marine Mammal Stranding Network has been established to respond to stranded marine mammals within the [Region] of the United States. The [Region] consists of the following states: [*List state(s)*]. The geographic response area assigned to [Participant acronym] consists of the following: [(*list response area including primary and secondary geographic response areas as necessary*)]. If requested by NMFS, [Participant acronym] may assist in the stranding response outside of their assigned response area or in another Region as coordinated with the appropriate regional NMFS Marine Mammal Stranding Coordinator(s).

4. This Agreement does <u>not</u> authorize:

    a. This Agreement does not authorize the taking of any marine mammal species listed as endangered or threatened under the Endangered Species Act of 1973 (hereinafter ESA), as amended. Authorization to take ESA listed species is provided under an MMPA/ESA permit issued to the NMFS Marine Mammal Health and Stranding Response Program Coordinator and requires authorization and direction from the NMFS [Region] Regional Stranding Coordinator in the event of a stranding involving a threatened or endangered marine mammal.

    b. The sale or offer of sale of any marine mammal or marine mammal parts including cells, gametes, or cell cultures.

ARTICLE II
Purpose and General Responsibilities

A. Purpose of Agreement. NMFS [Region] Region and the [Participant acronym] enter into this Agreement for the following purposes:

1. To provide for rapid response and investigation of stranded marine mammals *[reserved for taxa]* within the [Region] in accordance with the purposes and policies of the MMPA.

2. To implement Title IV (Marine Mammal Health and Stranding Response Program) of the MMPA:

   a. to facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild;

   b. to correlate the health of marine mammals and marine mammal populations in the wild with available data on physical, chemical, and biological environmental parameters; and

   c. to detect and coordinate effective responses to unusual mortality events.

3. To specify the activities during which [Participant acronym] may take stranded marine mammals [*reserved for taxa*] or marine mammal parts for the primary purpose of ensuring the appropriate response, [rehabilitation], disposition, and utilization of stranded marine mammals or marine mammal parts under MMPA sections 109(h), 112(c), and 403 and the Agreement.

4. To define the nature and extent of services that [Participant acronym] will provide NMFS [Region] under this Agreement and NMFS responsibilities to [Participant acronym].

5. To specify the requirements for the preparation and maintenance and reporting of records containing scientific data obtained from dead and live stranded marine mammals or parts from dead stranded marine mammals.

6. To provide for the timely exchange of information for use by both parties and other network members in furthering the objectives of the MMPA under this Agreement.

B. NMFS Responsibilities

1. Provide [Participant acronym] notice of any changes to laws, regulations, policies and/or guidelines applicable to or promulgated by NMFS that may apply to [Participant acronym] activities. This includes criteria for issuance, renewal and termination of stranding agreements. Notwithstanding this provision, it is the responsibility of [Participant acronym] to comply with all laws, regulations, policies and/or guidelines that

apply to [Participant acronym] activities.

2. Conduct periodic compliance reviews of Stranding Agreements as stated in Article IX.

3. Provide guidance and assistance regarding investigation of marine mammal unusual mortality events including financial and physical resources (example: NOAA laboratory assistance) when available and authorized (in accordance with Section 405 of MMPA – UME National Contingency Fund) and in coordination with the Working Group on Marine Mammal Unusual Mortality Events.

4. Alert [Participant acronym] when NMFS has been notified that there are diseases of concern that are emerging, reportable, and/or zoonotic within the Region.

5. Pursuant to criteria established under MMPA Section 407, provide access to the National Marine Mammal Health and Stranding Response Program Database, as developed, and access to marine mammal tissues in the National Marine Mammal Tissue Bank following NMFS data and tissue access procedures and policies.

6. As needed and as resources are available, provide specialized marine mammal stranding response and investigation training on a local, regional or national basis.

7. Pursuant to MMPA Section 402, collect and update periodically and make available to stranding network participants and other qualified scientists, existing information on:

    a. procedures and practices for rescuing and rehabilitating stranded marine mammals;

    b. species by species criteria used by the stranding network participants, for determining at what point a marine mammal undergoing rescue and rehabilitation is returnable to the wild based on its ability to survive in the wild and risk to the wild population;

    c. procedures and practices for collecting, preserving, labeling, and transporting marine mammal tissues for physical, chemical, and biological analyses;

    d. appropriate scientific literature on marine mammal health, disease, and rehabilitation;

    e. compilation and analyses of strandings by region to monitor species, numbers, conditions, and causes of illness and death in stranded marine mammals;

    f. other life history and reference level data, including marine mammal tissue analyses that would allow comparison of the causes of illness and death in stranded marine mammals with physical, chemical, and biological environmental parameters.

8. In certain circumstances such as large scale events (e.g. mass stranding, unusual mortality events, live right whale stranding), NMFS [Region] Region may establish a formal Incident Command System for response, including the identification of an Incident Commander.

C. Participant Responsibilities

1. [Participant acronym] shall comply with NMFS laws, regulations, policies and/or guidelines applicable to or promulgated by NMFS that apply to activities under this Agreement.

2. [Participant acronym] shall cooperate with other members of the NMFS [Region] Stranding Network and the National Marine Mammal Stranding Program as well as Federal, state, and local officials and employees in matters supporting the purposes of this Agreement.

3. [Participant acronym] shall be subject to the direction of a designated employee representing the NMFS [Region] Regional Administrator or Office of Law Enforcement with respect to the taking of a stranded marine mammal.

4. [Participant acronym] shall bear any and all expenses that they incur with the taking, collection, or other activities pursuant to this Agreement. NMFS does not typically use government funds to reimburse volunteers for expenses incurred in responding to stranding events. NMFS may be able to support costs associated with specific analyses and additional requests when funds are available and authorized (in accordance with Section 405 of the MMPA Unusual Mortality Event National Contingency Fund) and in coordination with the Working Group on Marine Mammal Unusual Mortality Events. Competitive funding opportunities for Stranding Network Participants in good standing may be available through the Prescott Stranding Assistance Grant Program (http://www.nmfs.noaa.gov/pr/health/prescott/).

5. [Participant acronym] shall promote human and public safety by taking precautions against injury or disease to any network personnel, volunteers, and the general public when working with live or dead marine mammals.

6. Transfer of marine mammal parts (50 CFR 216.22 and 216.37):

   a. Non-diagnostic parts, tissues, cells, gametes, or cell cultures to be used for scientific research, species enhancement, or education shall be transferred only to persons or labs that are authorized to receive marine mammal parts pursuant to the regulations. The unique field number assigned by the [Participant acronym] or [NMFS Registration Number] must be marked on or affixed to the marine mammal part or container.

b. Diagnostic parts, tissue samples, fluid specimens, parts, or cells may be transferred to labs within the U. S. for diagnostic use without any additional authorizations.

7. [Participant acronym] agrees to work within and cooperatively with the NMFS Incident Command System when implemented.

8. [Participant acronym] will notify NMFS in writing within 30 days of any changes in its Designee organizations, personnel, capabilities, geographic area of response.

9. If requested, [Participant acronym] shall coordinate with NMFS [Region] to develop and implement a media plan relating to stranding events.

10. Notify [immediately or] within 24 hours the NMFS [Region] Regional Stranding Coordinator of learning of any diseases of concern (e.g., emerging, reportable, and/or zoonotic diseases) that are detected and/or confirmed which could affect human health or the health of wild marine mammal populations;

11. Photo documenting (still or video) shall not interfere or influence the conduct of the stranding responders and response in any way or cause additional harassment to marine mammals.

12. If requested by the NMFS [Region] Regional Stranding Coordinator, [Participant acronym] provide to the Regional Stranding Coordinator copies of any photographs, films, and/or videotapes documenting any stranding (particularly for those strandings when human interactions are reported or suspected). Reimbursement for this request is subject to negotiation between NMFS and [Participant acronym]. Any photography, film and/or videotape of the stranding response used for educational or commercial purposes of stranding response should by [Participant acronym] should include a credit, acknowledgment, or caption indicating that the stranding response was conducted under an Agreement between NMFS and [Participant acronym] under the authority of the MMPA. NMFS will not reproduce, modify, distribute, or publicly display the photograph, film, and/or videotape without consent of the owner, unless required to release a copy under Federal law or order (such as the Freedom of Information Act).

13. By its nature, the handling of stranded marine mammals (dead or alive) is potentially a dangerous activity. [Stranding Participant] shall indemnify and hold harmless the United States Government from any and all losses, damages, or liability or claims thereof on account of personal injury, death, or property damage of any nature whatsoever, arising out of the activities of [Stranding Participant], his/her/its employees, his/her/its qualified representatives, designees, subcontractors, volunteers, or agents. Liability for person(s) acting under this agreement is addressed in Section 406(a) and (b) of the MMPA (16 U.S.C. 1421e).

D. <u>Joint Responsibilities</u> NMFS [Region] Region and [Participant acronym] will work

cooperatively to:

1. Implement Title IV of the MMPA;

2. Effectively respond to and investigate the causes and impacts of Marine Mammal Unusual Mortality Events;

3. Collect the appropriate data for determination of the impact of serious injuries and mortalities due to human interactions;

4. Collect reference data on marine mammal health and diseases;

5. Collect data on the frequency and causes of strandings; and

6. Interpret findings and identify health trends and diseases of concern to include emerging, reportable, and zoonotic diseases.

ARTICLE III
Dead Animal Response

Reserved
OR

A. [Participant acronym] may take species of marine mammals under the MMPA for the purpose of dead animal investigation and response.

Subject to the conditions contained in this Agreement, the MMPA, and the implementing regulations, [Participant acronym] may take dead stranded marine mammals or parts therefrom for the collection of data on the health and health trends of wild populations, for the detection of marine mammal unusual mortality events, for the detection of signs of human interaction, for research or education on marine mammal biology and life history, for the determination of cause of death, for the detection of human caused and natural mortality, or for other research as deemed appropriate by the NMFS. These activities specifically include obtaining measurements and biological samples from dead stranded marine mammals, disposing, or assisting in the disposal, of dead stranded marine mammals at an appropriate landfill or other suitable location, and taking and transporting dead stranded or floating dead marine mammals, or parts therefrom, to facilities or individuals approved pursuant to 50 C.F.R. 216.22 for scientific research, maintenance in a properly curated, professionally accredited scientific collection, or for educational purposes.

B. Terms and Conditions for Dead Animal Response

1. Response

a. [Participant acronym] shall respond as practicable to reports of dead stranded marine mammals within the geographic range or response specified under Article I, Number 3. [*Reserved* {If the [Participant acronym] is the closest and/or first responder, the [Participant acronym] is considered to be the on-site coordinating organization and is in charge of all on-site activities.}] In certain circumstances such as a UME, mass stranding, or endangered marine mammal stranding, NMFS may implement the ICS structure and designate an on-site coordinator to be in charge of the event (see Article II B8 and II C5). In all situations, the [Participant acronym] will cooperate with Federal, state and local government officials and employees and other stranding network participants when responding to these strandings. If the [Participant acronym] receives a verified report of a dead stranded marine mammal and does not have the capability to respond appropriately to the report, the [Participant acronym] shall notify [the [Region] Regional Stranding Coordinator and/or adjacent stranding network participants within [hours, days]]. Also, if the [Region] Regional Stranding Coordinator receives a report of a dead stranded marine mammal [*reserved for taxa*], the Regional Stranding Coordinator may contact [Participant acronym] to determine

whether [Participant acronym] has the capability to respond to the stranding. If the [Participant acronym] cannot respond in a timely manner, the Regional Stranding Coordinator may request another Stranding Network participant to respond.

b. If the [Participant acronym] leaves a dead animal at the stranding site or in the case of a UME or mass stranding response, the [Participant acronym] shall, if feasible, mark each animal with a tag or mark such as roto-tags or grease stick to assist with data collection and to prevent multiple reports on the same animal(s).

c. If requested by [Region] Regional Stranding Coordinator and if feasible and practicable, the [Participant acronym] will assist with stranding response in neighboring areas outside the [Participant acronym] geographic range (specified in Article I, Number 3).

2. Data Collection and Reporting. [Participant acronym] shall collect and provide the following information for each stranded marine mammal they respond to:

a. Complete the NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report - "Level A" Form) for each stranded marine mammal. Completed forms shall be sent to the [Region] Region Stranding Coordinator, [Address], according to the following schedule [*reserved schedule*]. If requested by the NMFS [Region] Regional Stranding Coordinator, [Participant acronym] shall provide to the Regional Stranding Coordinator preliminary data (verbal or written) from the Level A - Marine Mammal Stranding Report within 24 hours, and [Participant acronym] shall coordinate and cooperate with the Regional Stranding Coordinator to investigate such strandings or mortalities.

b. Collect additional Level B and Level C data when possible and feasible.

c. Notify [immediately or] within 24 hours the NMFS [Region] Regional Stranding Coordinator regarding possible or confirmed human interactions [*reserved*], suspected unusual mortality events, extralimital or out of habitat situations, mass stranding events, mass mortalities, large whale strandings, and any stranding involving endangered or threatened species or identified species of concern [*list species*]. [*Reserved* {In addition, NMFS [Region] Region requires that [Participant acronym] report any right whale sightings that occur or are reported as part of their normal activities. Please see Attachment B for contact information.}]

d. In certain circumstances (e.g., unusual mortality event, possible human interaction case, extralimital or out of habitat situation), the NMFS [Region] Regional Stranding Coordinator may request additional and expedited reporting (verbal or written) of Level B and C data such as analytical results and necropsy reports [within 24 hours]. NMFS will not reproduce, modify, distribute, or

publish the data without consent of the [Participant acronym] unless required to release the data under Federal law or order (such as the Freedom of Information Act);

e. Collect and make available any gear, debris, or other objects (for example, bullets, arrows, net webbing, etc.) recovered from a stranded marine mammal that may be evidence of human interaction. [Participant acronym] must comply with chain of custody procedures or any other instructions as specified and supported by NMFS [Region] and/or NMFS Office of Law Enforcement personnel.

3. Parts Disposition. Diagnostic parts, tissue samples, fluid specimens, parts or cells may be transferred to labs within the United States for diagnostic use without any additional authorizations. For non diagnostic parts or samples:

a. Report within 30 days of the stranding, the retention or transfer of any parts salvaged from the stranded marine mammal collected under this agreement to NMFS [Region] Regional Stranding Coordinator, [Address], as required by 50 CFR 216.22. For retention of marine mammal parts by [Participant acronym], data provided in the "Specimen Disposition" field of NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report - "Level A" Form) is required and parts are marked with the field identification number from the stranded animal.

b. For transfer of parts, [Participant acronym] must provide the institution name where specimen materials have been deposited in the "Specimen Disposition" field on the NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report – Level "A" Form) and ensure that retained or transferred parts are marked with the field identification number or [NMFS Registration Number] assigned to the stranded animal. Also, [Participant acronym] must ensure the receiving institution is authorized by the NMFS [Region] Regional Administrator to receive marine mammal parts pursuant to the regulations 50 CFR 216.22 [or 50 CFR 216.37.]

4. Site clean up. The [Participant acronym] shall make every reasonable effort to assist in the clean up of beach areas where their activities under this Agreement, such as necropsy or specimen collection, contributes to the soiling of the site.

ARTICLE IV
Live Strandings: First response

Reserved
OR

A. [Participant acronym] may take species of marine mammals covered under the MMPA for the purpose of live stranding first response (initial assessment and care at the site of stranding and assist in the appropriate disposition of the animal), beach triage, beach release, temporary holding for assessment and triage, translocation and/or transportation to a NMFS authorized rehabilitation center within the [Region].

1. The taking of live stranding marine mammals by [Participant acronym] must be accomplished in a humane manner[1] for the protection of welfare of the marine mammal. If the animal dies during the course of response and/or investigation, then the terms and responsibilities contained in Article III shall apply. The activities authorized are in addition to Articles I and II under this Article and specifically include:

    a. Taking measurements and collecting blood or other diagnostic samples from live stranded marine mammals for health assessment.

    b. Returning live stranded marine mammals as directed by NMFS to their natural habitat and tagging such animals. Invasive tagging using other than approved methods (e.g., one-bolt roto or cattle ear tags, freeze branding) must first be approved by NMFS [Region] Region. Tagging and post tagging activities are restricted to monitoring success of marine mammals released to the wild. Any projects outside the scope of monitoring release success must be authorized under a NMFS scientific research permit.

    c. Performing humane euthanasia[2]. Euthanasia shall only be performed by the attending veterinarian or by a person acting in behalf of the attending veterinarian (i.e., under coordination or supervision) and following approved guidelines such as those referenced in Attachment C. When using controlled drugs, such person(s) shall comply with all applicable state and Federal laws and regulations (i.e., registered with the Drug Enforcement

[1] **Humane Take as defined in the Marine Mammal Protection Ac**t – "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved."

[2] **2000 Report of the American Veterinary Panel on Euthanasia -** "…euthanasia is the act of inducing humane death in an animal." "….it is done with the highest degree of respect and with an emphasis on making the death as painless and distress free as possible. Euthanasia techniques should result in rapid loss of consciousness followed by cardiac or respiratory arrest and the ultimate loss of brain function. In addition, the technique should minimize distress and anxiety experienced by the animal prior to loss of consciousness." "A veterinarian with appropriate training and expertise for the species involved should be consulted to ensure that proper procedures are used."

Administration). Authorization for stranding network participants to euthanize ESA-listed species is provided under an MMPA/ESA permit issued to the NMFS Marine Mammal Health and Stranding Response Program Coordinator and requires special permission and direction from the NMFS [Region] Regional Stranding Coordinator. For reference, see Attachment C – 2000 Report of the American Veterinary Medical Association Panel on Euthanasia and attachment D – Chapter on Euthanasia in the 2nd Edition of the CRC Handbook of Marine Mammal Medicine.

d. Transporting live stranded marine mammals for rescue and rehabilitation to a NMFS approved rehabilitation facility or temporary holding facility.

2. This Agreement does not authorize any projects involving "intrusive research" (as defined in 50 CFR 216.3). Measurements or sampling for scientific research purposes (i.e., outside the scope of accepted diagnostic and treatment practices for the care of an animal) must be authorized under a NMFS MMPA/ESA scientific research permit.

B. Terms and Conditions for Live Stranding: First Response

1. **Response**

a. [Participant acronym] shall respond to reports of live stranded marine mammals *[reserved for taxa and schedule]*. *[Reserved* {If the [Participant acronym] is the closest and/or first responder, the [Participant acronym] is considered to be the on-site coordinator and is in charge of all on-site activities.}] In certain circumstances such as a UME, mass stranding, or endangered marine mammal stranding, NMFS may implement the ICS structure and designate an on-site coordinator to be in charge of the event (see Article II B8 and II C5). In all situations, the [Participant acronym] will cooperate with Federal, state and local government officials and employees and other stranding network participants when responding to these strandings. If the [Participant acronym] receives a verified report of a live stranded marine mammal and does not have the capability to respond appropriately to the report, the [Participant acronym] shall notify the [Region] Regional Stranding Coordinator within [hours, days]. Also, if the [Region] Regional Stranding Coordinator receives a report of a live stranded marine mammal [*reserved for taxa*], the Regional Stranding Coordinator may contact [Participant acronym] to determine whether [Participant acronym] has the capability to respond to the stranding. If the [Participant acronym] cannot respond in a timely manner, the Regional Stranding Coordinator may request another Stranding Network participant to respond.

b. [Participant acronym] shall take all steps reasonably practicable under the circumstances to prevent further injury to any live stranded marine mammal, injury to any network personnel, volunteers, government personnel and the

general public.

c. [Participant acronym] shall tag any animals that are immediately release to their natural habitat using NMFS approved tag, such as one-bolt roto tag, cattle ear tags, or freeze branding. Tagging and post tagging activities are restricted to monitoring success of marine mammals released to the wild. Any projects outside the scope of monitoring the success of a release must be authorized under a NMFS MMPA/ESA scientific research permit.

d. [*Reserved* {If [Participant acronym] determines that it is necessary to temporarily hold or triage a stranded marine mammal at a separate site from the stranding event, [Participant acronym] must obtain approval from the NMFS [Region] Regional Stranding Coordinator prior to the transport of the animal.}]

e. [*Reserved* {If [Participant acronym] responds to an "out-of-habitat" or free-swimming marine mammal in distress (e.g., entanglement), [Participant acronym] must contact the NMFS [Region] Regional Stranding Coordinator for approval and discuss plans for live capture and/or needs for assistance. The [Region] Regional Stranding Coordinator may require a NMFS employee to present at live captures.}]

2. **Data Collection and Reporting.** [Participant acronym] shall collect and provide the following information for each stranded marine mammal they respond to:

a. Complete the NOAA Form 89864, OMB # 0648-0178 (the Marine Mammal Stranding Report - "Level A" Data) for each stranded marine mammal. The form shall be sent to the [Region] Regional Stranding Coordinator, [Address], according to the following schedule: [*reserved schedule*].

b. If temporally holding a stranded animal prior to transferring to a rehabilitation facility acting in accordance with this Article, [Participant acronym] shall complete the NOAA Form 89878, OMB # 0648-0178 (the Marine Mammal Rehabilitation Disposition Report). The form shall be sent to the [Region] Regional Stranding Coordinator, [Address], according to the following schedule: [*reserved schedule*].

c. Collect additional Level B and Level C data when possible and feasible.

d Notify [immediately or] within 24 hours the NMFS [Region] Regional Stranding Coordinator regarding possible or confirmed human interactions [*reserved*], entanglements, suspected unusual mortality events, extralimital or out of habitat situations, mass stranding events, mass mortalities, all live cetacean strandings, and any strandings involving endangered or threatened species or identified species of concern. [*Reserved* {In addition, NMFS [Region] Region requests that [Participant acronym] report any right whale sightings that occur or are reported

as part of their normal activities. Please see Attachment B for contact information.}]

e. If requested by the NMFS [Region] Regional Stranding Coordinator, provide to the Regional Stranding Coordinator preliminary data from the Level A - Marine Mammal Stranding Report within 24 hours, and [Participant acronym] shall coordinate and cooperate with the Regional Stranding Coordinator to investigate such strandings or mortalities.

f. In certain circumstances (e.g., cetacean strandings, unusual mortality event, possible human interaction case, extralimital or out of habitat situation), the NMFS [Region] Regional Stranding Coordinator may request expedited reporting (verbal or written) of live marine mammals by [Participant acronym]. In these circumstances, [Participant acronym] shall provide the NMFS [Region] Regional Stranding Coordinator with preliminary or complete stranding reports, if available, including Level B and C data such as analytical results and necropsy reports [within 24 hours]. NMFS will not reproduce, modify, distribute, or publish the data without consent of the [Participant acronym] unless required to release a copy under Federal law or order (such as the Freedom of Information Act).

g. Collect and make available any gear, debris, or other objects (for example, bullets, arrows, net webbing, etc.) that may be evidence of human interaction recovered from a stranded marine mammal that may be evidence of human interaction. [Participant acronym] must comply with chain of custody procedures or any other instructions as specified and supported by NMFS [Region] and/or NMFS Office of Law Enforcement personnel.

3. **Parts Dispositon** Diagnostic parts, tissue samples, fluid specimens, parts or cells may be transferred to labs within the United States for diagnostic use without any additional authorizations. For non diagnostic parts or samples:

a. Report within 30 days of the stranding, the retention or transfer of any parts salvaged from the stranded marine mammal collected under this agreement to NMFS [Region] Regional Stranding Coordinator, [Address], as required by 50 CFR 216.22. For retention of marine mammal parts by [Participant acronym], data provided in the “Specimen Disposition” field of NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report - “Level A" Form) is required and parts are marked with the field identification number from the stranded animal.

b. For transfer of parts, [Participant acronym] must provide the institution name where specimen materials have been deposited in the “Specimen Disposition” field on the NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report – Level “A” Form) and ensure that retained or transferred parts

are marked with the field identification number or [NMFS Registration Number] from the stranded animal. Also, [Participant acronym] must ensure the receiving institution is authorized by the NMFS [Region] Regional Administrator to receive marine mammal parts pursuant to the regulations at 50 CFR 216.22 [or 50 CFR 216.37].

4. **Site Clean Up.** [Participant acronym] shall assist in the clean up of beach areas where their activities under this Agreement such as euthanasia, necropsy or specimen collection contributes to the soiling of the site.

ARTICLE V
Live animal response: Rehabilitation and release

Reserved
OR

A. [Participant acronym] may take live stranded marine mammals for rehabilitation and release of live stranded marine mammals. In addition to the activities provided under previous Articles of this Agreement, and subject to the conditions contained in this Agreement, the MMPA, and the implementing regulations, [Participant acronym] may take live stranded marine mammals in a humane manner[3] for rehabilitation and release which specifically includes the following activities:

1. Transferring marine mammals to another NMFS approved rehabilitation facility within the [Region] for:
    a. for release back to the wild,
    b. for temporary placement in a scientific research facility holding a current NMFS scientific research permit and a United States Department of Agriculture Animal, Plant and Health Inspection Service (APHIS) Research License, or
    c. for permanent disposition at an authorized facility (i.e. holds an APHIS "exhibitors" license {7 USC 2131 et seq.}) after consultation with and authorization by the NMFS Office of Protected Resources Permits, Conservation, and Education Division.

2. Scientific research may be conducted on stranded animals in a rehabilitation facility, only if the responsible individual has a NMFS scientific research permit and the facility holds an APHIS "research" license in accordance to the Animal Welfare Act (50 CFR 216.27).

3. Returning rehabilitated stranded marine mammals as directed by NMFS to their natural habitat and tagging such animals. Invasive tagging using other than approved methods (e.g., one-bolt roto or cattle ear tags, freeze branding) must first be approved by NMFS [Region] Region. Tagging is restricted to monitoring success of marine mammals released to the wild. Any projects outside the scope of monitoring the success of a release must be authorized under a NMFS scientific research permit.

4. Performing humane euthanasia[4]**.** Euthanasia shall only be performed by the attending

[3] **Humane take as defined in the Marine Mammal Protection Act** – "that method of taking which involves the least possible degree of pain and suffering practicable to the mammal involved."

[4] **2000 Report of the American Veterinary Panel on Euthanasia -** "…euthanasia is the act of inducing humane death in an animal." "….it is done with the highest degree of respect and with an emphasis on making the death as painless and distress free as possible. Euthanasia techniques should result in rapid loss of consciousness followed by cardiac or respiratory arrest and the ultimate loss of brain function. In addition, the technique should minimize distress and anxiety experienced by the animal prior to loss of consciousness." "A veterinarian with appropriate training and expertise for the species involved should be consulted to ensure that proper procedures are used."

veterinarian or by a person acting in behalf of the attending veterinarian (i.e., under coordination or supervision) and following approved guidelines such as those referenced in Attachment C. When using controlled drugs, such person(s) shall comply with all applicable state and Federal laws and regulations (i.e., registered with the Drug Enforcement Administration). Authorization for stranding network participants to euthanize ESA-listed species is provided under an MMPA/ESA permit issued to the NMFS Marine Mammal Health and Stranding Response Program Coordinator and requires special permission and direction from the NMFS [Region] Regional Stranding Coordinator. For reference, see Attachment C – 2000 Report of the American Veterinary Medical Association Panel on Euthanasia and attachment D – Chapter on Euthanasia in the 2nd Edition of the CRC Handbook of Marine Mammal Medicine.

B. Terms and Conditions for Live Animal Response: Rehabilitation and Release

1. Rehabilitation

a. [Participant acronym] shall comply with NMFS laws, regulations, policies, and/or guidelines applicable to or promulgated by NMFS that apply to activities under this Agreement. The [Participant acronym] must also have all applicable Federal, state, and local permits for rehabilitation facilities.

b. [Participant acronym] shall be responsible for the custody of any living marine mammal taken pursuant to this Article using standards for humane care[5] and for practicing accepted medical evaluation and treatment (e.g., Animal Welfare Act, American Veterinary Medical Association, American Zoological Association and the International Association for Aquatic Animal Medicine) and as described in the NMFS Interim Standards for Rehabilitation Facilities. It is required under 50 CFR 216.22 that methods of care and maintenance of marine mammals in rehabilitation be reported to NMFS.

c. [Participant acronym] shall not exceed their maximum holding capacity based on minimum standard space requirements, number of animals housed in each holding area and qualified personnel as provided in the NMFS Interim Standards for Rehabilitation Facilities. A written waiver from the NMFS [Region] Regional Administrator is required prior to [Participant acronym] exceeding the maximum holding capacity. Other considerations for determining maximum holding capacity include:

(1) On-site veterinary care, volunteer support, and experienced staff
(2) Adequate food and medical supplies and medical test capabilities
(3) Isolation for marine mammals

---

[5] **Humane care** – Treatment of an animal in such a way to both minimize pain and suffering and (by providing for proper care and use of the animal) to maximize well being of the individual and the population into which it is to be released.

(4) Adequate water quality
(5) Limited public access
(6) Ability to maintain current, accurate and thorough records

d. [Participant acronym] shall follow contingency plans submitted to NMFS for care of marine mammals in rehabilitation in anticipation of expected (construction) or unexpected events such as mass strandings, unusual mortality events, natural disasters (e.g., prolonged power outages, hurricanes, harmful algal blooms, El Niño), and hazardous waste spills.

e. [Participant acronym] shall isolate stranded rehabilitating marine mammals from other wild or domestic animals and from any animal in permanent captivity (e.g., public display, scientific research, or enhancement).

f. [Participant acronym] shall prohibit the public display and training for performance of stranded rehabilitating marine mammals as required by 50 CFR 216.27(c)(5). This includes any aspect of a program involving interaction with the public.

g. Upon request by the NMFS [Region] Regional Administrator, [Participant acronym] shall permit the NMFS [Region] Regional Stranding Coordinator, other appropriate NMFS employees, or any other appropriate persons duly designated by the NMFS [Region] Regional Administrator to inspect the facilities and inspect and/or request records that pertain to rehabilitation activities.

h. During a Marine Mammal Unusual Mortality Event, NMFS [Region] may provide additional requirements for rehabilitation (e.g., isolation) and release as recommended in the National Contingency Plan for Response to Unusual Marine Mammal Mortality Events; D.W. Wilkinson, NOAA Technical Memorandum NMFS-OPR-9, September 1996. NMFS will prescribe these requirements in consultation with the Working Group for Marine Mammal Unusual Mortality Events.

2. Release

a. [Participant acronym] shall, in compliance with applicable guidelines and applicable regulations (i.e., 50 CRF 216.27), prepare a signed medical and behavior release determination recommendation by the rehabilitation facility's attending veterinarian that the marine mammal is medically and behaviorally suitable for release in accordance with NMFS Interim Standards for Release (i.e., similar to a health certificate). NMFS also requires a concurrence signature from [Participant acronym] Authorized Representative or Signatory of the Stranding Agreement.

b. If the [Participant acronym] recommends release, a release plan must also be

included with the final recommendation letter. This information must be submitted to and approved by the NMFS [Region] Regional Administrator following the timeline and other requirements in 50 CFR 216.27(a) unless a previous written waiver has been issued by the [Region] Regional Administrator.

3. Data Collection and Reporting

a. [Participant acronym] shall immediately report (verbal or written) to the NMFS [Region] Regional Stranding Coordinator any findings of diseases of concern (e.g., disease associated with an unusual mortality event, any emerging, reportable, and/or zoonotic diseases) that are detected which could affect human health or the health of wild marine mammal populations. NMFS [Region] may request that the facility temporarily not admit new cases of stranded marine mammals due to the severity of the disease of concern.

b. Upon release or other disposition of any marine mammal under this Article, [Participant acronym] shall complete the NOAA Form 89878, OMB # 0648-0178 (the Marine Mammal Rehabilitation Disposition Report). The form shall be sent to the [Region] Regional Stranding Coordinator, [Address], according to the following schedule: [*reserved schedule*].

4. Parts Dispositon Diagnostic parts, tissue samples, fluid specimens, parts or cells may be transferred to labs within the United States for diagnostic use without any additional authorizations. For non diagnostic parts or samples:

a. Report within 30 days of the stranding, the retention or transfer of any parts salvaged from the stranded marine mammal collected under this agreement to NMFS [Region] Regional Stranding Coordinator, [Address], as required by 50 CFR 216.22. For retention of marine mammal parts by [Participant acronym], data provided in the "Specimen Disposition" field of NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report - "Level A" Form) is required and parts are marked with the field identification number from the stranded animal.

b. For transfer of parts, [Participant acronym] must provide the institution name where specimen materials have been deposited in the "Specimen Disposition" field on the NOAA Form 89864, OMB #0648-0178 (the Marine Mammal Stranding Report – Level "A" Form) and ensure that retained or transferred parts are marked with the field identification number or [NMFS Registration Number] from the stranded animal. Also,[Participant acronym] must ensure the receiving institution is authorized by the NMFS [Region] Regional Administrator to receive marine mammal parts pursuant to the regulations at 50 CFR 216.22 [or 50 CFR 216.37].

ARTICLE VI

Designees

Reserved
OR

A. Delegation of authority and responsibilities under this Agreement. [Participant acronym] may designate a [*reserved- person*], organization, or institution to act on behalf of [Participant acronym] as a designee in accordance with this Agreement. The term "Designee" does not refer to individual volunteers of the Participant's organization, or to individual volunteers of the Designee, organization or institution. Such a designation requires prior written approval from NMFS [Region] (Attachment A). [Participant acronym] must submit information (see requirements listed below) and a copy of any agreement between [Participant acronym] and its prospective designee at least 30 days prior to any prospective designation, to the NMFS [Region] Regional Stranding Coordinator and the Regional Administrator [Addresses]. Any [*reserved-person*], organization or institution so designated shall be deemed an agent of [Participant acronym] and NMFS and is subject to ALL applicable provisions of this Agreement as well as applicable laws, regulations, and guidelines. Any breach of the provisions of this Agreement by a designee of [Participant acronym] shall be deemed a breach by [Participant acronym].

B. Purpose of Designee Organization(s). The purpose of Designee organization(s) is to assist the [Participant acronym] with improved regional coordination, response and/or rehabilitation capability within the [Participant acronym] geographic area of responsibility. NMFS will evaluate Designee organizations based on the [Participant acronym] justification for geographic need, enhancement response capabilities, and level of experience provided by the Designee organization.

C. Terms and Conditions for Adding Designee(s):

1. To request the addition of a Designee organization to the [Participant acronym]. Stranding Agreement, the [Participant acronym] must submit written information (see requirements listed below) and a copy of any agreement between the [Participant acronym] and its prospective designee at least 30 days prior to any designation to the NMFS [Region] Regional Administrator for review and approval. The written information includes:

    a. Complete name of the [*reserved-person*], organization, or institution;
    b. Resumes or CVs of all key personnel for Designees including evidence of relevant training;
    c. Justification Statement for designation;
    d. Geographic coverage area for response;
    e. For rehabilitation facilities, a facility operation plan including personnel,

veterinary care, equipment list, and other requirements stated under any applicable NMFS laws, regulations, policies, and/or guidelines. The Designee must also have all applicable Federal, state, and local permits for rehabilitation facilities;

f. Oversight plan including how [Participant acronym] will monitor the activities of the designee under this Agreement; and

g. A copy of a written Agreement between the [Participant acronym] and the Designee.

2. A Designee organization may not be authorized for activities different than or exceeding those contained in the Stranding Agreement of the [Participant acronym].

ARTICLE VII

Rights of States and Local Governments

Nothing in this Agreement shall be construed to affect the rights or responsibilities of other Federal, state or local government officials or employees acting in the course of their official duties with respect to taking of marine mammals in a humane manner (including euthanasia) for protection or welfare of the marine mammal, protection of public health and welfare or non-lethal removal of nuisance animals (MMPA Sec 109h).

ARTICLE VIII

A. Effective Date

The terms of this Agreement shall become effective upon the signature of both [Participant acronym] and the NMFS [Region] Regional Administrator.

B. Period of Agreement

1. **Duration of Agreement.** Unless renewed or otherwise terminated as provided in this Agreement, this Agreement shall expire at the end of the following applicable period:

   1 year for new stranding network participant
   3 years for live animal responder and rehabilitator (Article IV and V)
   6 years for dead animal responder (Article III only)

2. **Stranding Agreement Renewals.** For multi-year agreements within 90 days prior to the expiration date, the NMFS [Region] Regional Administrator will provide the [Participant acronym] with a notice of expiration and prescribe necessary information needed from the [Participant acronym] for review. No later than 60 days prior to the expiration date, [Participant acronym] shall indicate in writing to the NMFS [Region] Regional Administrator that a renewal of this Agreement is requested and provide the necessary information as prescribed by the NMFS [Region] Regional Administrator. Following NMFS review of information to determine if [Participant acronym] meets the applicable requirements, the Agreement may be renewed if agreed to in writing by both parties.

3. **New Stranding Agreements.** For new participants, NMFS will enter into this Agreement for a provisional period of one year from the effective date. NMFS will review the performance of [Participant acronym] and determine if services rendered under this Agreement have been satisfactory and no minor or major deficiencies have been incurred during the provisional period. If NMFS determine that [Participant acronym] has performed satisfactorily and has not incurred any minor or major deficiencies, this Agreement may be extended for a multi-year period. In general, new participants without any deficiencies (see Article IX, B) are considered to be in "good standing" under this Agreement.

ARTICLE IX

A. Review, Modification and Termination

1. **Review.** The NMFS [Region] Regional Administrator shall periodically review this Agreement for performance adequacy and effectiveness.

2. **Modification.** This Agreement may be modified at any time by the NMFS [Region] Region upon 30 days written notice to [Participant acronym]. [Participant acronym] may request modification of the Agreement in writing.

3. **Termination.** This Agreement may be terminated upon 30 days written notice by [Participant acronym] to NMFS. Upon at least 30 days written notice to [Participant acronym], the NMFS [Region] may terminate this Agreement, or any part thereof for any reason, including but not limited to violations of any applicable laws, regulations, or guidelines, or failure to satisfy the terms and responsibilities of this Agreement. Termination of the agreement by either party shall automatically terminate any designations by [Participant acronym] to any Designee organizations under this Agreement.

B. Violations of Law and Non-compliance with the Stranding Agreement

For failure to satisfy the terms and responsibilities of the Agreement or for violations of any laws, regulations, or guidelines applicable to this Agreement, the NMFS [Region] Regional Administrator shall provide [Participant acronym] notice and an opportunity to correct any minor or major deficiencies within a reasonable time period as specified by the NMFS [Region] Regional Administrator. [*Reserved* {If [Participant acronym] repeatedly fails to correct deficiencies in a timely manner, or violation(s) are particularly severe, the NMFS [Region] Region may take the following actions based on the circumstances:

1. **Probation.** If [Participant acronym] is unable to correct deficiencies, within a given time period, the [Participant acronym] may be put on probation. Probation requires annual reviews of the Participant for up to three years. [Participant acronym] on probation may not be in "good standing" with their Stranding Agreement.

2. **Suspension**. If [Participant acronym] has repeated major deficiencies, has been on repeated probation, or has clearly violated applicable laws, regulations or guidelines, NMFS may suspend the [Participant acronym]'s authority, or any portion of their authority as appropriate (e.g., suspend rehabilitation authority, but not live or dead animal stranding response) for up to one year or until NMFS is satisfied that all deficiencies and violations have been adequately addressed. During suspension, NMFS may request other Stranding Network Participants to respond in [Participant acronym]'s area of geographic coverage. A Participant on suspension is NOT in "good standing" with their Stranding Agreement.

3. **Termination.** If [Participant acronym] has repeated major deficiencies, repeated suspensions, or has clearly violated applicable laws, regulations or guidelines, NMFS [Region] Regional Administrator may terminate this Agreement, or any part thereof for any reason, but not limited to violations of any applicable laws, regulations, or guidelines, or failure to satisfy the terms and responsibilities of this Agreement. Upon termination, NMFS may request another authorized Stranding Network Participant to respond in [Participant acronym]'s area of geographic coverage. If [Participant acronym] Agreement is terminated while animals are in rehabilitation, NMFS reserves the right to either confiscate the animal(s) or arrange for another stranding participant to take over rehabilitation of the animal(s).

4. **Violations by Designees.** Violations by [Participant acronym]'s Designee organization or institution are considered to be the [Participant acronym] responsibility, and will result in either termination of the Designee by NMFS, or addressed directly with [Participant acronym] on behalf of the Designee in the same manner described above.}]

THIS STRANDING AGREEMENT IS ENTERED INTO AND MADE EFFECTIVE THIS

Date_____ **Date** _____

APPROVED:

NMFS [Region] Region **[Stranding Network Organization]**

Signature of Regional Administrator **Signature of Authorized Representative**

Reserved OR

Attachment A: Statement of Agreement for designation of authority and responsibilities, to any [person], organization or institution to act as agents under this Agreement.

AGREEMENT

I have read the conditions as stated above for participating in the Stranding Network as an agent of the [Stranding Network Organization] under its Agreement with NMFS [Region] Region and agree to abide by all applicable provisions of the Agreement between the National Marine Fisheries Service [Region] Region and [Stranding Network Organization].

NMFS [Region] Region **Authorized Representative of [Stranding Network Organization]** **Authorized Representative of Designee**

Signatures

Title

Affiliation

Date

Reserved OR

Attachment B: NMFS [Region] Region Contact Information

INTERIM

POLICIES AND BEST PRACTICES

MARINE MAMMAL STRANDING RESPONSE, REHABILITATION, AND RELEASE

Evaluation Criteria for a Marine Mammal Stranding Agreement
(New Applicants and Renewals)

Prepared by
Janet E. Whaley, D.V.M. and Laura Engleby
NOAA National Marine Fisheries Service
Marine Mammal Health and Stranding Response Program

December 2006

Evaluation Criteria for a Marine Mammal Stranding Agreement (New Applicants and Renewals)

Table of Contents

Evaluation Criteria for a Marine Mammal Stranding Agreement (New Applicants and Renewals)

[Blue Brackets] denotes reserved text at the discretion of the NMFS Regional Administrator.

(1) To renew an existing Stranding Agreement, the applicant must demonstrate past compliance with the terms and responsibilities of their Stranding Agreement, including reporting requirements and deadlines.

(2) For the purpose of network development and expansion of stranding response capabilities in geographically remote or low coverage areas [e.g., Alaska, Washington, Oregon, Hawaii, and American Territories (i.e., Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Marina Islands)], referenced evaluation criteria may be waived based on the discretion of the NMFS Regional Administrator.

(3) If long-term care is not feasible, a plan for disposition of live marine mammals at alternate care facilities must be submitted.

1. Purpose and Application

These minimum evaluation criteria have been developed to assist the National Marine Fisheries Service [Region] Region (NMFS) in its evaluation of Stranding Agreement renewal requests and new Stranding Agreements proposals. Prior to issuing new Stranding Agreements, the NMFS [Region] Regional Administrator must determine there is a programmatic and/or geographic need for a Stranding Network Participant in the proposed area of response. Geographic or programmatic needs are based on, but not limited to, the following factors: the historic number of stranded marine mammals in an area, the amount of personnel and resources of stranding network participants with existing agreements in the proposed response area, the geographic extent of the proposed response area, and the proximity of the existing and prospective stranding network participants to the proposed response area.

The decision to enter into an Agreement under which an organization may take species under the Marine Mammal Protection Act for the purpose of stranding response is solely at the discretion of the NMFS [Region] Regional Administrator. NMFS [Region] Region is not compelled to enter into or to decline to enter into a Stranding Agreement based on an interested party's adherence with these criteria. NMFS weighs the geographical need, programmatic need, level of expertise, stranding related activities, cooperation, and criteria listed below when making its determination in determining whether to issue a new Stranding Agreement.

2. General Evaluation Criteria for Articles III, IV, and V Authorization (1)

2.1 General Information

The prospective Participant should provide the following information to NMFS as part of their request to obtain or renew an existing Stranding Agreement with NMFS or upon any significant changes to the information:

1. Participant Contact Information. This should include:
   a. Mailing address, phone number, e-mail, and facsimile for all official correspondence.
   b. Physical address and location of the facility or facilities (if applicable).
   c. Name, title, and contact information for an authorized representative with signatory authority for the organization (e.g., Executive Director, Director, President, CEO, etc.).
   d. [24-hour] contact numbers if applicable, including office, home, and/or cell phone numbers of primary responders, key personnel/volunteers, and veterinarians.
2. Description of Organizational Goals, Capability, and Experience. This should include:
   a. Description of the organization's mission, goals, and objectives and how these complement objectives for the [Region] Regional Stranding Network.
   b. Brief summary on history and type of organization (e.g., university, governmental, non-profit, aquarium, etc.).
   c. Description of any past or current collaboration with NMFS, other Stranding Network participants, researchers, or the public.
   d. Summary of relevant organizational experience with response to live/dead stranding events and /or rehabilitating marine mammals within the past three years.
   e. An overview of general capabilities to conduct stranding response.
3. Proposed Scope and Area of Geographic Response. This should include:
   a. Brief summary of the proposed scope of the stranding program (e.g., all species of cetaceans, pinnipeds), and whether the request is for response to dead animals only, live and dead animals, and/or rehabilitation.
   b. Justification and description of the proposed geographic area of coverage and why the area of response is appropriate for the organization (e.g., the amount of personnel/volunteers and resources available, relative to shoreline covered, historic number of stranding events, etc.). Latitude and longitude of proposed geographic area

and maps are especially helpful.

4. Description of Organizational Structure. This should include:
   a. An overview of staffing, personnel, volunteers, veterinarians, the primary representative, and primary responders, including organizational charts, titles, and position descriptions as appropriate.
   b. Documentation (e.g., resumes, certificates, reference letters, etc.) and summary of relevant training, experience, and qualifications for key stranding response personnel, including primary responders, veterinarians and volunteers as appropriate.
   c. Description of how personnel/volunteers will collect, report, and maintain Level A stranding data and conduct basic (Level B) tissue sample collection. This should also address requirements for accurate and timely reporting.
   d. Description of how volunteers are trained and monitored to ensure quality data collection.
   e. Description of how the organization will keep NMFS informed about any changes in key personnel, geographic area of coverage, or capabilities.
5. Equipment and Resources. This should include:
   a. Description of resources, supplies and equipment currently available to conduct stranding response (live and/or dead). This could include, but may not be limited to, information on types and availability of necropsy equipment, freezers, trucks, tagging equipment (e.g., roto-tags), stretchers, vessels, triage equipment, and transport equipment, and temporary and/or permanent pools.
6. Rapid Response and Investigation Procedures. This should include:
   a. Procedures for stranding response for dead/live stranded marine mammals.
   b. Human health and safety precautions used.
   c. How calls are handled, availability (e.g., 24 hour pager), and which personnel will respond.
   d. How necropsies will be coordinated and conducted.
   e. Capabilities and general rescue plan, and plans for animal care (e.g., on-site veterinary care) for live animal response including triage, transport, and euthanasia.
   f. Protocols for decision-making when responding to a live animal.
   g. Description of how the organization will coordinate with other Stranding Network members and NMFS.
7. Any other relevant documentation (permits, authorizations, agreements, etc.) for review prior to entering into any Stranding Agreement and at any subsequent time as requested by the [Region] Regional Administrator, or when additional documentation is obtained that may

become relevant to performance under the Agreement.

8. Documentation of experience, ability, and knowledge (e.g., CV, resume, certificates, letters of recommendation, etc.) of key personnel (e.g., primary representative, primary responder). Experience can be obtained through paid employment, internships, volunteering, course work, and/or NMFS approved training.
9. Demonstrated experience working under the direct supervision of an existing Stranding Network Participant in good standing or NMFS for at least three years.[(2)] The prospective Participant may apprentice as a "designee" organization under a Stranding Agreement holder to obtain this experience.
10. Letter(s) of support from peers such as other stranding network organizations (Stranding Agreement/Designee organizations), universities/researchers, government agencies, non-governmental organizations, professional organizations, etc. Such letters of support could also be provided from the current Stranding Agreement holder under which the Participant received experience and include assurances that the prospective Participant can support programmatic and geographic needs in the area (new Stranding Agreement proposals only).

2.2 General Qualifications for Articles III, IV, and V

NMFS will evaluate prospective participants based on their demonstrated track record and their capabilities in the following areas as described in their request:

1. Ability to provide description of [24-hour] on-call coverage for the proposed geographic area of response (e.g., established "hot-line" number, message phone, staffed pager, etc.).
2. Demonstrated ability to comply with standard instructions and collect Level A data from stranded marine mammals according to established protocols.
3. Ability to conduct full post-mortem exams, including obtaining histopathology samples and other biological samples (if feasible and requested by NMFS).
4. Willingness and ability to communicate in a professional manner, and demonstrated ongoing cooperation with NMFS, other network members, the general public, local and state agencies.
5. Willingness and ability to cooperate with authorized marine mammal researchers.
6. Ability to address health and safety when responding to dead or live stranded marine mammals, or marine mammals in rehabilitation (e.g., a description of the organization's operational safety plan or protocols).
7. Demonstrated experience specific to the marine mammal species that are most likely encountered in the proposed area of geographic response.

3. Evaluation Criteria for Response to Dead Stranded Marine Mammals - First Response (Article III Authorization) (1)

In addition to the general criteria, Participants proposing to respond to dead stranded marine mammals should provide information that shows the Participant's plan for implementing Article III of the Stranding Agreement, and present evidence that the Participant has the skills, resources, and organizational capabilities to be successful.

3.1 Information for Article III Authorization

1. Key Personnel. The prospective Participant should have and maintain one primary representative [and at least two primary responders] (paid or unpaid), at least one of whom will be on-site or supervising when dead animals are being examined or handled.(2) Additional personnel may be necessary, commensurate with the proposed geographic area of response and frequency of stranding events.
2. Equipment List. The prospective Participant should demonstrate they have and maintain equipment appropriate to dead animal stranding response – i.e., for dead animal response the equipment list should at least include items necessary for Level A data collection.

3.2 Qualifications for Article III Authorization

1. Key personnel should have experience or comparable training to collect Level A data and if possible to collect Level B data (i.e., complete necropsy). Requests should address key personnel qualifications as follows:
   a. Experience conducting necropsies [on a minimum of six marine mammals with at least three of those necropsies on Code 2 animals.](2)
   b. Ability to identify species of marine mammals in the field (Code 2).
   c. Ability to accurately identify code condition of marine mammals in the field (Code 1-5).
   d. Ability to obtain accurate Level A stranding data and if possible, to conduct basic tissue sample (Level B) collection.
   e. Knowledge and experience complying with Level A data reporting requirements.
   f. Knowledge and experience complying with sampling protocols, sample processing, and shipping procedures.
   g. Knowledge of marine mammal anatomy and physiology.
   h. Knowledge of human health and safety precautions including potential zoonotic marine

mammal disease.

i. Knowledge of state and local disposal policies and rules.

4. Evaluation Criteria for First Response, Triage, and Transport of Live Stranded Marine Mammals (Article IV Authorization) (1)

In addition to criteria in sections I and II, prospective Participants proposing to conduct response to live stranded marine mammals should provide information that shows the Participant's plan for implementing Article IV of the Stranding Agreement, and present evidence that the Participant has the skills, resources, and organizational capabilities to be successful.

4.1 Information for Article IV Authorization

1. Key Personnel. The prospective Participant should have and maintain one primary representative [and at least two personnel] (paid or unpaid), all with experience in marine mammal stranding response, triage, transport, and/or euthanasia, at least one of whom will be on-site or supervising when animals are being examined or handled**.** (2) Additional personnel may be necessary, commensurate with the proposed geographic area of response.
2. Veterinary Support. The prospective Participant should identify an attending veterinarian and identify at least one backup veterinarian or have a contingency plan for when the attending veterinarian is not available. Requests should provide documentation of the veterinarian's experience (e.g., CV, certificates, licenses, etc.).

4.2 Qualifications for Article IV Authorization

Requests should address key personnel and veterinarian qualifications as follows:

1. Key personnel should have experience or comparable training in all aspects of live animal response:
   a. Experience responding to a minimum of [five] live marine mammal stranding events (note: a mass stranding is considered to be one event).(2)
   b. Experience providing triage and/or transport for a minimum of [three] live stranded marine mammals during separate stranding events.(2)
   c. Knowledge and experience monitoring marine mammal vital signs.
   d. Ability to assess the condition of stranded marine mammals and make recommendations concerning immediate release, rehabilitation, or euthanasia.
   e. Ability to accurately identify species of marine mammals in field conditions.
   f. Experience responding to at least one mass stranding event (preferred but not required).(2)

g. Ability to [draw blood] and make basic measurements (e.g., length).

h. Ability to tag a marine mammal (e.g., for situations that involve immediate release following assessment).

i. Ability to communicate professionally with other members of the Stranding Network and take direction from NMFS and other on-site coordinators.

2. Attending veterinarians should meet the following criteria:

   a. Be on-call 24-hours.

   b. Knowledge and demonstrated experience in monitoring marine mammal vital signs.

   c. Ability to assess the condition of stranded marine mammals and make recommendations concerning immediate release, rehabilitation, or euthanasia.

   d. Ability to draw blood from a marine mammal.

   e. Ability to perform humane euthanasia on marine mammals.

   f. Demonstrated familiarity with marine mammal triage and transport.

   g. Access to a list of veterinarians with marine mammal expertise to consult with if needed.

   h. Compliance with any applicable state requirements for veterinary practice on stranded marine mammals.

3. The prospective Participant should knowledge of national, state, and local laws relating tolive animal response.

4. The prospective Participant should have provisions for, and willingness to conduct, humane euthanasia as necessary and appropriate.

5. Equipment List. The prospective Participant should have and maintain equipment appropriate to live stranding response, i.e., those items necessary for triage, transport, and/or euthanasia. A complete list of equipment available shall be provided by the prospective Participant.

5. Evaluation Criteria for Rehabilitation and Release of Live Stranded Marine Mammals (Article V Authorization)[1,3]

In addition to the criteria in sections II, III, and IV (if applicable), Participants requesting authorization to conduct rehabilitation of marine mammals should provide information that shows the Participant's plan for implementing Article V of the Stranding Agreement, and present evidence that the Participant has the skills, resources, and organizational capabilities to be successful. The NMFS interim document, "Policies and Best Practices: Standards for Rehabilitation Facilities," provides additional detailed guidance for preparing Stranding Agreement requests (see http://www.nmfs.noaa.gov/pr/health/eis.htm). Facility operations should be consistent with applicable NMFS policies, guidelines, directives, regulations, and other applicable State and Federal policies, guidelines, directives, regulations, and laws.

5.1 Information for Article V Authorization

The prospective Participant should provide information on the following:

1. Facility Capabilities and Procedures. This should include, but not be limited to:
    a. Information on facilities.
        i. Pool type (or housing/pool for pinnipeds) design, description, and dimensions.
        ii. Type of available shelter and/or shading.
        iii. Maximum holding capacity. Description of facility's maximum holding capacity based on minimum standard space requirements and number of animals housed in each holding area and the availability of qualified personnel as provided in the NMFS interim document, "Policies and Best Practices: Standards for Rehabilitation Facilities," and Animal Welfare Act.
        iv. Water Quality. Description of water, source, quality, and how it is maintained, including how water is tested and frequency of tests.
        v. How the facility/rehabilitation area is secured from public access.
        vi. Provisions for isolating marine mammals.
        vii. How other wild and/or domestic animals will be kept isolated from marine mammals.
        viii. How animals will be quarantined if necessary.

b. Information on procedures for:
   i. Food handling and sanitation.
   ii. Human health and safety throughout the facility.
   iii. How medical, husbandry, and other relevant records will be maintained for each animal. Samples of record forms are helpful.
   iv. Efforts to reduce disease transmission.
   v. Humane animal care, routine medical procedures, and euthanasia.

c. Key Personnel. The prospective participant should submit documentation that they have, and will maintain, at least one primary representative and two primary animal care specialists, all with experience in marine mammal care and rehabilitation, at least one of whom will be on-site or supervising overall rehabilitation efforts. Additional personnel may be necessary, commensurate with the maximum holding capacity. Information regarding key personnel should also include:
   i. Overview of staffing plan and capabilities for the rehabilitation facility (e.g., veterinarian technicians, food preparation, record keeping, volunteer/shift coordination, equipment, pool maintenance, etc.).
   ii. Description of on-site experienced personnel who are caring for the animals, including resumes or CVs of all key personnel and documentation of relevant training.
   iii. Description of how new personnel and volunteers are trained and monitored.
   iv. Veterinary Support. The prospective Participant should identify an attending veterinarian and identify at least one backup veterinarian for when the attending veterinarian is not available. Requests should provide documentation of the veterinarian's background, experience, and licensing.

2. Contingency Plans. A copy of contingency plans for protecting or relocating marine mammals in rehabilitation in case of events such as hurricanes or other natural disasters, unusual mortality events, hazardous waste spills, fire, or planned events such as construction.
3. Copies of all applicable Federal, state, and local permits for rehabilitation facilities.
4. General plans for release and post-release monitoring of marine mammals in rehabilitation, including:
   i. How animals will be assessed for release determinations and who makes the assessment.
   ii. How the prospective Participant will follow the NMFS Interim Standards for Release of Rehabilitated Marine Mammals (available on the following website

:http://www.nmfs.noaa.gov/pr/health/eis.htm).

iii. How prospective Participant will conduct tagging, release, and post-release monitoring.

5. Resources. Sufficient physical and financial resources to maintain appropriate animal care for the duration of rehabilitation, including costs associated with release (e.g., long term rehabilitation, transport to release site, post release monitoring) or transport to another facility.

5.2 Qualifications for Article V Authorization

Requests should be evaluated based on the following:

1. Key personnel should have experience or comparable training in all aspects of marine mammal rehabilitation. Requests should address key personnel qualifications for each evaluation criteria below:
   a. Experience or education leading to an understanding of the life history, behavior, biology, physiology, and animal husbandry of applicable marine mammals.
   b. Familiarity with NMFS Interim Rehabilitation Standards, NMFS Interim Standards for Release of Rehabilitated Marine Mammals, and applicable regulations.
   c. Experience in a supervisory role rehabilitating a minimum of three separate rehabilitation cases (Note: Multiple animals in rehabilitation from a mass stranding are considered to be one case).
   d. Ability to humanely restrain a marine mammal to conduct basic medical procedures such as: drawing blood from at least two sites, taking fecal, gastric, blowhole/nasal samples, morphometrics, weighing, injections, and tubing.
   e. Experience maintaining and operating a facility/pool for marine mammal care, including familiarity with maintaining proper water quality.
   f. Ability to supervise and coordinate on-site personnel and volunteers.
   g. Ability to conduct necropsies.
   h. Experience with record keeping, such as food intake records, daily behavioral records, medical records, and water quality records (e.g., water temperature, salinity, etc.).
   i. Knowledge of how to design and conduct a behavior ethogram (preferred but not required).
2. Attending veterinarians should meet the following criteria:
   a. Have an active veterinary license in the United States (means a person who has

graduated from a veterinary school accredited by the American Veterinary Medical Association Council on Education, or has a certificate issued by the American Veterinary Graduates Association's Education Commission for Foreign Veterinary Graduates).

b. Assume responsibility for diagnosis, treatment, and medical clearance for release or transport of marine mammals in rehabilitation (50 CFR 216.27).

c. Ability to provide a schedule of veterinary care that includes a review of husbandry records, visual and physical examinations of all the marine mammals in rehabilitation, and a periodic visual inspection of the facilities and records.

d. Be available on a 24-hour basis to answer veterinary-related questions, and be available in case of an emergency.

e. Ability to perform routine diagnostic and medical procedures on the type of marine mammal most often admitted to the rehabilitation facility (e.g., draw blood, give injections, etc).

f. Have marine mammal experience or be in regular consultation with a veterinarian who has marine mammal experience and have access to a list of expert veterinarians to contact for assistance.

g. [*Reserved*. {Have documented one-year clinical experience working with marine mammals, or have a written consulting agreement with an experienced marine mammal veterinarian, which assures availability of consultation when needed.}]

h. Ability to conduct full necropsy on marine mammals.

i. Have access to the most recent edition of the CRC "Handbook of Marine Mammal Medicine."

j. Be familiar with and comply with the standards of veterinary care in the NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release - Standards for Rehabilitation Facilities.

k. Have the necessary state and federal licenses and arrangements to obtain and store medications required (license from Drug Enforcement Agency for controlled substances) for the animals housed at the rehabilitation facility.

l. Be knowledgeable of species-specific pharmacology.

m. Have provisions for performance of humane euthanasia.

n. Ability to write and submit timely disposition recommendations for marine mammals in rehabilitation.

o. Be knowledgeable of marine mammal zoonotic diseases and appropriate safety

precautions.

3. A trained volunteer base sufficient to initiate and maintain adequate and appropriate marine mammal care and husbandry and implementation of veterinary direction.
4. Knowledge of national, state, and local laws relating to live animal rehabilitation.
5. Familiarity with, and a copy of, the most current version of the NMFS Interim Rehabilitation Facility Standards and Interim Standards for Release of Marine Mammals.

6. Evaluation Criteria for Designee Organizations

The purpose of a Designee organization is to assist the Participant with sub-region coordination, response, and/or rehabilitation capability within the Participant's geographic area of responsibility and under the Participant's oversight. If a Participant is proposing oversight of a Designee organization(s), the Participant [must] should provide evidence that the Designee organization has the skills, resources, and organizational capability to respond to dead/live stranded marine mammals [or rehabilitate marine mammals]. In some cases, it may not be possible for each proposed Designee organization to meet all of the evaluation criteria listed below. If this is the case, NMFS needs written assurance and details specifying how the prospective Participant will take responsibility for fulfilling specific qualifications lacking for the Designee organization.

6.1 Information for Designee Organizations for Articles III, IV, and V

1. For each proposed Designee organization, the Participant should provide the same information required in sections II through V.
2. Justification for Designee. The Participant should submit a justification for the geographic need, and enhancement of response capabilities provided by the Designee organization to the Participant.
3. Copy of a written and signed Agreement between the Participant and the Designee that includes a statement that the Designee organization has read and agreed to the terms of the Participants current Stranding Agreement.

6.2 Qualifications for Designee Organizations for Articles III, IV, and V

1. Each proposed Designee organization will be evaluated according to the same required qualifications listed in sections II through V.

INTERIM

POLICIES AND BEST PRACTICES

MARINE MAMMAL STRANDING RESPONSE, REHABILITATION, AND RELEASE

STANDARDS FOR REHABILITATION FACILITIES

Prepared by
Laurie Gage, D.V.M.

Edited by
Janet E. Whaley, D.V.M.
NOAA National Marine Fisheries Service
Marine Mammal Health and Stranding Response Program
1315 East-Highway
Silver Spring, Maryland 20910

November 2006

Interim Standards for Rehabilitation Facilities

Table of Contents

Introduction

As part of the National Marine Fisheries Service (NMFS) Stranding Agreements, the Agency will require that all rehabilitation facilities meet the Minimum Standards presented in this document. The goal of this document is to set **MINIMUM** facility, husbandry, and veterinary standards for rehabilitating marine mammals in order to meet the prescribed NMFS Best Practices Marine Mammal Stranding Response, Rehabilitation, and Release - Standards for Release. Likewise some of the standards put forth in this document are based on the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) Animal Welfare Act (AWA) regulations which define minimum standards for permanent captive marine mammals. However, there are some differences between the two documents in that these standards were developed for temporary care and all age groups. **RECOMMENDED** Standards are included in some sections, and consist of facility design and operational suggestions for optimizing the rehabilitation success rate. Meeting or exceeding the recommended standards may be considered a goal to strive towards when upgrading existing, or designing new facilities or protocols.

It is the intent of NMFS to provide a reasonable process for facilities to be upgraded to meet the minimum standards set forth in this document. Substandard facilities may be improved using funds that may be available through the John H. Prescott Rescue Assistance Grant Program (Prescott Grant). Likewise Prescott Grant funds may also be used to improve facilities that meet minimum standards with the goal to achieve or exceed the recommended standards.

Health and safety practices are highly stressed in this document. NMFS expects that all personnel and volunteers to be trained to the HIGHEST LEVEL of responsibility they are assigned. Rehabilitation facilities are encouraged to comply with Occupational Safety and Health Administration regulations.

Purpose

The purpose of rehabilitation is to provide humane care for stranded marine mammals and to optimize the success of releasing the animals back to the wild. Defining a successful release encompasses many factors. As mandated by Title IV Section 402 (a) of the Marine Mammal Protection Act, NMFS has developed guidance and criteria for release based on optimizing the chances for survival and minimizing the risk to wild populations (NMFS/FWS BEST PRACTICES for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release). These facility standards have been developed to achieve the goals set forth by the Standards for Release.

This document is organized by taxa similar to the Standards for Release. While many aspects of rehabilitating cetaceans and pinnipeds that are the same, there are likewise many significant differences. Water quality, pool space and design, and handling debilitated animals are examples of the bigger differences between facility design and equipment required for rehabilitation of these animals. Rehabilitation of cetaceans requires more expensive facilities, as there must be larger, deeper pools available, salt water systems, and more elaborate filtration in closed system situations. While some facilities have adequate equipment and personnel to rehabilitate pinnipeds, they may not meet the standards required for the rehabilitation of cetaceans. Having two sets of guidelines allows NMFS the flexibility of issuing agreements specific to the types of animals that may be rehabilitated at each facility.

1. Standards for Cetacean Rehabilitation Facilities

1.1 Facilities, Housing, and Space

Pools for stranded cetaceans must be appropriate for the basic needs of the animal including keeping the skin moist, to providing buoyancy, and aiding thermoregulation. Debilitated cetaceans often cannot swim and may require assistance when first introduced to a rehabilitation pool. Cetaceans arriving in a debilitated condition may have needs requiring smaller pools than those that are able to swim and dive upon arrival. Choice of pool size may be important and is case specific. Although chances of survival may be improved if animals capable of swimming are given larger space, deeper pools may make it more difficult and stressful to catch an animal for feeding, hydration, and treatment. Likewise with multiple strandings, grouping animals by size, ability to swim, species, and health status may improve overall survival rates. Placing the larger, more robust animals in separate pools or swimming areas away from the smaller, less dominant and/or more debilitated animals may enhance the success of the rehabilitation efforts for the weaker animals. Species of cetaceans known to be social in nature should be housed with other compatible species. Social compatibility should be considered an important part of appropriate housing. Animals should be closely monitored when introduced to a pool and carefully evaluated for social compatibility.

It is up to the attending veterinarian, as defined in Section 1.7, and experienced rehabilitation staff, to decide how to house the animal most appropriately based on their observations and physical examination.

Each animal admitted to a rehabilitation center should be placed in a quarantine holding area and have a full health evaluation performed by the attending veterinarian. Sufficient quarantine time should be allowed for results from tests and cultures to be evaluated before the animal is placed with animals that are apparently disease free. Cetaceans with evidence of infectious disease must be quarantined (See Section 1.4 Quarantine).

During multiple or unusual stranding situations such as hazardous waste spills, catastrophic weather events, toxic algal blooms, or other events leading to unusually high morbidity, rehabilitation center personnel may need to adjust the number of animals that would be normally housed in each pool, bay or ocean pen. The attending veterinarian is responsible for assuring that the number of animals housed in one pool or pen will be appropriate based on the situation. The number of animals housed should be determined not only by the amount of pool space and size of the animals, but also by the number of qualified personnel available on a per animal basis. The recommended number of

personnel to animals less than 250 kg is 3:1 for critical care cetaceans; 2: 1 - 4 once stabilized, and 1:4 when animals are eating regularly and no longer require regular handing. Larger critical care cetaceans will require more personnel per animal.

Unweaned neonate cetaceans shall not be admitted for rehabilitation without prior approval of NMFS. Unweaned cetaceans, once rehabilitated, are frequently not suitable for release or require stringent release criteria to ensure humane treatment and a successful outcome. Prior to receiving an unweaned cetacean calf for rehabilitation, facility personnel must submit a plan to the NMFS regional coordinator which will include options and a timeline for decisions regarding disposition. In addition the plan will include options and criteria for release, considerations for permanent care, and euthanasia.

NMFS Regulation, U.S.C. 50 CFR 216.27(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR "is an activity that provides opportunity for the public to view living marine mammals at a facility holding marine mammals captive." (See Section 1.13 Viewing).

1.1.1 Space Requirements for Pool, Bay, or Ocean Pens

MINIMUM STANDARD

- All pools or pens must be deep enough for animal(s) to float and submerge and shall be available for all rehabilitating cetaceans. The diameter and depth of the pool for critical care animals is at the discretion of the attending veterinarian.
- Pool depth for non-critical animals (animals able to swim unassisted) must equal one-half the body length or 0.9 meters (3 feet), whichever is greater.
- Pools shall have a minimum horizontal dimension (MHD) of 7.3 meters (24 feet) or two times the actual length of the largest species housed in the pool, whichever is greater.
- Animals housed longer than 6 months must be provided with pools at least 1.5 meters (5 feet) deep and must meet the USDA, APHIS AWA MHD standards unless otherwise directed by the attending veterinarian. This should be documented and justified with a signed veterinary statement in the medical records.

RECOMMENDED

- Pools shall have a depth equal to the body length or 1.8 meters (6 feet), whichever is greater.

- Pools shall have a minimum horizontal dimension of 9.75 meters (32 feet) or two times the average adult length of the largest species in the pool, whichever is greater.

1.1.2 Pool or Pen Design

Pools or pens designed to maximize the ease of handling, and to limit the amount of time the cetacean spends out of water for husbandry or veterinary procedures may help to decrease the stress of handling. Pools designed with a deep and a shallow end work well because the cetaceans may stay in the deep end while the pool level is dropped. The animal requiring treatment may be moved to the shallow end and immediately placed back in the deep end when the treatment has been completed. Pools equipped with a false bottom that can be lifted are ideal because the animal can be caught quickly without dropping the level of the pool water and the animal may be immediately returned to the pool once treatments have been completed. False bottoms in bay or ocean pens will facilitate capture, since there is no convenient way to drop the water level in those situations. Pools equipped with lift-bottoms and/or multi-level pools are recommended, however lift bottoms must be carefully designed when being retrofitted to existing pools.

Scoop-net or trampoline methods may also be used for capture, where a net is placed on the pool or pen bottom under the swimming animal and it is lifted by multiple personnel using tag lines. While this method is an inexpensive alternative to a false floor it may not be suitable for multiple or large animals.

New rehabilitation pools should be designed and constructed to minimize introduction of anthropogenic noise from life-support equipment or other sources. This can be accomplished through sloping of walls, insulation with soil or other materials around the sides of the pool and/or through isolation of noise-generating equipment. Existing pools that do not meet these specifications may be allowed, or a retrofit may be requested if the pools are substandard to the point of becoming an animal welfare issue.

MINIMUM STANDARD

- Any shape pool that meets minimum space standard
- Construction materials
  - Open water pens shall optimally be constructed of plastic or other rigid netting.
  - If cotton or nylon netting material is used it must be small enough gage to prevent entanglement.

RECOMMENDED

- Pools with long axes that provide relief from constant turning while swimming
- Pools designed to promote good water circulation and to minimize anthropogenic noise.
- Single depth pool with false bottom that can be lifted

  OR
- Pool with a sloping bottom where the water level may be dropped in the shallow end to facilitate treatment

  OR
- Single or multi-depth pool with an adjoining "med pool' with a false bottom that can be lifted

  OR
- Ability to drop a pool in less than 2 hours and refill it to a "swimming level" in less than 30 minutes

1.1.3 Shelter, Shading, and Lighting

Rehabilitation facilities located where there is inclement weather need to provide shelter to rehabilitating animals that may be exposed to extreme heat or cold. Cetaceans held in rehabilitation facilities may not have normal activity levels and thin animals may be unable to thermoregulate properly. These animals may require shade structures to protect them from direct sunlight and extreme heat, or shelter to protect them from extreme cold.

Animals held in indoor facilities should be provided with appropriate light and dark photoperiods which mimic actual seasonal conditions. Light provided in indoor facilities shall be of sufficient intensity to clearly illuminate the pool.

MINIMUM STANDARD

- Shade structures or shelters must be provided to animals when local climatic conditions could compromise the health of the animal.
- Shade structures, where necessary, shall be large enough to provide shade to at least 50% of the MHD surface area determined for the species held in the pool. MHD is defined as 7.3 meters (24 feet) or two times the actual length of the largest species housed in the pool, whichever is greater.
- Lighting should be appropriate for the species.

RECOMMENDED

- Full spectrum lights or a natural source of lighting for animals housed indoors.

- Removable or adjustable shade structures in pens to provide more natural sunlight to animals that are swimming and diving normally.

1.1.4 Critical Care Animals and Calves

Debilitated and ill cetaceans are often sedentary and tend to float at the surface for long periods of time. Some are unable to swim and dive. Some may require support in order to stay afloat enough to breathe regularly. Young calves may be weak and require assistance. Support may be provided by floatation devices attached to the animal or rehabilitation personnel supporting the animal utilizing a variety of methods. A shallow area that allows the animal to rest on the bottom while keeping its blowhole above the surface may also suffice. This shallow resting shelf must be of sufficient depth for larger animals (over 50 kg) to provide adequate buoyancy to prevent organ-crushing. Small cetaceans may also be supported in a stretcher that is hung within an open aluminum frame while maintaining the water depth at the midline of the animal. These animals must be protected from sun-related skin damage by providing them with shade or covering their exposed skin with an appropriate, non-desiccating sun block that allows proper thermoregulation. Exposed skin may be protected from desiccation with the use of emollients applied to the skin or a water spray.

MINIMUM STANDARD

- Ensure support is available via floatation devices, a shallow resting shelf, sloping beach, suspended stretcher system, or other support for critically ill or neonatal cetaceans that are weak and/or cannot swim normally.
- Monitor animals requiring support.
- Provide sufficient shade.
- Provide a water spray or method for keeping skin moist for cetaceans that cannot swim or dive.
- Control air temperature above the pool between 50 – 80° F when appropriate to facilitate recovery, protect rehabilitating animals from heat or cold extremes, and prevent discomfort.

NUMBER OF ANIMALS HOUSED IN EACH POOL

During multiple or unusual mortality event (UME) strandings the number of cetaceans received by the facility is limited not only by the number and size of the holding pools or pens, but the number of qualified trained rehabilitation staff members available to care for the animals. Due to the intensive 24 hour assistance required for critical care cetaceans, a minimum of two qualified trained staff members are necessary for each and every dependent cetacean on the premises. The maximum

number of animals maintained in each pool and onsite at the facility shall be determined by the attending veterinarian and dictated by the number of qualified staff available to care for the animals.

MINIMUM STANDARD

- Provide enough pool space for each animal to swim, dive, and maintain an individual distance of one body length from other animals housed in the same pool.
- Provide 2 qualified trained rehabilitation staff members for every critical care or dependent cetacean weighing less than 250 kg. Larger critical care cetaceans will require more personnel to handle each animal.
- Staff must be available on a 24-hour basis for critical animal care.
- Provide one trained staff member for every 3-4 cetaceans undergoing less critical periods of rehabilitation; during reconditioning or during counter-conditioning if training or desensitization was used for feeding stations, medical procedure desensitization or transport approximations.
- Provide one trained staff member for every five cetaceans that are eating regularly and do not require handling.

RECOMMENDED

- Provide enough pools or pool space to house multiple animals in accordance with the calculated space outlined in the APHIS AWA standards for captive cetaceans.
- Provide three qualified trained rehabilitation staff members for every critical care or dependent cetacean.
- Provide two trained staff members for every 1 – 4 cetaceans undergoing less critical periods of rehabilitation; during reconditioning; or prior to reintroduction.

1.1.5 Housekeeping

MINIMUM STANDARD

- Keep support buildings and grounds as well as areas surrounding rehabilitation pools clean and in good repair.
- Maintain perimeter fences in good repair, and ensure they are an adequate height and construction to keep people, animals, and pests out.
- Ensure primary enclosures housing marine mammals do not have any loose objects, sharp projections, and/or edges which may cause injury or trauma to the marine mammals contained therein.

- Objects introduced as environmental enrichment must be too large to swallow and made of non porous cleanable material that is able to be disinfected. Likewise items such as rub ropes shall be secured to prevent entanglement.
- All drains and overflows must have screened covers.
- Ensure there are no holes or gaps larger than ½ the size of the head diameter of the calf of the smallest species to be housed.

RECOMMENDED

- Coat all pool and haul-out surfaces with a non-porous, non-toxic, nondegradable cleanable material that is able to be disinfected.

1.1.6 Pest Control

MINIMUM STANDARD

- Establish and maintain a safe and effective program for the control of insects, avian and mammalian pests. This should include physical barriers to prevent feral and/or wild animals from contact with the rehabilitating animals.
- Insecticides or other such chemical agents shall not be applied in a primary enclosure housing marine mammals or a food preparation area except as authorized in writing by the attending veterinarian.
- If applied, all appropriate measures must be taken to prevent direct contact with the insecticide/pesticide, whether airborne or waterborne, by the animal.

1.1.7 Security for Facility

Stranded marine mammals often attract public attention and must be protected from excessive commotion and public contact. Ensuring a quiet stress-free environment for rehabilitating animals may improve their chance to recover and survive. Public viewing of marine mammals is discussed in Section 1.13 of this document.

MINIMUM STANDARD

- Locate rehabilitation facilities at sites that have the ability to be secured from the public.
- Prevent direct public contact with the rehabilitating animals but utilizing appropriate fencing, staff and security personnel.

RECOMMENDED

- Maintain 24- hour monitoring when animals are present or maintain a secure perimeter fence with the ability to lock the area off to the public when staff is not present.

1.2 Water Quality

Water quality is an essential part of keeping cetaceans healthy. Sick or debilitated cetaceans should be housed in pools filled with clean, appropriately treated saltwater to facilitate their recovery.

There are four basic types of water systems:

- Pools with filtration systems (closed systems)
- Pools without filtration systems (dump and fill systems)
- Pools with periodic influx of natural seawater (semi-open systems)
- Open water systems (flow-through pools, bay or sea pens)

There are a number of variables which will affect water quality. The number and size of cetaceans utilizing each pool will vary throughout the year at most rehabilitation facilities. During unusual stranding events the number of cetaceans utilizing one pool may increase dramatically, creating a heavier load of waste which must be handled by the filtration system in closed systems and by the amount of water flow-through in semi-open and open systems.

Filtration or life support systems are essential to maintaining clean water for animals held in closed or semi-closed systems. Life support systems have three basic parts; mechanical filters that remove solids, biological filters or baffles to remove or detoxify chemicals in the water, and disinfecting methods to control or remove pathogens. In addition to maintaining clean water in the animal pools, these systems may be needed to treat waste water, depending on waste water disposal requirements. If a temporary increase in waste production overwhelms part or all of the life support system, a good water quality control program will require alternative options.

The source of water used in closed systems generally is fresh water obtained from municipal sources whereas water in open and semi-open systems comes from a bay or sea source. Municipal fresh water must have salt added to increase the salinity to appropriate levels to maintain cetaceans. Water in closed systems must be regularly filtered through sand and gravel filters to remove particulate matter, and disinfectants such as chlorine or bromine are added at appropriate levels to eliminate pathogens. More elaborate systems utilize ozone to oxidize pathogens in the water.

Factors that affect water quality are:

- Size of pool or pen
- Efficiency of filtration system or water flow-through rate (tides)
- Water turnover rate
- Number, size and species of animals housed in pool or pen
- Nature and amount of food consumed by animals in pool or pen
- Nature of bottom substrate
- Frequency of cleaning the pool
- Types, amounts, and the frequency with which chemicals are added to the system
- Temperature of the water
- Pathogens in the water
- Biotoxins in open water pens or in pools where the source water comes from the ocean or bay
- Contaminants (oil, pesticides, etc.) in open water pens
- Hazardous waste spills
- Inclement weather
- Sunlight contributing to algae production on pool surfaces, which in turn can support bacteria.

1.2.1 Source and Disposal of Water

The water source for cetaceans housed in closed or semi-closed systems may be municipal water, well water, or water brought into the facility from an adjacent body of water or estuary.

MINIMUM STANDARD

- Salt water must be readily available to fill pools housing rehabilitating cetaceans unless otherwise directed by the attending veterinarian.
- Fresh water must be available to clean and wash down surrounding areas.
- For pools without adequate filtration systems, drain water from pools daily or as often as necessary to keep the pool water quality within acceptable limits.
- Discharge wastewater in accordance with state or local regulations. Facility managers must seek appropriate authorization to dispose of waste water. Documents of authorization or necessary permits must be kept on site as part of the administrative record and may be requested by NMFS as part of the NMFS Stranding Agreement.

- Chemicals, when necessary, shall be added in appropriate amounts to disinfect the water or adjust the pH, but not added in a manner that could cause harm or discomfort to the animals.
- Have contingency protocols describing how water quality will be maintained during periods of peak animal use.

RECOMMENDED

- Enough salt water must be available to completely fill pools within two hours of draining.
- Maintain a filtration system designed to optimize water quality in each holding pool and decrease water waste.

1.3 Water Quality Testing

It is important to test the water in which the animals live on a regular basis. Coliform bacterial counts are used to monitor the efficiency of the filtration system to eliminate potentially harmful bacteria. Coliform counts should be done at least once per week and more frequently if there are very large or multiple animals utilizing the pool. While coliform numbers may be described as Most Probable Number (MPN) per 100 ml, a more accurate method of measuring coliforms is to determine the total coliform count, or the fecal coliform count.

Temperature of the water is especially important if the animal lacks the ability to thermoregulate. Water may require heating or chilling to aid debilitated animals in their ability to maintain optimal body temperature. Water temperature regulation is not feasible in open water pens, but keeping track of the water temperature in sea pens may aid the staff in making husbandry decisions.

If coliform counts or the water temperature become too high in any system, measures must be taken to correct the problem in a timely manner. A partial-to-total water change may be necessary to correct the problem in a closed or semi-closed system. If the coliform counts are considered too high in sea or bay pens, efforts should be made to circulate clean sea water through the pens using pumps, paddles or other methods of moving water.

Chemicals added to the water may damage eyes and skin, therefore levels must be monitored daily. Emergency chemicals should be on hand such as sodium thiosulfate in case of the accidental hyperchlorination of a system. Salinity may also have an impact on the health of the skin and eyes, as well as the comfort level of the animal, and should be monitored regularly.

1.3.1 Water Quality Tests

MINIMUM STANDARD

- Measure coliform growth weekly.
- Total coliform counts must not exceed 500 per 100 ml or a MPN of 1000 coliform bacteria per 100 ml water. Fecal coliform counts are not to exceed 400 per 100 ml.
- If the above tests yield results that exceed the allowable bacterial count, then two subsequent samples must be taken to repeat the test(s) where the level(s) is/are exceeded. The second sample is to be taken immediately after the initial test result, while the third sample would be taken within 48 hours of the initial test.
- If the averaged value of the three test results still exceeds the allowable bacterial counts, the condition must be corrected immediately or the animals must be moved to a contingency facility.
- Maintain pH between 6.5 and 8.5.
- Maintain salinity between 24 - 35 ppt.
- Maintain the temperature of the water so that it falls within parameters appropriate for the species.
- Measure oxidant levels in systems which require use of a chemical disinfectant and/or ozone in the system (for closed systems).

RECOMMENDED

- Maintain pH between 7.2 and 8.2.
- Total Coliforms with blanks and controls, fecal Coliform, fecal Strep, and yeast count performed at least weekly.

1.3.2 Frequency of Testing in Closed, Semi-Open, or Open Systems

MINIMUM STANDARD

- Measure water temperature, pH, salinity, chemical additives (if applicable) daily in all pools.
- Measure coliform counts weekly; and more frequently at the discretion of the attending veterinarian.

RECOMMENDED

- If ozone systems are used, measure ozone levels regularly in the animal pools. Ozone levels shall not exceed 0.02 mg/liter.

- Test source and discharge water at least once per day or more frequently for "flow through" systems.
- Maintain records for tests with time, level and results – reviewed and signed monthly by the attending veterinarian.

1.3.3 Chemical Additives

Total chlorine = Free chlorine + combined chlorine.

MINIMUM STANDARD

- Maintain total chlorine below 1.5 ppm, where the combined chlorine shall not exceed 50% of the total chlorine
- All additives must be recorded
- pH may be adjusted chemically – for example – pH may be raised with sodium carbonate, or soda ash; or lowered with HCl or CO2; but not added in a manner that could cause harm or discomfort to the animals.
- Maintain Material Safety Data Sheet (MSDS) information and signage as well as appropriate handling equipment for the addition of chemicals.

1.3.4 Water Circulation

The amount of water turnover through the filtration system in a closed or semi-open system is important to maintain water quality by removing organic waste and particulate matter. Likewise the amount of water movement through an open water pen is also important in the maintenance of water quality. Generally, adequate tidal action will result in the equivalent of two complete water changes per day.

MINIMUM STANDARD

- Maintain sufficient turnover of water through the filtration system in closed or semi-open systems to keep the water quality at or above acceptable limits, with a minimum of two complete water changes per day.
- Ensure methods for moving water (water paddles, pumps, spray devices) are available to aerate and move water in open water pens with insufficient flow of tides or water through the enclosures. These methods should be sufficient to provide the equivalent of two water changes per day.

RECOMMENDED

- A minimum full water turnover rate of every four hours for each pool in closed or semi-open systems.

1.3.5 Salinity

Acceptable salinity levels are dependant on the species and condition of the cetacean and the duration of the stay. Most species of cetaceans require a salinity level greater than 24 ppt in order to maintain healthy skin and eyes. Occasionally the attending veterinarian may chose to house the cetacean in fresh or nearly fresh water for a period not exceeding 3 days. Reasons for maintaining cetaceans in fresh or brackish water should be noted in the veterinary record and signed by the veterinarian. Some species of cetacean are better adapted to live in brackish water and may do well in lower salinity levels than other species.

MINIMUM STANDARD

- Maintain salinity levels over 24 ppt unless a written veterinary plan calls for lower salinity levels, or if the animals are housed in sea pens nearby their resident range.

RECOMMENDED

- Ideal salinity levels should approach natural ocean salinity levels (30 – 33 ppt) but acceptable industry standards suggest maintaining cetaceans in water with salinity levels over 24 ppt.

1.3.6 pH

MINIMUM STANDARD

- Maintain pH in a range between 6.5 to 8.5.

RECOMMENDED

- Maintain pH between 7.2 –8.2.

1.3.7 Water Temperature

Many species of cetaceans are adapted to maintain normal body temperatures when living in a broad range of water temperatures. Healthy *Tursiops* have been housed successfully in water ranging from 50^{o} to 80^{o} F. Atlantic white-sided dolphins fail to thrive in water over 80^{o} F and North Atlantic harbor porpoise do best in 45 to 65^{o} F. Some warmer water species, such as a Vaquita, will require

consistent warm water environments. It is therefore important to know if the species being rehabilitated comes from a polar, temperate or tropical climate. It is of equal importance to know the temperature range of water in their primary habitat. Young, underweight, and debilitated animals may also require warmer water than found in their primary habitat.

Cetaceans such as bottlenose dolphins adjust their blubber thickness seasonally in response to water temperature. This must be considered when readying rehabilitated animals for release. Therefore animals should be acclimated to an appropriate seasonal water temperature prior to release.

MINIMUM STANDARD

- Hold water temperatures within the normal seasonal habitat temperature range for the species under rehabilitation unless otherwise authorized by the attending veterinarian in writing.
- Provide methods to heat and maintain warm water environments for species that require it, or for debilitated individuals that are incapable of maintaining appropriate body temperature.
- Monitor the temperature of water being heated or cooled.
- Design water systems to minimize the chance of rehabilitating cetaceans from becoming hyperthermic or hypothermic.

RECOMMENDED

- Monitor blubber thickness ultrasonically.

1.4 Quarantine

Cetaceans brought to a rehabilitation facility have no medical history and may carry diseases communicable to other marine mammals, other animals, or humans. Likewise, these animals are often debilitated and may suffer from a variety of illnesses which may compromise their immune systems making them susceptible to diseases from other animals and/or the rehabilitation environment. Quarantine areas must be available and proper biosecurity protocols must be in place for all incoming animals at rehabilitation facilities.

Direct contact between the general public and cetaceans undergoing rehabilitation should be avoided because of the zoonotic risk from pathogens carried by marine mammals. There have been documented cases of Brucella, Erysipelothrix, and Blastomyces being passed from cetaceans to humans.

Listed on the following website (see *http://www.vetmed.ucdavis.edu/whc/mmz/)* are numerous other potentially zoonotic marine mammal pathogens. See also: *2004 UC Davis Wildlife Health Center Report for the Marine Mammal Commission – Assessment of the Risk of Zoonotic Disease Transmission to Marine Mammal Workers and the Public: Survey of Occupational Risks.*

MINIMUM STANDARD

Maintain sufficient quarantine facilities and space for appropriate quarantine of incoming animals or for holding animals with contagious diseases.

1.4.1 Prevention of Animal to Animal Transmission of Diseases

- Quarantine all new animals in a separate dedicated quarantine area and provide pools that can be isolated with the use of dividers, tarps, or physical space from the rest of the animal housing areas.
- Have separate filtration and water flow systems for pools in quarantine/isolation areas.
- Use dedicated protective clothing for personnel.
- Use foot baths, glove baths, and methods to disinfect clothing, wet suits, or exposure suits between handling animals within quarantine area and outside of quarantine area.
- Maintain equipment and tools strictly dedicated to the quarantine areas.
- Provide dividers between pens and pools that prevent washdown or splash from moving from one pool to another.
- Provide sufficient space; ideally greater than 20 feet or 6 meters; or solid barriers between animal enclosures to prevent direct contact – including splashed pool water and airborne disease transmission.
- Ensure sufficient air turnover in indoor facilities to prevent transmission of disease. Air turnover should be enough to prevent build-up of heat or chemical fumes and provide a method of bringing fresh air into the facility. There should be sufficient venting or openings to allow movement of air throughout the facility.
- Implement specific quarantine and sanitation procedures to prevent transmission of disease through fomites (personnel, clothing, equipment).
- Thoroughly clean and disinfect buckets, hoses, scales, transport equipment, and cleaning equipment that is moved between animal areas to prevent transmission of pathogens via fomites.
- Place open water pens so effluent is not near water intake.

- Require evaluation and written veterinary approval before placing animals together after quarantine period has been met.

RECOMMENDED

- Provide separate air handling system in indoor facilities.
- Clean and disinfect quarantine pools between uses.

1.4.2 Prevention of Domestic Animal to Marine Mammal Transmission of Disease

- Ensure appropriate fencing and placement of holding pens prevents direct contact between rehabilitating cetaceans and domestic animals.
- Prohibit personal pets from entering the facility and facility grounds. Pets must stay outside the perimeter fence at all times.
- Place foot baths at the entry and exit of animal areas.
- Require quarantine and sanitation protocols are followed to prevent transmission of disease through fomites such as wet suits and equipment.

1.4.3 Prevention of Wild Animal to Marine Mammal Transmission of Disease

- Ensure perimeter fencing will prevent wildlife from entering the rehabilitation premises.
- Provide appropriate rodent and bird control on the premises. Ensure net pens and lagoon areas have sufficient secondary fencing to keep wildlife from coming in direct contact with the animals housed in the net pens.

1.4.4 Prevention of Marine Mammal to Domestic Animal Transmission of Disease

- Provide appropriate perimeter fencing.
- Require animal personnel to change contaminated clothing and/or disinfect before leaving the rehabilitation premises.
- Require that specific quarantine and sanitation procedures are taken to prevent transmission of disease through fomites such as clothing and equipment.

1.4.5 Prevention of Stranded Marine Mammal to Captive Marine Mammal Transmission of Disease

- Train volunteers and staff to follow appropriate quarantine protocols.
- Establish quarantine protocols that take into consideration the changing status of the stranded animal.
- Establish traffic flow so that volunteers or staff working with stranded animals do not inadvertently travel into a collection animal area.
- Establish decontamination protocols before volunteers or staff members exposed to stranded animals may enter a collection animal area.
- Establish separate restrooms, showers, changing rooms, food preparation areas, etc. for staff and volunteers working with rehabilitating vs. collection animals. Food for rehabilitating animals may be prepared in the collection animal kitchen and taken to the rehabilitation animal area, however any bucket, feed implement or other item must be thoroughly disinfected before it may return to the collection animal area.

1.4.6 Methods to Reduce Spread of Disease from Animals Housed in Open Sea/Bay Pen Systems

- Consideration of substrate, water depth and public access when selecting a site for a sea or bay pen.
- Placement of pens in a secluded area where wild animals and marine mammals are unlikely to come into direct contact with the animals housed in the sea/bay pens; nets should be sufficiently rigid to prevent entanglement by mammals or fish.
- Placing a second set of perimeter nets 10 meters from the sea/bay pens to prevent direct contact with wild marine mammals.
- Do not place sea/bay pens within 1000 meters of any major outflow of storm drains or sewage treatment plants and consider the flow direction or current from these major outflows.
- Place the sea/bay pens over 500 meters and downstream from water intake pipes that bring water into facilities that house marine mammals.
- Place pens in an area where there is ample flow-through of tides/currents.
- Ensure the pens are of sufficient size to minimize biomatter build-up. Each cetacean should be housed in a pen that has a minimum depth of half of their body length, and a minimum horizontal dimension of 24 feet or two full body lengths, whichever is greater.

- Avoid overcrowded pens. Animals may fight with each other when housed too closely together. Likewise they must be able to swim and dive normally to maintain optimal muscle condition.
- Have equipment to pump or aerate the water in pens that do not have sufficient tidal action to ensure a minimum of two complete water changes per day.
- Place pens in areas where there is sufficient depth to enhance water circulation and reduce pathogen build-up. Daily coliform testing will determine if pathogen build-up exists.
- Place quarantine pens such that tidal action or underwater currents will not flow through sea pens housing healthy animals.

1.4.7 Evaluation Requirements Before Placing Marine Mammals Together

- Complete blood count (CBC)/Chemistries, appropriate cultures, physical examination before moving animals out of quarantine area.
- Review current NMFS recommendations on diseases of concern (i.e. Morbillivirus) and reportable disease (i.e. Brucella and West Nile virus).
- Consider screening for morbillivirus, herpes virus, Brucella, Leptospira, and Toxoplasma utilizing the most current diagnostic tests available.
- If animals are part of a UME, then screening for diseases must be more thorough and in direct coordination with NMFS and through UME coordinators.
- Have contingency plan for animals that are carriers of or actively infected with reportable disease such as brucellosis, herpes virus, leptospirosis, toxoplasmosis, and morbillivirus.

1.4.8 Zoonotic Considerations

- Restrict public access and direct contact with cetaceans due to zoonosis potential and public health hazard of non-trained individuals interacting with sick and injured marine mammals.
- Train staff and personnel about how to prevent contracting zoonotic diseases.
- Train staff and personnel working directly with stranded cetaceans how to recognize symptoms of zoonotic disease.
- Provide safety equipment such as protective clothing, eye protection and face masks.
- Provide eye flushing stations as used with hazardous materials (HAZMAT) or normal saline bottles to irrigate the eyes.
- Staff with open wounds shall not enter the pool of animals carrying potentially infectious diseases.

- Persons with disabilities, respiratory conditions, infectious diseases or infectious skin conditions shall not enter pools with rehabilitating cetaceans.
- Train staff the basics of sanitation and properly handling contaminated equipment.

1.4.9 Pre-Release Guidelines

- Pre-release health screens and serologic requirements are directed by the NMFS Regional Stranding Coordinator, in coordination with Marine Mammal Health and Stranding Response Program.

1.5 Sanitation

MINIMUM STANDARD

1.5.1 Primary Enclosure Sanitation

- Remove animal and food waste in areas other than the rehabilitation pool from the rehabilitation enclosure at least daily, and more often when necessary to prevent contamination of the marine mammals contained therein and to minimize disease hazards.
- Remove particulate animal and food waste from rehabilitation/exercise pools at least once daily, but as often as necessary to maintain water quality and to prevent increased health hazards to the marine mammals that use the pools.
- Remove trash and debris from pools as soon as it is noticed, to preclude ingestion or other harm to the animals.
- Clean the walls and bottom surfaces of the rehabilitation/exercise pools as often as necessary to maintain proper water quality.
- Prevent animals from coming in direct contact with disinfectants or aerosolized disinfectants from spray or cleaning hoses.

RECOMMENDED

- Empty and allow pools to dry once each year but dry and hyperchlorine pool bottoms and walls after each use by sick cetaceans.

1.5.2 Sanitation of Food Preparation Areas and Food Receptacles

- Use separate food preparation areas and supplies for rehabilitation vs. collection animals.

- Clean food containers such as buckets, tubs, and tanks, as well as utensils, such as knives and cutting boards, or any other equipment which has been used for holding, thawing or preparing food for marine mammals after each feeding with detergent and hot water and sanitize with an appropriate disinfectant approved for use in food areas at least once a day.
- Clean kitchens and other food handling areas where animal food is prepared after every use, and sanitize at least once weekly using standard accepted sanitation practices.
- Store substances such as cleaning and sanitizing agents, pesticides and other potentially toxic agents in properly labeled containers away from food preparation areas.
- Post MSDS "right to know" documents for staff utilizing cleaning and animal treatment chemicals and drugs.

1.6 Food, Handling, and Preparation

During rehabilitation food for marine mammals shall be wholesome, palatable, free from contamination, and of sufficient quantity and nutritive value to allow the recovery of the animals to a state of good health. Live fish may be fed during rehabilitation but preferences should be given to native prey species. Live fish may contain parasites which could infect compromised animals. Feeding regimens should simulate natural patterns in terms of frequency and quantity to the extent possible while following a prescribed course of medical treatment. Most cetaceans feed repeatedly during a given day.

1.6.1 Diets and Food Preparation

MINIMUM STANDARD

- Prepare the diets with consideration for age, species, condition, and size of marine mammals being fed.
- Feed cetaceans a minimum of three times a day, except as directed by a qualified veterinarian or when following professionally accepted practices.
- Diets reviewed by a nutritionist and the attending veterinarian.
- Train staff to recognize good and bad fish quality.
- Feeding live fish may be required for release determination. See NMFS Standards for Release Guidelines for more information regarding feeding live fish.
- Food receptacles should be cleaned and sanitized after each use. Food preparation and handling should be conducted so as to minimize bacterial or chemical contamination and to ensure the wholesomeness and nutritive value of the food.

RECOMMENDED

- Feeding patterns should simulate natural patterns in terms of frequency and quantity which may require food to be offered 5 – 10 times daily.

1.6.2 Food Storage and Thawing

MINIMUM STANDARD

- Frozen fish or other frozen food shall be stored in freezers which are maintained at a maximum temperature of 0º F (-18ºC).
- The length of time food is stored and the method of storage, as well as the thawing of frozen food should be conducted in a manner which will minimize contamination and which will assure that the food retains optimal nutritive value and wholesome quality until the time of feeding.
- Freezers should only contain fish for animal consumption. Human food or specimens should not be placed in the fish freezer.
- Experienced staff should inspect fish upon arrival to ensure there are no signs of previous thawing and re-freezing, and check temperature monitoring devices in the transport container. The fish shipment should be refused or the fish discarded if temperature fluctuations occurred during transport.
- Freezers shall be of sufficient size to allow for proper stock rotation.
- All foods shall be fed to the marine mammals within 24 hours following the removal of such foods from the freezers for thawing.
- If the food has been thawed under refrigeration it must be fed to marine mammals within 12 hours of complete thawing.
- When fish is thawed in standing or running water, the coldest available running water must be used to prevent excess bacterial growth.
- To ensure optimal quality of the fish, and to prevent bacterial overgrowth, do not allow fish to reach room temperature or sit in direct sunlight.
- The thawed fish shall be kept iced or refrigerated until a reasonable time before feeding. This time will vary with ambient temperature.
- Prepared formula should be fed immediately or refrigerated and fed to the marine mammals within 24 hours of preparation. Formula, once heated to an appropriate temperature for a feed, shall be discarded if it is not consumed within one hour.

RECOMMENDED

- Calculate kilocalories of each type of fish or food items fed to each animal daily.
- Conduct food analysis for protein, fat and water content of each lot of fish used.
- Culture the slime layer from the fish lot prior to thawing for *Erysipelothrix.*

1.6.3 Supplements

MINIMUM STANDARD

- Each animal shall receive appropriate vitamin supplementation which is sufficient and approved in writing by the attending veterinarian.

1.6.4 Feeding

MINIMUM STANDARD

- Food, when given to each marine mammal individually or in groups, must be given by personnel who have the necessary training and knowledge to assure that each marine mammal receives and eats an adequate quantity of food to maximize its recovery or maintain good health. Such personnel is required to recognize deviations in each animal being rehabilitated such that intake can be adjusted and/or supplemented accordingly.

1.6.5 Public Feeding

MINIMUM STANDARD

- Public feeding of animals that are being rehabilitated is **strictly** prohibited.
- Feeding must be conducted only by qualified, trained personnel.

1.6.6 Feed Records

MINIMUM STANDARD

- Maintain feed records on each individual animal noting the actual (not an estimate) individual daily consumption for each animal by specific food type.
- Weigh food before and after each feeding and the record the amount consumed.
- Obtain girth measurements at least weekly at the level of the axilla and the anterior insertion of the dorsal fin. Girth measurements are generally less stressful to obtain than weighing the animal.

1.7 Veterinary Medical Care

All rehabilitation facilities shall have an attending veterinarian. The attending veterinarian is critically involved in making decisions regarding medical care as well as housing and husbandry of resident and newly admitted patients.

1.7.1 Veterinary Experience

MINIMUM STANDARD

The attending veterinarian shall:

- Assume responsibility for diagnosis, treatment, and medical clearance for release or transport of marine mammals in rehabilitation (50 CFR 216.27).
- Ability to provide a schedule of veterinary care that includes a review of husbandry records, visual and physical examinations of all the marine mammals in rehabilitation, and a periodic visual inspection of the facilities and records.
- Be available to examine animals on a regular schedule and emergency basis; daily if necessary.
- Be available to answer veterinary questions on a 24 hour basis.
- Have marine mammal experience or be in regular consultation with a veterinarian who has marine mammal experience and have access to a list of expert veterinarians to contact for assistance.
- Have an active veterinary license in the United States (means a person who has graduated from a veterinary school accredited by the American Veterinary Medical Association Council on Education, or has a certificate issued by the American Veterinary Graduates Association's Education Commission for Foreign Veterinary Graduates).
- Have the skills to be able to draw blood from, and give injections to the species most commonly encountered at the rehabilitation center.
- Be available to examine animals immediately upon admittance to a facility.
- Be available to assess animals during a mass stranding.
- Have contingency plan for veterinary backup.
- Have a drug license and the ability to obtain necessary medications for the animals housed at that rehabilitation facility.
- Be able to conduct a full post-mortem examination on all species of cetaceans treated at the facility.
- Be knowledgeable and able to perform cetacean euthanasia.

- Be knowledgeable about species-specific pharmacology.
- Must certify in writing that animals are fit for transport.
- Ability to write and submit timely disposition recommendations for marine mammals in rehabilitation.
- Be knowledgeable of marine mammal zoonotic diseases.

RECOMMENDED

All of the above plus:

- Membership in the International Association for Aquatic Animal Medicine.
- Have access to a current version of the CRC "Handbook of Marine Mammal Medicine"
- Complete a course that offers basic medical training with marine mammals such as Seavet, Aquavet or MARVET.
- Have a minimum of one year of clinical veterinary experience post graduation.
- Have at least one year clinical experience working with the marine mammal type(s) most frequently admitted to the rehabilitation facility
- Be full time employees or contracted veterinarian of record at facilities managing an average of 10 cetacean cases per year.

1.7.2 Veterinary Program

MINIMUM STANDARD

- Veterinary care for the animals must conform with any State Veterinary Practice Act or other laws governing veterinary medicine which applies to the state in which the facility is located.
- Standard operating procedures should be reviewed and signed off by the attending veterinarian every 6 months and may be reviewed by NMFS as part of the NMFS Stranding Agreement or as part of inspections.
- Staff caring for animals should be sufficiently trained to assist with veterinary procedures under the direction of the veterinarian
- Veterinary decisions shall be based on "best practices" (i.e., based on informed opinions and expertise of veterinarians practicing marine mammal medicine).
- A schedule of veterinary care which includes a review of husbandry records, visual and physical examinations of the animals, and a visual inspection of the facilities should be implemented.

- A health and safety plan for the staff shall be written and accessible at all times. It shall be reviewed by the attending veterinarian annually or as prescribed by the NMFS Stranding Agreement. Staff will be familiar with the plan. The plan shall include protocols for managing bite wounds.

The following reports may be requested annually by NMFS as required under the NMFS Stranding Agreement or as a part of inspections:

- Standard Operating Procedure (SOP) reviews
- Health and Safety Plan reviews
- Animal acquisitions and dispositions
- National Oceanic and Atmospheric Administration (NOAA) Form 89864, Office of Management and Budget (OMB) #0648-0178 (Level A data)
- NOAA Form 89878, OMB#0648-0178 (Marine Mammal Rehabilitation Disposition Report)
- Case summaries for any rehabilitation performed at a facility, including narrative descriptions of the cases as well as spreadsheets of treatments, blood values, etc.

1.8 Laboratory Tests and Frequency of Testing

Recommendations for tests will be issued each year by the NMFS stranding coordinator in each region as outlined in the Marine Mammal Health and Stranding Response Program. NMFS must be provided adequate time and information including a veterinary certificate of health before an animal is released as directed in 50 CFR 216.27 (see NMFS release guidelines).

1.8.1 Laboratory Testing

MINIMUM STANDARD

- CBC/Serum Chemistry- All animals shall have a minimum of two blood samples drawn for CBC with differential and serum chemistry upon admission and prior to release (see NMFS Release Guidelines).
- Fecal analysis for parasites - Fecal tests for parasites shall be run upon admission of each animal at the discretion of the attending veterinarian.
- Serology as necessary for release determination based on direction of the NMFS stranding coordinator and the Marine Mammal Health and Stranding Program and for additional clinical diagnosis as deemed appropriate by the attending veterinarian.

- The administration of drugs with potential adverse side-effects may require additional testing. For example, the use of ototoxic antibiotics may require subsequent testing of hearing abilities of the animal prior to consideration for release.
- The attending veterinarian or a trained staff member shall perform a necropsy on every animal that dies within 24 hours of death.
- Carcass disposal shall be handled in a manner consistent with local and state regulations.
- Perform histopathology on select tissues from each animal that dies at the discretion of the attending veterinarian. A complete set of all major tissues should be evaluated if the animal dies of an apparent infectious disease process.
- Culture and other diagnostic sampling shall be conducted as directed by the attending veterinarian to determine the cause of stranding or death.
- Contact NMFS for additional laboratory test requirements in all cases of unusual mortality outbreaks or disease outbreaks. More complete testing may be required for diseases of concern.
- Serologic assays may only go to labs that have validated tests approved by NMFS, especially for release decisions or determinations.
- Notify NMFS within 24hours of diagnosis of reportable diseases.
- NMFS must be provided adequate time and information (including vet certificate of health) before animal is released in all cases as directed in 50 CFR 216.27 (see NMFS Standards for Release).

RECOMMENDED

- Complete necropsy performed by the attending veterinarian or a pathologist.
- Full histopathology done on tissues from each animal that dies of apparent infectious disease.
- Bank 1cc of serum per blood draw in -80^{o} F freezer.
- Bank heparinized plasma (green top) tube in -80^{o} F one per animal.
- Reproductive status shall be evaluated upon admission and prior to release through analysis of serum progesterone and estrogen levels in females, and testosterone in males. Elevated hormone values in females upon admission will require re-sampling within the first two weeks to assess pregnancy. Monitoring by means of monthly blood sample collection and analysis through the course of rehabilitation is strongly advised. If possible, sampling will be done in conjunction with ultrasonic examination of reproductive tracts.

1.9 Record Keeping and Data Collection

Record keeping is an essential part of the rehabilitation process. Not only do accurate and complete medical records for each stranded cetacean allow the staff to provide consistent and optimal care for each animal, but retrospective records help scientists and veterinarians to make better evaluations on how to treat individuals.

1.9.1 Record Keeping

MINIMUM STANDARD

- Record and report the "Marine Mammal Stranding Report - Level "A".
- Complete the require NMFS Marine Mammal Rehabilitation Disposition Report NOAA 89-878, OMB #0648-0178.as in accordance with the NMFS Stranding Agreement
- Maintain and update individual medical records daily on each animal at the rehabilitation center.
- Individually identify each animal with unique field number.
- Keep an accurate description of the animal, including identification/tag number, date and location of stranding, sex, weight, and length at stranding.
- Subjective, objective, assessment and plan (SOAP) based records are preferred.
- Include food intake and medication administered to each animal in the daily records.
- Weight
    a. Recorded weekly for underweight cetacean calves or as authorized in writing by the attending veterinarian.
    b. Taken as often as possible for underweight animals without causing undue stress to the animal.
    c. Recorded on admission and prior to release for larger cetaceans.
- Measure body weight, girths (axilla and anterior insertion of the dorsal fin) and standard straight-line and length upon admission, and within one week of release/placement.
- Measure blubber thickness (ultrasonically) at standard sites upon admission, and monitor monthly throughout the course of rehabilitation, with a goal of matching blubber to seasonal water temperatures.
- Weigh the animal as practical, keeping in mind that obtaining the weight of the animal may be stressful.
- Record all treatments, bloodwork, test and results and daily observations in the medical records.

- Maintain individual medical records for each animal. Medical records remain on site where the animal is housed and are available for NMFS review upon request as stated in the NMFS Stranding Agreement.
- Maintain medical records on site for a minimum of 15 years.
- Maintain up to date water quality records.
- Maintain life support system maintenance records.
- Maintain records of water quality additives.

RECOMMENDED

- Full set of standard morphometrics prior to release.
- Photographic documentation, identifying marks, lesions.
- Caloric value of daily food intake calculated and recorded for each animal each day
- Daily weight of calves or emaciated animals at the discretion of the attending veterinarian.
- Maintain food acquisition and analysis records.
- Maintain "paper copy" archive of required NMFS records.

1.9.2 Data Collection

MINIMUM STANDARD

- Written documentation of the medical history, food and observation records must be kept.
- NMFS Required Forms to be completed:
  a. Marine Mammal Stranding Report – Level A (NOAA 89-864, OMB #0648-0178)
  b. Marine Mammal Rehabilitation Disposition Report (NOAA 89-878, OMB #0648-0178)

RECOMMENDED

- Computerized documentation with hard copies.
- Ability to network with other institutions.
- Maintain real-time accessible compiled comparative data.

1.10 Euthanasia Protocols

MINIMUM STANDARD

- Each institution must have a written euthanasia protocol signed by the attending veterinarian.

- Persons administering the euthanasia must be knowledgeable and trained to perform the procedure.
- Maintain a list of individuals authorized to perform euthanasia signed by the veterinarian.
- Euthanasia shall be performed in a way to minimize distress in the animal.
- Refer to both American Veterinary Medical Association euthanasia standards and the CRC Press Handbook of Marine Mammal Medicine.
- Appropriate drugs for euthanasia in appropriate amounts for the largest species admitted to the facility shall be maintained in stock on site in an appropriate lockbox or under the control of a licensed veterinarian with a current Drug Enforcement Administration (DEA) license.
- Drugs for euthanasia shall be kept with an accurate inventory system in place.
- DEA laws and regulations and any applicable State Veterinary Practice Acts must be followed when using controlled drugs.
- NMFS may request this information (protocols and DEA number) as part of the NMFS Stranding Agreement.

1.11 Health and Safety Plans for Personnel

There shall be a health and safety plan on site at each rehabilitation facility that identifies all health and safety issues that may be factors when working closely with wild marine mammals. The plan should identify all potential zoonotic diseases as well as including safety plans for the direct handling of all species and sizes of cetaceans seen at that facility. Rehabilitation facilities are encouraged to comply with Occupational Safety and Health Administration regulations.

MINIMUM STANDARD

- Identify all potential zoonotic diseases in a written document available to all personnel.
- Include safety plans for the direct handling of all species and sizes of cetaceans seen at that facility.
- Include safety plan for dealing with handling any untreated discharge water.

1.12 Contingency Plans

Contingency plans shall be in place at each facility and may be required by NMFS as part of the NMFS Stranding Agreement. NMFS may require approved variances or waivers prior to planned projects such as construction, and NMFS may not allow rehabilitation efforts to occur under some

circumstances. These plans should addresses in detail the operation of the facility and care of the animals under the following conditions:

- Inclement weather plan, including a hurricane/big storm plans where appropriate.
- Construction in the vicinity of the animal rehabilitation pools recognizing the potential and documented adverse impacts of construction on cetaceans, and including specific reference to how noise, dust, debris, and construction worker access will be controlled, how and how frequently animal health will be monitored, and specific criteria for when construction shall be halted or the animals will be moved to another site out of the construction area if the animals appear to be adversely impacted.
- Power outages, including plans of how to maintain frozen fish stores and life support systems.
- Water shortages.
- "Acts of God" plan which may include floods, earthquakes, hurricanes or other unpredictable problems known to occur on occasion in the region where the facility is located.

1.13 Viewing

NMFS Regulation, U.S.C. 50 CFR 216.2(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR "an activity that provides opportunity for the public to view living marine mammals at a facility holding marine mammals captive". Only remote public viewing will be allowed and only when there is no possible impact of the public viewing on the animals being rehabilitated. A variance or waiver will be required by NMFS for facilities planning to offer public viewing of any marine mammal undergoing rehabilitation.

1.14 Training and Deconditioning Behaviors

Basic behavioral conditioning of wild cetaceans for husbandry and medical procedure may be warranted during rehabilitation as long as every effort is made to limit reinforced contact with humans. Such conditioning may reduce stress for the animal during exams and acquisition of biological samples. Conditioning may assist with appetite assessment and ensuring that each animal in a group receives the appropriate amount and type of diet and medications.

In some cases, extensive contact with humans, including training, may benefit resolution of the medical case by providing mental stimulation and behavioral enrichment, and may facilitate medical

procedures. The relative costs and benefits of training should be evaluated by the staff veterinarian, and the likelihood of contact with humans following release should be considered.

Behavioral conditioning of cetaceans must be done for the shortest time necessary to achieve rehabilitation goals and is to be eliminated prior to release such that association of food rewards with humans is diminished. If an animal has become accustomed to hand-feeding or boat-following, the animal may approach humans after release. Therefore, these behaviors should be deconditioned or counter-conditioned before the animals can be considered for release. Most behaviors will extinguish through lack of reinforcement, but some may require more concentrated efforts.

Training for research that is above and beyond the scope of normal rehabilitation practices can be approved on a case-by case basis under a NMFS scientific research permit. An exception can be made if the attending veterinarian, facility, and NMFS officials all agree that the research will not be detrimental to the animals' health and welfare and will not impede their ability to be successfully released back to the wild.

2. Standards for Pinniped Rehabilitation Facilities

2.1 Facilities, Housing, and Space

Pools for stranded pinnipeds must be appropriate for the basic needs of the animal including buoyancy and thermoregulation. Debilitated pinnipeds often cannot swim and will avoid water if offered, preferring a haul-out space to a pool. Pinnipeds arriving in a debilitated condition have different needs and may not require pools initially. If no pool is provided to the animal, means of keeping it wet and protected from direct sunlight is essential. The upper critical temperature of California sea lions is lower than most land-dwelling mammals at 24°C (75°F) and with limited thermoregulatory ability, they have special habitat needs in captivity. While dry sea lion coats absorb about 74% and wet California sea lion coats absorb almost 92% of all types of shortwave radiation respectively, a California sea lion with a wet coat exposed to direct sunlight could easily overheat on a hot day if there were no other method to cool the animal. (Langman *et al.*, 1996).

Social compatibility should be considered as a part of appropriate housing. Pinnipeds known to be social should be housed with compatible species whenever possible. Placing larger, more robust animals in separate pens, away from the smaller, weaker, or less dominant animals may enhance the success of the rehabilitation efforts for the weaker animals.

It is up to the attending veterinarian and experienced rehabilitation staff, to decide how to house the animal most appropriately based on their experience, observations, and physical examination.

Each animal admitted to a rehabilitation center should be placed in a quarantine holding area and have a full health evaluation performed by the attending veterinarian, Sufficient quarantine time should be allowed for results from tests and cultures to be evaluated before the animal is placed with animals that are apparently disease free. Pinnipeds with evidence of infectious disease must be quarantined (See Section 2.4 Quarantine).

During multiple or unusual stranding situations such as hazardous waste spills, catastrophic weather events, toxic algal blooms, or other events leading to unusually high morbidity or mortality, rehabilitation centers may need to adjust the number of animals that would be normally housed in each pen, pool, or bay or ocean pen. The attending veterinarian will be responsible for assuring that numbers of animals housed in one pool or pen will be appropriate based on the situation. The number of qualified animal care personnel available to care for the animals could be a limiting factor on how many animals may be housed at each facility.

Care should be taken when hand rearing neonatal otariids, as some species frequently imprint on their caregivers rendering them unsuitable for release. A plan for placing animals in a permanent captive environment should be in place in advance for pinniped pups that are ultimately deemed unreleasable.

NMFS Regulation, U.S.C. 50 CFR 216.2(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR is "an activity that provides opportunity for the public to view living marine mammals at a facility holding marine mammals captive." (See Section 2.13 Viewing).

2.1.1 Pool Requirements

MINIMUM STANDARD

- Pools shall be available for all pinnipeds under rehabilitation. Critical care animals may be temporarily held without water access at the discretion of the attending veterinarian.
- Pools shall be deep enough for each animal to completely submerge, and shall be at least 0.91 meters or 3 feet deep. An exception to this would be temporary pools for young pups or debilitated animals.
- Pools shall be large enough in diameter to allow each animal housed therein to swim.

RECOMMENDED

- Pools shall have a MHD of 1 meter or 1.5 x the length of the largest animal utilizing the pool, whichever is larger.
- The minimum surface area of the pool shall be at least equal to the dry resting area required by USDA, APHIS AWA standards except for ill animals or young pups at the discretion of the veterinarian.
- The pool shall be at least 0.91 meters deep or ½ the actual length of the longest species contained therein, whichever is greater. Parts of the pool that do not meet the minimum depth requirement cannot be used in the calculation of the dry resting and social activity area, or as part of the MHD or required surface area of the pool.
- Facilities where numerous pinnipeds are rehabilitated consistently each year should be equipped with at least one pool and haul-out area that meet APHIS standards for at least one adult of the species where one or more per year strands as adults. If adult pinnipeds are commonly rehabilitated, facilities should be designed to accommodate at least the average number of adult-sized animals that strand each year.

2.1.2 Dry Resting Area

MINIMUM STANDARD

- 1 to 2 animals; area of dry resting area = 2 x (length of the longest animal)^2.
- Three or more animals in the same enclosure require the minimum space for two animals and, in addition, enough space for the animals to lay separately with at least one body length from one another, to turn around completely, and to move at least two body lengths in one direction.
- The facility must have the ability to house adult males separately from one another.
- Animals may be temporarily housed in smaller areas at the discretion of the veterinarian. Minimum space required will be appropriate for the age or medical condition of the animal.
- Critical care animals and young pups may be temporarily supplied smaller pools and less dry resting area.

RECOMMENDED

- Three or more animals in the same enclosure: (length of each animal) ^{2} x number of animals in enclosure = number of square feet of required dry resting area (DRA).

2.1.3 Pool or Pen Design

New rehabilitation pools should be designed and constructed to minimize introduction of anthropogenic noise from life-support equipment or other sources. This can be accomplished through sloping of walls, insulation with soil or other materials around the sides of the pool and/or through isolation of noise-generating equipment. A special exception may be granted by NMFS if existing pools do not meet these specifications and a retrofit is not feasible as long as animal welfare is maintained.

MINIMUM STANDARD

- Pools or pens shall be designed for ease of cleaning and handling the animals.
- Open water pens shall optimally be constructed of plastic or other rigid netting.
- If cotton or nylon netting material is used it must be small enough gage to prevent entanglement.

RECOMMENDED

- Pools designed to promote good water circulation and to minimize anthropogenic noise.
- Ability to drop a pool in less than 2 hours and refill it to a “swimming level” in less than 30 minutes.

2.1.4 Length of Stay and How it Affects Space

Facilities which handle adult animals that are kept for periods longer than six months but less than one year should meet USDA APHIS AWA standards. However the actual length of each animal may be used for each DRA calculation rather than the adult length. After one year holding must meet APHIS standards.

2.1.5 Shelter, Shading, and Lighting

Animals housed at rehabilitation facilities must be provided with shelter to prevent exposure to extreme heat or cold. Pinnipeds held in rehabilitation facilities may not have normal activity levels and thin animals may be unable to thermoregulate properly. These animals may require shade structures to protect them from direct sunlight and extreme heat, or shelter to protect them from cold temperatures or inclement weather. Animals held in indoor facilities should be provided with appropriate light and dark photoperiods which mimic actual seasonal conditions.

MINIMUM STANDARD

- Provide shade structures or shelters to animals to aid thermoregulation when local climatic conditions could compromise the health of the animal.
- Provide shade and/or water spray to all pinnipeds that cannot swim and are housed in areas where ambient air temperatures reach > 80° F (26.6° C).
- Lighting in indoor facilities shall be appropriate for the species and shall clearly illuminate the DRA and pool during daylight hours.

RECOMMENDED

- All of the above, and a source of natural or full spectrum light for animals housed indoors.
- Removable or adjustable shade structures in pens to provide more natural sunlight to animals that are swimming and diving normally.

2.1.6 Air Temperature

MINIMUM STANDARD

- Attention to ambient air temperature and humidity should be considered to facilitate recovery, protect rehabilitating animals from extremes of heat or cold, and to prevent discomfort.
- Method to raise or lower air temperature, as appropriate to maintain proper body temperature should be available. Access to full shade, constant water sprays and fans may be used for animals

that have no access to pools during times when the ambient temperature exceeds 85°F (29.4°C). Likewise heating devices may be utilized when temperatures fall below the comfort level of the animal, which will be determined by the species, age, and body condition of the animal.

- Large fans or "swamp coolers" available to move air across animals with no access to pools when ambient temperatures reach over 85°F (29.4°C).

RECOMMENDED

- Provide temperature-controlled shelter or holding space for critical care animals or pups.
- Monitor temperature of additional heaters such as heating pads infrared heaters and heat lamps. Animals should be able to move away from point source heaters. If animals are too debilitated to move, temperature of heaters can not exceed the safe range of 50-80^{o}F at skin surface or animals must be monitored every 4 hours.

2.1.7 Housing for Critical Care Animals

Debilitated and ill pinnipeds are often sedentary and haul out or float at the surface of a pool for long periods of time. Young pups may be weak and require assistance moving in and out of pools. A shallow area that allows the animal to rest on the bottom with gradually sloping sides or a ramp equipped with a gripping surface to allow ease in entering and exiting the pool are considered optimal.

MINIMUM STANDARD

- Individual dry haul out space or individual enclosures shall be appropriate in size for the most common species of pinnipeds rehabilitated routinely at the facility.
- Housing for critically ill animals that will provide shelter from the extremes of heat or cold, and will provide heat as appropriate for animals held in cold climates.
- Access to shallow water and/or water spray for all pinnipeds as advised by the attending veterinarian.
- Structurally separate facility to quarantine incoming animals until the attending veterinarian determines them to be free from contagious disease (See Section 2.4 Quarantine).

RECOMMENDED

All of the above minimum standards, plus:

- Individual enclosures for each critical care animal where the dry resting area = (length of the animal)^2.
- Housing which provides optimal temperature control for critically ill animals (heating and/or air conditioning).

2.1.8 Housing of Pups

Pups of all species have special housing and management needs and require careful monitoring when introducing them to pools. Premature pups may require more time than full-term pups before introducing them to water.

MINIMUM STANDARD

Phocids less than 1 week old:

- Individual housing with fully supervised access to shallow water (< 0.5 meters deep) pools. Full supervision may stop when animals demonstrate ability to swim and haul out.

Otariids less than 3 weeks old:

- Individual housing or housing with similarly sized pups with fully supervised access to shallow water pools (< 0.5 meters deep) Full supervision may stop when animals demonstrate ability to swim and haul out.
- Access to raised Platforms in dry resting areas for pups of all ages so they are not required to lay on concrete or other hard/cold surfaces. Platforms must be low enough for easy access yet high enough to allow the floor to dry under platform. Platforms should be made of material with a sealed cleanable surface and designed to allow for waste to pass through.

RECOMMENDED

- All of the above and with pools designed with a gently sloping side/beach area with "gripping surface" to allow pups to easily haul out without assistance.

2.1.9 Housing of Older Pups

Full term phocids greater than 1 week old and otariids greater than three weeks old

MINIMUM STANDARD

- House pups with similar conspecific age group.
- House pups as individuals or groups with frequent or constant access to deeper water (> 0.5 meters deep).
- Provide a platform or shallow shelf in each pool that allows pups to easily haul out on their own.
- Provide platforms in dry resting areas allowing pups an alternative to laying on concrete or other hard/cold surfaces (as above).

RECOMMENDED

- Provide a pool designed with a gently sloping side leading to a level beach area that allows pups to easily haul out.

2.1.10 Number of Animals Housed in Each Pen/Pool

During UME strandings, the number of pinnipeds received by the facility is limited not only by the number and size of the holding pools or pens, but the number of qualified trained rehabilitation staff members available to care for the animals. The maximum number of animals maintained in each pool and onsite at the facility shall be determined by the attending veterinarian and dictated by the number of qualified staff available to care for the animals.

MINIMUM STANDARD

- Provide a minimum of three qualified trained rehabilitation staff members on site for the first 25 pinnipeds housed at the facility, and two more trained rehabilitation staff members for every additional 25 pinnipeds. More staff will be required when animals are housed simultaneously in quarantine holding and recovering animal holding areas. Staff must be available on a 24-hour basis for critical animal care.

2.1.11 Housekeeping

MINIMUM STANDARD

- Keep support buildings and grounds as well as areas surrounding rehabilitation pools clean and in good repair.
- Maintain perimeter fences in good repair, and ensure they are an adequate height and construction to keep people and animals and pests out.

- Ensure primary enclosures housing marine mammals do not have any loose objects, sharp projections, and/or edges which may cause injury or trauma to the marine mammals contained therein.
- No holes or gaps larger than ½ the size of the head diameter of the pup of the smallest species to be housed.
- All drains and overflows must have screened covers.
- Objects introduced as environmental enrichment must be too large to swallow and made of non porous cleanable material.

RECOMMENDED

- Coat all pool and haul-out surfaces with a non-porous, non-toxic, nondegradable cleanable material that is able to be disinfected.

2.1.12 Pest Control

MINIMUM STANDARD

- Establish and maintain a safe and effective program for the control of insects, avian and mammalian pests. This should include physical barriers to prevent feral and/or wild animals from contact with the rehabilitating animals.
- Insecticides or other such chemical agents shall not be applied in a primary enclosure housing marine mammals or a food preparation area except as authorized in writing by the attending veterinarian.
- If applied, all appropriate measures must be taken to prevent direct contact with the insecticide/pesticide, whether airborne or waterborne, by the animal.

2.1.13 Security for Facility

Stranded marine mammals often attract public attention and must be protected from excessive commotion and public contact. Ensuring a quiet stress-free environment for rehabilitating animals may improve their chance to recover and survive. Public viewing of marine mammals is discussed in Section 2.13 of this document.

MINIMUM STANDARD

- Locate rehabilitation facilities at sites that are able to be secured from the public.

- Prevent direct public contact with the rehabilitating animals by utilizing appropriate fencing, staff and security personnel.

RECOMMENDED

- Maintain 24- hour monitoring when animals are present or maintain a secure perimeter fence with the ability to lock the area off to the public when staff are not present.

2.2 Water Quality

There are four basic types water systems:

- Pools with filtration systems (closed systems)
- Pools without filtration systems (dump and fill systems)
- Pools with periodic influx of natural seawater (semi-open systems)
- Open water systems (Bay or sea pens).

There are a number of variables which will affect water quality. The number and size of pinnipeds utilizing each pool will vary throughout the year at most rehabilitation institutions. During the busy season or during unusual stranding events, the number of pinnipeds utilizing one pool may increase dramatically creating a heavier load of waste which must be handled by the filtration system in closed systems and by the amount of water flow-through in semi-open and open systems. A life support system is used as one tool in a program of water quality maintenance to provide safe and clean water to the animals.

Filtration or life support systems are essential to maintaining clean water for animals held in closed or semi-closed systems. Life support systems have three basic parts; mechanical filters that remove solids, biological filters or baffles to remove or detoxify chemicals in the water, and disinfecting methods to control or remove pathogens. In addition to maintaining clean water in the animal pools, these systems may be needed to treat waste water, depending on waste water disposal requirements. If a temporary increase in waste production overwhelms part or all of the life support system, a good water quality control program will require alternative options.

Water used in closed systems generally is fresh water obtained from municipal sources, whereas water in open and semi-open systems comes from a bay or sea source. Water in closed systems must be regularly filtered through sand and gravel filters to remove particulate matter, and disinfectants

such as chlorine or bromine may be added to eliminate pathogens. More elaborate systems utilize ozone to oxidize pathogens in the water.

Factors that affect water quality are:

- Size of pool or pen
- Efficiency of filtration system or water flow-through rate (tides)
- Water turnover rate
- Number, size and species of animals housed in pool or pen
- Type and amount of food consumed by animals in pool or pen
- Nature of bottom substrate
- Frequency of cleaning the pool
- Types, amounts, method and the frequency with which chemicals are added to the system
- Temperature of the water
- Pathogens in the water
- Biotoxins in open water pens or in pools where the source water comes from the ocean or bay
- Contaminants (oil, pesticides, etc.) in open water pens
- Hazardous waste spills
- Inclement weather
- Sunlight contributing to algae production on pool surfaces, which in turn can support bacteria.

2.2.1 Water Source and Disposal

The water source for pinnipeds housed in closed or semi-closed systems may be municipal water, well water, or water brought into the facility from an adjacent body of water or estuary.

MINIMUM STANDARD

- Fresh or salt water must be readily available to fill pools, and fresh water to clean and wash down holding pens daily.
- Drain water from pools daily, or as often as necessary to keep the pool water quality within acceptable limits.
- Discharge waste water in accordance with state or local regulations. Facility managers must seek appropriate authorization to dispose of waste water. Documents of authorization or necessary permits must be kept on site as part of the administrative record and may be requested by NMFS as part of the NMFS Stranding Agreement.

- Chemicals, when necessary, shall be added in appropriate amounts to disinfect the water or adjust the pH, but not added in a manner that could cause harm or discomfort to the animals.
- Have contingency protocols describing how water quality will be maintained during periods of peak animal use.
- Water will be clear enough to see animals and bottom of pool and free from obvious solid waste and noxious odors.

RECOMMENDED

- Fresh or ideally salt water must be available to fill pools within two hours of draining.
- Maintain a filtration system designed to optimize water quality in each holding pool and decrease water waste.
- Ability to dechlorinate fresh water for species which require this (i.e. fur seals).
- Protocols in place for maintenance of water quality throughout the year.
- Testing of source and discharge water.

2.3 Water Quality Testing

It is important to test the water in which the animals live on a regular basis. Coliform bacterial counts are used to monitor the efficiency of the filtration system to eliminate potentially harmful bacteria. Coliform counts should be done at least once per week and more frequently if there are very large or multiple animals utilizing the pool. While coliform numbers may be described as Most Probable Number (MPN) per 100 ml, a more accurate method of measuring coliforms is to determine the total coliform count, or the fecal coliform count.

Temperature of the water is especially important if the animal lacks the ability to thermoregulate. Water may require heating or chilling to aid debilitated animals in their ability to maintain optimal body temperature, although debilitated pinnipeds are likely to haul out, in such case the water temperature becomes less important. Water temperature regulation is not feasible in open water pens, but keeping track of the water temperature in sea pens may aid the staff in making husbandry decisions. If coliform numbers or the water temperature becomes too high in any system~~,~~ measures must be taken to correct the problem in a timely manner. A partial-to-total water change may be necessary to correct the problem in a closed or semi-closed system. If the coliform counts are considered too high in sea or bay pens, efforts should be made to circulate clean sea water through the pens using pumps, paddles or other methods of moving water.

Chemicals added to the water may damage eyes and skin and must be monitored daily. Salinity, when utilized for rehabilitating pinnipeds, may also have an impact on the health of the skin and eyes, as well as the comfort level of the animal, and should be monitored regularly. Emergency chemicals should be on hand such as sodium thiosulfate in case of the accidental hyperchlorination of a system.

2.3.1 Water Quality Tests

MINIMUM STANDARD

- Measure coliform growth weekly.
- Total coliform counts must not exceed 500 per 100 ml or a MPN of 1000 coliform bacteria per 100 ml water. Fecal coliform counts are not to exceed 400 per 100 ml.
- If the above tests yield results that exceed the allowable bacterial count, then two subsequent samples must be taken to repeat the test(s) where the level(s) is/are exceeded. The second sample is to be taken immediately after the initial test result, while the third sample would be taken within 48 hours of the initial test.
- If the averaged value of the three test results still exceeds the allowable bacterial counts, the condition must be corrected immediately or the animals moved to a contingency facility.
- Maintain pH between 6.5 and 8.5.
- Maintain the temperature of the water so that it falls within parameters appropriate for the species, generally between 50-80^{o}F.
- Measure oxidant levels in systems which require use of a chemical disinfectant and/or ozone in the system (for closed systems).

RECOMMENDED

- Maintain pH between 7.2-8.2.
- Total Coliforms with blanks and controls, fecal Coliform, fecal Strep, and yeast count performed weekly or as needed.

2.3.2 Frequency of Testing in Closed, Semi-open, or Open Systems

MINIMUM STANDARD

- Measure water temperature, pH, salinity (if applicable), chemical additives (if applicable) daily in all pools.
- Measure coliform counts weekly; and more frequently at the discretion of the attending veterinarian.

RECOMMENDED

- If ozone systems are used, measure ozone levels regularly in the animal pools. Ozone levels shall not exceed 0.02 mg/liter.
- Test source and discharge water at least once per day (more frequently for "flow through" systems.
- Maintain records for tests with time, level and results – reviewed and signed monthly by the attending veterinarian.

2.3.3 Chemical Additives

Total chlorine = Free chlorine + combined chlorine.

MINIMUM STANDARD

- Maintain total chlorine below 1.5 ppm, where the combined chlorine shall not exceed 50% of the total chlorine.
- All additives must be recorded.
- pH may be adjusted chemically – for example – pH may be raised with sodium carbonate, or soda ash; or lowered with HCl or CO2; but not added in a manner that could cause harm or discomfort to the animals.
- Maintain MSDS information and signage as well as appropriate handling equipment for the addition of chemicals.

2.3.4 Water Circulation

The amount of water turnover through the filtration system in a closed or semi-open system is important to maintain water quality by removing organic waste and particulate matter. Likewise the amount of water movement through an open water pen is also important in the maintenance of water quality. Generally, adequate tidal action will result in the equivalent of two complete water changes per day.

MINIMUM STANDARD

- Maintain sufficient turnover of water through the filtration system in closed or semi-open systems to keep the water quality at or above acceptable limits, with a minimum of two complete water changes per day.

- Ensure methods for moving water (water paddles, pumps, spray devices) are available to aerate and move water in open water pens with insufficient flow of tides or water through the enclosures. These methods should be sufficient to provide the equivalent of two water changes per day.

RECOMMENDED

- A minimum full water turnover rate of every four hours for each pool in closed or semi-open systems.

2.3.5 Salinity

Pinnipeds under rehabilitation may be housed in fresh water. However salinity may play a part in eye health, may enhance wound healing, or may be desirable in some other instances. In some cases animals will drink fresh water which may aid in rehydration. Placing animals in water of appropriate salinity shall be left to the discretion of the attending staff in consultation with the attending veterinarian.

2.3.6 pH

MINIMUM STANDARD

- pH shall be held in a range between 6.5 to 8.5.

RECOMMENDED

- Maintain pH between 7.2 –8.2.

2.3.7 Water Temperature

MINIMUM STANDARD

- Hold water temperatures within the normal habitat temperature range for the species under rehabilitation or as authorized in writing by the attending veterinarian.
- Provide methods to heat and maintain warm water environments for species that require it, or for debilitated or critically ill individuals that are incapable of maintaining appropriate body temperature.
- Monitor temperature of water being heated or cooled.

2.4 Quarantine

Pinnipeds brought to a rehabilitation facility have no medical history and may carry diseases communicable to other marine mammals, other animals, or humans. Likewise, these animals are often debilitated and may suffer from a variety of illnesses which may compromise their immune systems making them susceptible to diseases from other animals. Quarantine areas must be available and proper biosecurity protocols must be in place for all incoming animals at rehabilitation facilities.

Direct contact between the general public and pinnipeds undergoing rehabilitation should be avoided because of the zoonotic risk of some organisms carried by marine mammals. There have been documented cases of Brucella, Leptospira, Mycoplasma (Seal Finger), San Miguel Sea Lion Virus, Influenza A, and Sealpox, being passed from pinnipeds to humans.

Listed on the following website (see *http://www.vetmed.ucdavis.edu/whc/mmz/*). are numerous other potentially zoonotic marine mammal pathogens. See also: *2004 UC Davis Wildlife Health Center Report for the Marine Mammal Commission – Assessment of the Risk of Zoonotic Disease Transmission to Marine Mammal Workers and the Public: Survey of Occupational Risks*

2.4.1 Prevention of Animal to Animal Transmission of Diseases

MINIMUM STANDARD

- Quarantine all new animals in a separate dedicated quarantine area and provide pens/pools that can be isolated with the use of dividers, tarps, or physical space from the rest of the animal housing areas.
- Provide dividers between pens and pools that prevent washdown or splash from moving from one pool or pen to another.
- Use dedicated protective clothing for personnel- including eye shields or safety glasses and gloves.
- Use foot baths, glove baths, and methods to disinfect clothing between handling animals within quarantine area and outside of quarantine area.
- Maintain equipment and tools strictly dedicated to the quarantine areas.
- Provide sufficient space or solid-surfaced barriers between animal enclosures to prevent direct contact between animals.
- Provide sufficient air turnover in indoor facilities to prevent transmission of disease. Air turnover should be enough to prevent build-up of heat and provide a method of bringing fresh air into the

facility. There should be sufficient venting or openings to allow movement of air throughout the facility.

- Implement specific quarantine and sanitation procedures to prevent transmission of disease through fomites (e.g., clothing, equipment):
    - Thoroughly clean and disinfect buckets, hoses, scales, transport equipment, and cleaning equipment that is moved between animal areas to prevent transmission of pathogens via fomites.
- Place open water pens so effluent is not near water intake.
- Require evaluation and written veterinary approval before placing animals together after quarantine period has been met.

RECOMMENDED

- Provide separate air handling system in indoor facilities.
- Separate entries to quarantine areas with no crossover with the rest of the facility.
- Clean and disinfect quarantine areas between uses.

2.4.2 Prevention of Domestic Animal to Marine Mammal Transmission of Disease

- Ensure appropriate fencing and placement of holding pens to prevent direct contact between rehabilitating pinnipeds and domestic animals.
- Prohibit personal pets within outermost perimeter of facility.
- Require that specific quarantine and sanitation procedures are taken to prevent transmission of disease through fomites such as clothing and equipment.
- Use dedicated carriers for pinnipeds – carriers should not be used for other mammals or birds unless they are thoroughly scrubbed and disinfected between uses.

2.4.3 Prevention of Wild Animal to Marine Mammal Transmission of Disease

- Ensure perimeter fencing will prevent wildlife from entering the rehabilitation premises.
- Provide rodent control on the premises.
- Ensure net pens and lagoon areas have sufficient secondary fencing to keep wildlife from coming in direct contact with the animals housed in the net pens.

2.4.4 Prevention of Marine Mammal to Domestic Animal Transmission of Disease

- Provide appropriate perimeter fencing.
- Require animal personnel to change contaminated clothing and/or disinfect before leaving the rehabilitation premises.
- Require that specific quarantine and sanitation procedures are taken to prevent transmission of disease through fomites such as clothing and equipment.
- Follow appropriate release guidelines.

2.4.5 Prevention of Stranded Marine Mammal to Captive Marine Mammal Transmission of Disease

- Train volunteers and staff to follow appropriate quarantine protocols.
- Establish quarantine protocols that take into consideration the changing status of the stranded animal.
- Establish traffic flow so that volunteers or staff working with stranded animals do not inadvertently travel into a collection animal area.
- Establish decontamination protocols before volunteers or staff members exposed to stranded animals may enter a collection animal area.
- Establish separate restrooms, showers, changing rooms, food preparation areas, etc. for staff and volunteers working with rehabilitating vs. collection animals. Food for rehabilitating animals may be prepared in the collection animal kitchen and taken to the rehabilitation animal area, however any bucket, feed implement or other item must be thoroughly disinfected before it may return to the collection animal area.

2.4.6 Methods to Reduce Spread of Disease from Animals Housed in Open Sea/Bay Pen Systems

- Place pens in a secluded area where wild animals and marine mammals are unlikely to come into direct contact with the animals housed in the sea/bay pens.
- Place a second set of perimeter nets 30 feet from the sea/bay pens to prevent direct contact with wild marine mammals. Nets should be sufficiently rigid to prevent entanglement by mammals or fish.
- Do not place sea/bay pens within 1000 meters any major outflow of storm drains or sewage treatment plants and consider the flow direction or current from these major outflows.

- Place the sea/bay pens 500 meters and downstream from water intake pipes that bring water into facilities that house marine mammals.
- Place pens in an area where there is ample flow-through of tides/currents.
- Ensure the pens are of sufficient size to minimize biomatter build-up. Each pinniped should be housed in a pen that has a minimum depth of half of their body length, and a minimum horizontal dimension of two full body lengths.
- Avoid overcrowded pens. Animals may fight with each other when housed too closely together.
- Have equipment to pump or aerate the water in pens that do not have sufficient tidal action to ensure a minimum of two complete water changes per day.
- Place pens in areas where there is sufficient depth to enhance water circulation and reduce pathogen build-up. Daily coliform testing will determine if pathogen build-up exists.
- Place quarantine pens such that tidal action or underwater currents will not flow through sea pens housing healthy animals.

2.4.7 Evaluation Requirements before Placing Marine Mammals Together

- CBC/Chemistries, appropriate cultures, physical examination before moving animals out of quarantine area.
- Review current NMFS recommendations on diseases of concern and reportable disease such as morbillivirus.
- Consider screening for morbillivirus, herpes virus, brucellosis, leptospirosis, and toxoplasmosis utilizing the most current diagnostic tests available.
- If animals are part of an Unusual Mortality Event, then screening for diseases must be more thorough and in direct coordination with NMFS and the UME On-site Coordinators.
- Have contingency plan for animals that are actively infected with or carriers of a reportable disease such as brucellosis, leptospirosis, toxoplasmosis, herpes virus, and morbillivirus.

2.4.8 Zoonotic Considerations

- Restrict public access and direct contact with pinnipeds due to zoonosis potential and public health hazard of untrained individuals interacting with sick and injured marine mammals.
- Train staff and personnel about how to prevent contracting zoonotic diseases.
- Train staff and personnel working directly with stranded pinnipeds how to recognize symptoms of zoonotic disease.

- Train staff the basics of sanitation and properly handling contaminated equipment.
- Provide appropriate safety equipment such as protective clothing, eye protection and face masks to all staff who may be exposed to zoonotic diseases.
- Provide eye flushing stations as used with HAZMAT or normal saline bottles to irrigate the eyes.
- Staff with open wounds shall not handle animals carrying potentially infectious diseases without appropriate precautions to protect their wound(s).

2.4.9 Pre-Release Guidelines

- Pre-release health screens and serologic requirements are determined by the NMFS Regional Stranding Coordinator and the Marine Mammal Health and Stranding Response Program (See NMFS Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release – Standards for Release).

2.5 Sanitation

2.5.1 Primary Enclosure Sanitation

MINIMUM STANDARD

- Remove animal and food waste in areas other than the rehabilitation pool from the rehabilitation enclosure at least daily, and more often when necessary to prevent contamination of the marine mammals contained therein and to minimize disease hazards.
- Remove particulate animal and food waste, trash, or debris that enter rehabilitation/exercise pens or pools at least once daily, but as often as necessary to maintain water quality and to prevent increased health hazards to the marine mammals that use the pools.
- Remove trash and debris from pools as soon as it is noticed, to preclude ingestion or other harm to the animals.
- Clean the walls and bottom surfaces of the rehabilitation/exercise pens and pools as often as necessary to maintain a clean environment and proper water quality.
- Ensure appropriate disinfectants mixed to recommended dilutions are utilized to clean pens, equipment, utensils, and feed receptacles and to place in foot baths. These disinfectants should have both bacteriocidal and virocidal qualities.
- Rotate disinfectants on a regular basis to prevent bacterial resistance.
- Prevent animals from coming in direct contact with disinfectants or aerosol from spray or cleaning hoses (i.e., water splashed from floor).

RECOMMENDED

- Empty and allow pools to dry once each year but dry and hyperchlorinate pool bottoms and walls and haul-out areas after each use by sick pinnipeds.

2.5.2 Sanitation of Food Preparation Areas and Food Receptacles

- Use separate food preparation areas and supplies for rehabilitation vs. collection animals.
- Clean food containers such as buckets, tubs, and tanks, as well as utensils, such as knives and cutting boards, or any other equipment which has been used for holding, thawing or preparing food for marine mammals after each feeding, and sanitize at least once a day. Equipment should be cleaned with detergent and hot water, sanitized and dried before reuse.
- Clean kitchens and other food handling areas where animal food is prepared after every use, and sanitize at least once weekly using standard accepted sanitation practices.
- Store substances such as cleaning and sanitizing agents, pesticides and other potentially toxic agents in properly labeled containers away from food preparation areas.
- Post MSDS "right to know" documents for staff utilizing cleaning and animal treatment chemicals and drugs.

2.6 Food, Handling, and Preparation

During rehabilitation food for marine mammals shall be wholesome, palatable, free from contamination, and of sufficient quantity and nutritive value to allow the recovery of the animals to a state of good health. Live fish may be fed during rehabilitation but preferences should be given to native prey species. Live fish may contain parasites which could infect compromised animals. Feeding regimens should simulate natural patterns in terms of frequency and quantity to the extent possible while following a prescribed course of medical treatment. Most pinnipeds feed several times during a given day

2.6.1 Diets and Food Preparation

MINIMUM STANDARD

- Prepare the diets with consideration for age, species, condition, and size of marine mammals being fed.
- Feed pinnipeds a minimum of twice a day, except as directed by a qualified veterinarian or when following professionally accepted practices.

- Diets reviewed by a nutritionist and the attending veterinarian.
- Train staff to recognize good and bad fish quality.
- Feeding live fish may be required for release determination. See NMFS Standards for Release for more information regarding feeding live fish.
- Food receptacles should be cleaned and sanitized after each use. Food preparation and handling should be conducted so as to minimize bacterial or chemical contamination and to ensure the wholesomeness and nutritive value of the food.

2.6.2 Food Storage and Thawing

- Frozen fish or other frozen food shall be stored in freezers which are maintained at a maximum temperature of 0^{o} F (-18^{o} C).
- The length of time food is stored and the method of storage, as well as the thawing of frozen food should be conducted in a manner which will minimize contamination and which will assure that the food retains optimal nutritive value and wholesome quality until the time of feeding.
- Freezers should only contain fish for animal consumption. Human food or specimens should not be placed in the fish freezer.
- Experienced staff should inspect fish upon arrival to ensure there are no signs of previous thawing and re-freezing, and check temperature monitoring devices in the transport container. The fish shipment should be refused, or fish should be discarded if temperature fluctuations occurred during transport.
- Freezers shall be of sufficient size to allow for proper stock rotation.
- All foods shall be fed to the marine mammals within 24 hours following the removal of such foods from the freezers for thawing.
- If the food has been thawed under refrigeration it must be fed to marine mammals within 12 hours of complete thawing.
- When fish is thawed in standing or running water, the coldest available running water must be used to prevent excess bacterial growth.
- To ensure optimal quality of the fish, and to prevent bacterial overgrowth, do not allow fish to reach room temperature or sit in direct sunlight.
- The thawed fish shall be kept iced or refrigerated until a reasonable time before feeding. This time will vary with ambient temperature.

- Prepared formula should be fed immediately or refrigerated and fed to the marine mammals within 24 hours of preparation. Formula, once heated to an appropriate temperature for a feed, shall be discarded if it is not consumed within one hour.

RECOMMENDED

- Calculate kilocalories of each type of fish or food items fed to each animal daily.
- Conduct food analysis for protein, fat and water content of each lot of fish used.

2.6.3 Supplements

MINIMUM STANDARD

- Each animal shall receive appropriate vitamin supplementation which is sufficient and approved in writing by the attending veterinarian.
- Salt supplements shall be given to pinnipeds housed in fresh water as necessary and as approved by the attending veterinarian.

2.6.4 Feeding

Food, when given to each marine mammal individually or in groups, must be given by an employee or trained personnel who has the necessary training and knowledge to assure that each marine mammal receives an adequate quantity of food to maximize its recovery or maintain good health. Such personnel are required to recognize deviations in each animal being rehabilitated such that food intake can be adjusted accordingly.

2.6.5 Public Feeding

MINIMUM STANDARD

- Public feeding is not allowed for animals that are being rehabilitated.
- Feeding must be conducted only by qualified, trained rehabilitation staff members.

2.6.6 Feed Records

MINIMUM STANDARD

- Maintain feed records for each individual animal noting the individual (not an estimate) daily consumption by specific food type.
- Weigh food before and after each feeding and the record the amount consumed.

- Weigh the animal as practical, keeping in mind that obtaining the weight of the animal may stressful.
- If weighing the animal is not an option, obtain the girth measurement at the level of the axilla if possible.

2.7 Veterinary Medical Care

All rehabilitation facilities shall have an attending veterinarian. The attending veterinarian is critically involved in making decisions regarding medical care as well as housing and husbandry of resident and newly admitted patients.

2.7.1 Veterinary Experience

MINIMUM STANDARD

The attending veterinarian shall:

- Assume responsibility for diagnosis, treatment, and medical clearance for release or transport of marine mammals in rehabilitation (50 CFR 216.27).
- Ability to provide a schedule of veterinary care that includes a review of husbandry records, visual and physical examinations of all the marine mammals in rehabilitation, and a periodic visual inspection of the facilities and records.
- Be available to examine animals on a regular schedule and emergency basis.
- Be available to answer veterinary questions on a 24 hour basis.
- Have marine mammal experience or be in regular consultation with a veterinarian who has marine mammal experience and have access to a list of expert veterinarians to contact for assistance.
- Have an active veterinary license in the United States (means a person who has graduated from a veterinary school accredited by the American Veterinary Medical Association Council on Education, or has a certificate issued by the American Veterinary Graduates Association's Education Commission for Foreign Veterinary Graduates).
- Have the skills to be able to draw blood and give injections to the species most commonly encountered at the rehabilitation center.
- Have contingency plan for veterinary backup.
- Have a drug license and the ability to obtain necessary medications for the animals housed at that rehabilitation facility.

- Be able to conduct a full post-mortem exam on all species of pinnipeds treated at the facility.
- Be knowledgeable and able to perform pinniped euthanasia.
- Be knowledgeable about species-specific pharmacology.
- Must certify in writing that animals are fit for transport.
- Ability to write and submit timely disposition recommendations for marine mammals in rehabilitation.
- Be knowledgeable of marine mammal zoonotic diseases.

RECOMMENDED

All of the above plus:

- Membership in the International Association for Aquatic Animal Medicine.
- Complete a course which offers basic medical training with marine mammals such as Seavet, Aquavet or MARVET.
- Have at least one year of clinical experience outside of veterinary school.
- Have access to a current version of the "Handbook of Marine Mammal Medicine" Have basic hands-on veterinary experience with the species most frequently rehabilitated at the facility.
- Be full time employee or the contract veterinarian of record at facilities managing over 50 pinniped cases per year.

2.7.2 Veterinary Program

MINIMUM STANDARD

- Veterinary care for the animals must conform with any State Veterinary Practice Act or other laws governing veterinary medicine which applies to the state in which the facility is located.
- Standard operating procedures shall be reviewed and signed off by the attending veterinarian every 6 months and may be reviewed by NMFS as part of the NMFS Stranding Agreement or as a part of inspections.
- Staff caring for animals should be sufficiently trained to assist with veterinary procedures under the direction of the veterinarian.
- Veterinary decisions shall be based on "best practices" (i.e., based on informed opinions and expertise of veterinarians practicing marine mammal medicine).
- A schedule of veterinary care which includes a review of husbandry records, visual and physical examinations of the animals, and a visual inspection of the facilities should be implemented

- A health and safety plan for the staff shall be written and accessible at all times. It shall be reviewed by the attending veterinarian annually or as prescribed by the NMFS Stranding Agreement. Staff will be familiar with the plan. The plan shall include protocols for managing bite wounds.

The following reports may be requested annually by NMFS as required under the NMFS Stranding Agreement or as a part of inspections

- SOP reviews
- Health and Safety Plan reviews
- Animal acquisitions and dispositions
- NOAA Form 89864, OMB#0648-0178 (Level A data)
- NOAA Form 89878, OMB#0648-0178 (Marine Mammal Rehabilitation Disposition Report)
- Case summaries for any rehabilitation performed at a facility, including narrative descriptions of the cases as well as spreadsheets of treatments, blood values, etc.

2.8 Laboratory Tests and Frequency of Testing

Recommendations for tests will be issued each year by the NMFS stranding coordinator in each region as outlined in the Marine Mammal Health and Stranding Response Program.

MINIMUM LABORATORY TESTING

- CBC/Serum Chemistry- All animals shall have a minimum of two blood samples drawn for CBC with differential and serum chemistry; upon admission and prior to release (see NMFS Release Guidelines).
- Fecal analysis for parasites- Fecal tests for parasites shall be run upon admission of each animal at the discretion of the attending veterinarian.
- Serology as necessary for release determination based on direction of the NMFS stranding coordinator and the Marine Mammal Health and Stranding Program each year and for additional clinical diagnosis as deemed appropriate by the attending veterinarian.
- If serology is positive for pathogens of concern NMFS must give final sign off before animal is released.
- Measure body weight, girth and length upon admission, and within one week of release/placement.

- The attending veterinarian or a trained staff member shall perform a necropsy on every animal that dies within 24 hours of death.
    a. Carcass disposal shall be handled in a manner consistent with local and state regulations.
- Perform histopathology on select tissues from each animal that dies at the discretion of the attending veterinarian. A complete set of all major tissues should be evaluated if the animal dies of an apparent infectious disease process.
- Culture and other diagnostic sampling shall be conducted as directed by the attending veterinarian to determine the cause of stranding or death.
- Contact NMFS for additional laboratory test requirements in all cases of unusual mortality outbreaks or disease outbreaks. More complete testing may be required for diseases of concern.
- Serologic assays may only go to labs that have validated tests approved by NMFS, especially for release decisions or determinations.
- Notify NMFS within 24hours of diagnosis of reportable disease.
- NMFS must be provided adequate time and information (including vet certificate of health) before animal is released in all cases as directed in 50 CFR 216.27 (see NMFS Standards for Release).

RECOMMENDED

- CBC/Serum Chemistry with electrolytes on admission, within the week prior to release, and every other week during rehabilitation if restraint for sampling is not detrimental to the health of the animal.
- More frequent blood sampling at the discretion of the veterinarian.
- Weight measured on admission, just before release, and weekly for growing pups and underweight animals.
- Weights should be measured monthly for all animals unless the stress of capturing the animal to weigh it outweighs the benefits of the data.
- Complete necropsy performed by a veterinarian or a pathologist.
- Full histopathology done on tissues from each animal that dies of apparent infectious disease.
- Bank 1cc of serum per blood draw in –80^{o}F freezer.
- Bank “buffy coat” from heparinized plasma (green top) tube in –80 ^{o}F one per animal.

2.9 Record Keeping and Data Collection

Record keeping is an essential part of the rehabilitation process. Not only do accurate and complete medical records for each stranded pinniped allow the staff to provide consistent and optimal care for each animal, but retrospective records help scientists and veterinarians make better evaluations on how to treat individuals.

2.9.1 Record Keeping

MINIMUM RECORDS

- Record and report "Level A", and disposition reports as advised by Regional Coordinator and Marine Mammal Rehabilitation Disposition Report (NOAA 89-878, OMB #0648-0178) as in accordance with the NMFS Stranding Agreement .
- Maintain and update individual medical records daily on each animal at the rehabilitation center.
- Individually identify each animal with unique identifier
- Keep an accurate description of the animal, including identification/tag number, date and location of stranding, sex, weight, and length at stranding.
- Subjective, objective, assessment and plan (SOAP) based records are preferred
- Include food intake and medication administered to each animal in the records each day.
- Weight
    a. Recorded weekly for underweight pinnipeds or pups, and more often if the attending veterinarian feels it is necessary to properly care for the animal.
    b. Recorded on admission and release for larger pinnipeds.
- Record all treatments, bloodwork, test and results and daily observations in the medical records.
- Maintain individual medical records for each animal. Medical records remain on site where the animal is housed and are available for NMFS review upon request as stated in the NMFS Stranding Agreement.
- Hold medical records for a minimum of 15 years on site.
- Maintain up to date water quality records.
- Maintain life support system maintenance records.
- Maintain records of water quality additives.

RECOMMENDED RECORD KEEPING

All of the above plus:

- Full set of standard morphometrics prior to release.
- Photographic documentation of the animal, lesions, identifying marks.
- Caloric value of daily food intake calculated and recorded for each animal.
- Daily weight of pups.
- Monthly weights of larger pinnipeds (where the stress of capture to weigh does not adversely affect the rehabilitation efforts).
- Maintain food acquisition and analysis records.
- Maintain "paper copy" archive of required NMFS records.

2.9.2 Data Collection

MINIMUM STANDARD

- Written documentation of the medical history, food and observation records must be kept.
- NMFS Required Forms to be completed:
  a. NOAA Form 89864, OMB#0648-0178 (Level A data)
  b. NOAA Form 89878, OMB#0648-0178 (Marine Mammal Rehabilitation Disposition Report).

RECOMMENDED

- Computerized documentation with hard copies.
- Ability to network with other institutions.
- Maintain real-time accessible compiled comparative data.

2.10 Euthanasia

- Each institution must have a written euthanasia protocol signed by the attending veterinarian.
- Persons administering the euthanasia must be knowledgeable and trained to perform the procedure.
- Maintain a list of individuals authorized to perform euthanasia signed by the veterinarian.
- Euthanasia shall be performed in a way to minimize distress in the animal.
- Refer to both American Veterinary Medical Association euthanasia standards and the CRC Press Handbook of Marine Mammal Medicine.

- Appropriate drugs for euthanasia in appropriate amounts for the largest species admitted to the facility shall be maintained in stock on site in an appropriate lockbox or under the control of a licensed veterinarian with a current DEA license.
- Drugs for euthanasia shall be kept with an accurate inventory system in place.
- DEA laws and regulations and State Veterinary Practice Acts must be followed when using controlled drugs
- NMFS may request this information (protocols and DEA number) as part of the NMFS Stranding Agreement.

2.11 Health and Safety for Personnel

There shall be a health and safety plan on site at each rehabilitation facility that identifies all health and safety issues that may be factors when working closely with wild marine mammals. The plan should identify all potential zoonotic diseases as well as including safety plans for the direct handling of all species and sizes of pinnipeds seen at that facility. Rehabilitation facilities are encouraged to comply with Occupational Safety and Health Administration regulations.

MINIMUM STANDARD

- Identify all potential zoonotic diseases in a written document available to all personnel.
- Include safety plans for the direct handling of all species and sizes of pinnipeds seen at that facility.
- Include safety plan for dealing with handling any untreated discharge water.

2.12 Contingency Plans

Contingency plans shall be in place at each facility and may be required by NMFS as part of the NMFS Stranding Agreement. NMFS may require approved variances or waivers prior to planned projects such as construction. These plans should address in detail the operation of the facility and care of the animals under the following conditions:

- Inclement weather plan, including a hurricane/big storm plans where appropriate.
- Construction in the vicinity of the animal rehabilitation pens or pools.
- Power outages, including plans of how to maintain frozen fish stores and life support systems.
- Water shortages.

- "Acts of God" plan which may include floods, earthquakes or other unpredictable problems known to occur on occasion in the region where the facility is located.

2.13 Viewing

NMFS Regulation, U.S.C. 50 CFR 216.2(c)(5) states that marine mammals undergoing rehabilitation shall not be subject to public display. The definition of public display under U.S.C. 50 CFR is "an activity that provides opportunity for the public to view living marine mammals at a facility holding marine mammals captive". Only remote public viewing will be allowed and only when there is no possible impact of the public viewing on the animals being rehabilitated. A variance or waiver will be required by NMFS for facilities planning to offer public viewing of any marine mammal undergoing rehabilitation.

2.14 Training and Deconditioning Behaviors

Basic behavioral conditioning of wild pinnipeds for husbandry and medical procedure may be warranted during rehabilitation as long as every effort is made to limit reinforced contact with humans. Such conditioning may reduce stress for the animal during exams and acquisition of biological samples. Conditioning may assist with appetite assessment and ensuring that e each animal in a group receives the appropriate amount and type of diet and medications. In some cases, extensive contact with humans, including training, may benefit resolution of the medical case by providing mental stimulation and behavioral enrichment, and may facilitate medical procedures. The relative costs and benefits of training should be evaluated by the staff veterinarian, and the likelihood of contact with humans following release should be considered.

Behavioral conditioning of pinnipeds must be done for the shortest time necessary to achieve rehabilitation goals and is to be eliminated prior to release such that association of food rewards with humans is diminished. If an animal has become accustomed to hand-feeding the animal may approach humans after release. Therefore, these behaviors should be deconditioned before the animals can be considered for release. Most behaviors will extinguish through lack of reinforcement, but some may require more concentrated efforts.

Training for research that is above and beyond the scope of normal rehabilitation practices can be approved on a case-by case basis under a NMFS scientific research permit. An exception can be made if the attending veterinarian, facility, and NMFS officials all agree that the research will not be

detrimental to the animals' health and welfare and will not impede their ability to be successfully released back to the wild.

2.15 References

Langman VA, Rowe M, Forthman D, Whitton B, Langman N, Roberts T, Kuston K, Boling C, and Maloney D. 1996. Thermal Assessment of Zoological Exhibits I: Sea Lion Enclosure at the Audubon Zoo. Zoo Biology 15:403-411.

3. Frequently Asked Questions

Why are there two sets of standards, "minimum" and "recommended", in the facilities guidelines?

The thought behind the two sets of guidelines was to establish a bare minimum standard which every facility should have to meet in order to rehabilitate either pinnipeds or cetaceans. The "recommended" standards are standards considered more ideal to help maximize the success of the rehabilitation effort, and to minimize the potential spread of disease. Many facilities exceed the recommended standard.

Facilities that just meet the minimum standards may wish to improve their facility over time. The Facilities Guidelines could serve as a method of justifying and helping to secure Prescott Funds or other funding to make improvements to bring a facility up to the recommended standards.

Why are there separate standards for pinnipeds and cetaceans?

While many aspects of rehabilitating cetaceans and pinnipeds that are the same, there are likewise many significant differences. Water quality, pool space and design, and handling debilitated animals are examples of the bigger differences between facility design and equipment required for rehabilitation of these animals. Rehabilitation of cetaceans requires more expensive facilities, as there must be larger, deeper pools available, salt water systems, and more elaborate filtration in closed system situations. While some facilities have adequate equipment and personnel to rehabilitate pinnipeds, they may not meet the standards required for the rehabilitation of cetaceans. Having two sets of guidelines allows NMFS the flexibility of issuing agreements specific to the types of animals that may be rehabilitated at each facility.

Many of the standards listed appear to be directly from the AWA standards. Why don't you just state that the facilities will meet all of the AWA regulations? What if the AWA regulations change?

AWA regulations have specific engineering standards to cover captive marine mammals. These standards for pool size and depth are based on captive adult-sized animals. The majority of pinnipeds admitted to most rehabilitation facilities are pups, juveniles, and sub-adults, and because they are not going to be permanent members of a collection, pool size may be smaller than the minimum sizes

stated in the AWA regulations. Cetacean facility guidelines minimum pool sizes are closer to the AWA regulations in pool size, but not identical, as these animals are not considered to be permanent residents.

AWA regulations may change, however these Facilities Guidelines were created with the consideration that animals being rehabilitated are not permanent residents of the facility. Therefore even if AWA regulations change, it is likely, the Stranding Network Facilities Guidelines will remain the same. Facilities Guidelines apply to the wild animals held by participants of the stranding network, whereas the AWA regulations refer to captive animals owned by the licensees.

Under Water Quality, no mention is made regarding protecting staff and public from discharged water.

This is covered by the statement that "All water must be discharged according to State and Local Regulations". Since state and local regulations vary, it is up to each institution to ensure their discharge policy conforms with the regulations in their area. These regulations should take into consideration the public exposure to the discharged water from the rehabilitation facility. Likewise all rehabilitation facilities should have Standard Operating Procedures in place to protect their staff from hazards which may be posed by the rehabilitation of marine mammals.

National Oceanic and Atmospheric Administration
National Marine Fisheries Office of Protected Resources
Marine Mammal Health and Stranding Response Program

U.S. Fish and Wildlife Service
Fisheries and Habitat Conservation
Marine Mammal Program

INTERIM

BEST PRACTICES
MARINE MAMMAL STRANDING RESPONSE, REHABILITATION, and RELEASE:

STANDARDS FOR RELEASE

Prepared by
JANET E. WHALEY, D.V.M. and
ROSE BORKOWSKI, D.V.M.

Edited by
JANET E. WHALEY, D.V.M.

January 2007

Interim Standards for Release

Table of Contents

Figures

Executive Summary

The process of rescue, rehabilitation, and release of wild marine mammals is allowed for specific categories of people under listed conditions by the Marine Mammal Protection Act (MMPA) [16 U.S.C. 1379 Section 109(h)]. Section 402 (a) of Title IV of the MMPA specifically mandates that "The Secretary shall… provide guidance for determining at what point a rehabilitated marine mammal is releasable to the wild" [16 U.S.C. 1421 Section 402 (a)]. This document fulfills the statutory mandate and is not intended to replace marine mammal laws or regulations.

In accordance with the MMPA [Title IV, Sec.402 (a)], these guidelines were developed through NMFS and FWS in consultation with marine mammal experts through review and public comment of the 1997 draft NOAA Technical Memorandum "Release of Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria." Comments from the public review process and other outstanding issues were compiled by NMFS and FWS. The agencies consulted with experts in three areas: cetaceans, pinnipeds and sea otters, and manatees. The experts reviewed and discussed the public comments and provided individual recommendations. This current document encompasses revisions and updates to the 1997 draft and is titled differently.

These guidelines provide an evaluative process to aid in the determination of a stranded wild marine mammal following a course of treatment and rehabilitation is suitable for release to the wild. These guidelines describe "Release Categories" for rehabilitated marine mammals of each taxonomic group, i.e. cetaceans, pinnipeds, manatees, sea otters and polar bears. After completing a thorough assessment as prescribed, the release candidates are to be assigned to a Release Category as follows: **Releasable**, **Conditionally Releasable, Conditionally Nonreleasable (Manatees only)**, and **Nonreleasable**. This document establishes essential release criteria that trained experts should use to determine whether or not individual animals are healthy enough to release into the wild. The essential release criteria are assessed in the following categories:

1) Historical Assessment
2) Developmental and Life History Assessment
3) Behavior Assessment and Clearance
4) Medical Assessment and Clearance
5) Release Logistics
6) Post Release Monitoring

By using clearly defined Release Categories for rehabilitated marine mammals, NMFS and FWS can evaluate and support the professional discretion of the attending veterinarian and his or hers assessment team (i.e., biologists, veterinarians, animal care supervisors, and other team members of the marine mammal stranding network). Based on these Release Categories, NMFS and FWS can consult experts on challenging cases in which the survival of the rehabilitated marine mammal or its potential to pose a health risk to wild marine mammals is in question.

Refinement of requirements and guidelines for release of rehabilitated marine mammals to the wild is a dynamic process. Use of these standardized guidelines will also aid in the evaluation of rehabilitation procedures, successes, and failures, and will allow for on-going improvement of such protocols. These guidelines are based on the best available science and thus will be revised periodically.

1. Introduction

1.1 Background

For NMFS species prior to the early 1990s, release decisions were made by individual rehabilitation facilities without much direction or input from NMFS. Decisions were inconsistent and did invoke controversy especially for cetacean cases. The Marine Mammal Commission and NMFS sponsored several workshops focusing on procedures and needs regarding marine mammal strandings, rehabilitation, and release (see Appendix A). Discussions at these workshops provided starting points for establishing objective release criteria. A stronger impetus to formalize these release guidelines came in 1992 when, as part of the Marine Mammal Health and Stranding Response Act, Congress mandated establishing objective guidelines for determining releasability of rehabilitated marine mammals. The MMPA was amended to include Title IV, Section 402(a) and provides that: ***"The Secretary [of Commerce] shall, in consultation with the Secretary of Interior, the Marine Mammal Commission, and individuals with knowledge and experience in marine science, marine mammal science, marine stranding network participants, develop objective criteria, after an opportunity for public review and comment, to provide guidance for determining at what point a rehabilitated marine mammal is releasable to the wild***."

In accordance with the MMPA [Title IV, Sec.402 (a)], these guidelines were developed through NMFS and FWS in consultation with marine mammal experts through review and public comment of the 1997 draft NOAA Technical Memorandum "Release of Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria." Comments from the public review process and other outstanding issues were compiled by NMFS and FWS. The agencies consulted with experts in three areas: cetaceans, pinnipeds and sea otters, and manatees. The experts reviewed and discussed the public comments and provided individual recommendations. This current document encompasses revisions and updates to the 1997 draft and is titled differently.

The purposes of this document are as follows:

1. To provide guidance for determining release of rehabilitated marine mammals to the wild including marine mammal species under the jurisdiction of the Department of Commerce's National Marine Fisheries Service (NMFS) and those under the jurisdiction of the Department of the Interior's Fish and Wildlife Service (FWS),
2. To state the NMFS and FWS legal requirements and provide recommendations for medical, behavioral, and developmental assessment of rehabilitated marine mammals prior to release,

3. To identify the persons and agencies responsible for completing an assessment of a rehabilitated marine mammal for release determination and to describe the communication requirements and process with NMFS or FWS,
4. To state the NMFS and FWS requirements and recommendations for identification of rehabilitated marine mammals prior to release, release site selection, and post-release monitoring,
5. This document does not include guidance for the following situations:
    a. Immediate release following health assessment and/or emergency triage typically associated with mass stranding events, out of habitat rescues, and disentanglement efforts.
    b. Release following relocation of healthy marine mammals.

1.2 Review of Key Legislation Pertinent to Marine Mammal Rehabilitation and Release to the Wild

Congress delegates the responsibility for implementing the MMPA to the Secretary of Commerce and the Secretary of the Interior. Cetaceans and pinnipeds exclusive of walruses are the responsibility of NMFS (i.e., NMFS species). Walruses, polar bears, manatees, and sea otters are the responsibility of FWS (i.e., FWS species). NMFS and FWS responsibilities for these species are regulated under Title 50 of the Code of Federal Regulations (CFR) (See Appendix B).

Rehabilitation and release of wild marine mammals is authorized by key statements within the MMPA 16 U.S. Code 1379, Section 109(h) entitled "Taking of Marine Mammals as Part of Official Duties." By listed categories of people (i.e., Federal, State, or local government official or employee or a person designated under section 112(c) of the MMPA), this section allows for humane taking of a marine mammal for its protection or welfare and states that an animal so taken is to be returned to its natural habitat whenever feasible. Regulations that implement the MMPA for NMFS species (50 CFR Sec. 216.27(a)(1)) require that a marine mammal held for rehabilitation be released within six months unless "…the attending veterinarian determines that: (i) The marine mammal might adversely affect marine mammals in the wild (ii) Release of the marine mammal to the wild will not likely be successful given the physical condition and behavior of the marine mammal; or (iii) More time is needed to determine whether the release of the marine mammal in the wild will likely be successful…" and (b)(1) "The attending veterinarian shall provide the Regional Director or Office Director with a written report setting forth the basis of any determination." Also, (a)(iii) "releasability must be re-evaluated at intervals of no less that six months until 24 months from

capture or import, at which time there will be a rebuttable presumption that release into the wild is not feasible."

For NMFS species, the 112(c) *Stranding Agreements* are formally established between the *NMFS Regions* and *Stranding Network Participants* (formerly Letters of Agreement or LOAs). Understanding and following the MMPA and implementing regulations, policies, and guidelines, **is the responsibility of all persons involved** in marine mammal rescue, rehabilitation, and release. These guidelines are founded on and support the MMPA and related regulations. The laws and regulations outlined below are therefore fundamental to proper enactment of marine mammal rehabilitation and release. Appendix B contains the full text of these laws and regulations.

1.3 Structure of the Document

This document is organized as follows: General Procedures (Section 2), Guidelines for Release of Rehabilitated Cetaceans (Section 3), Guidelines for Release of Rehabilitated Pinnipeds (Section 4), Guidelines for Release of Rehabilitated Manatees (Section 5), Guidelines for Release of Rehabilitated Sea Otter (Section 6), Policies Regarding Release of Rehabilitated Polar Bears (Section 7), References (Section 8), Glossary of Terms (Section 9), and Appendices (Section 10).

The approach developed in this document primarily involves a complete assessment of animal's health, behavior and release logistics. The assessment is completed by the attending veterinarian and his or hers Assessment Team following this standardized guidance for determining the disposition of a marine mammal after treatment and rehabilitation. Section 2, "General Procedures," summarizes the pertinent laws and regulations and outlines the release requirements and recommendations for all species of rehabilitated marine mammals. This section provides an overview of documentation required throughout rehabilitation and release. Parties responsible for release determinations are identified. General principles for developmental, behavioral, and medical assessments of rehabilitated marine mammals are described, as well as methods for post-release identification (i.e. marking and tagging), monitoring, and selection of appropriate release sites.

Because there are several critical variables among each taxonomic group such as natural history, social organization, and species specific rehabilitation and release considerations, these variables are addressed in separate chapters (Sections 3-7) (i.e. cetaceans, pinnipeds, manatees, sea otters, and polar bears). These chapters provide greater detail and rationale for the release guidelines for each marine mammal group.

The reference section lists current literature on marine mammal biology, medicine, rehabilitation, and release. A Glossary of Terms is provided to define key terms initially noted in the text with italics. The Appendices provide ready access to marine mammal laws and regulations and examples of required documentation for rehabilitated marine mammals. Additional appendices include examples correspondence letters between the Stranding Participant and NMFS and lists of Diseases of Concern and related references for cetaceans, pinnipeds, manatees, and sea otters.

1.4 Funding

Funding of marine mammal rehabilitation is the responsibility of the rehabilitation facility. Specific resources such as freezers for serum banking, histopathology services, equipment and personnel for post-release monitoring may be provided through NMFS and FWS to support the biomonitoring program. Some costs associated with response and rehabilitation during a Marine Mammal Unusual Mortality Event (UME) may be reimbursed through the UME National Contingency Fund (in accordance with Section 405 of the MMPA). For additional information regarding expense reimbursement, contact the appropriate NMFS or FWS coordinator. For NMFS species, the Prescott Stranding Grant Program is also available as a funding source for marine mammal stranding response and rehabilitation. More information on this program can be found on the following web site: http://www.nmfs.noaa.gov/pr/health/.

2. General Procedures

2.1 Stranding Agreements, MMPA 109(h) Authority, and Permits for Stranding Response for ESA species

2.1.1 NMFS Policies

NMFS may enter into a Stranding Agreement (formerly known as a Letter of Agreement or LOA) with a person or organization for stranding response and rehabilitation. The NMFS Stranding Agreements state that the Stranding Network Participant obey laws, regulations, and guidelines governing marine mammal stranding response and rehabilitation, which include requirements for communications with NMFS, *humane care* and husbandry and veterinary care of rehabilitated marine mammals, and documentation of each stranding response and rehabilitation activity. The Stranding Agreement does not authorize the taking of any marine mammal species listed as endangered or threatened under the Endangered Species Act of 1973 (ESA), as amended. However, authorization to take ESA listed species by the Stranding Network is currently provided under *MMPA/ESA permit #932-1489-01* as amended and requires authorization and direction from with NMFS Regional Stranding Coordinator in the event of a stranding involving a threatened or endangered marine mammal.

2.1.2 FWS Policies

Rescue, rehabilitation, and release of non-ESA listed marine mammal species under FWS responsibility is authorized with a *Letter of Authorization (LOA)* issued by the *Division of Management Authority (DMA)* in the FWS Headquarters Office in Arlington, VA. For ESA listed species, an LOA holder is authorized under a permit issued by the DMA. The *FWS Field Offices* in the lower 48 states or the *Marine Mammals Management Office in Alaska* coordinate with LOA and permit holders for all rescue, rehabilitation, and release activities for species under their jurisdiction.

2.2 Parties Responsible for Release Determinations and Overview of Agency Approval

The *attending veterinarian* and his or her *Assessment Team* (i.e., veterinarians, lead animal care supervisor, and consulting biologist with knowledge of species behavior and life history) representing the Stranding Network Participant, Designee, or 109(h) Stranding Participant will assess the animal and make written recommendation for release or nonrelease**. For NMFS species, the recommendations are sent to the NMFS Regional Administrator. For FWS species, the**

recommendations are sent to the FWS Field Office and any recommendations for nonrelease are coordinated with the FWS Division of Management Authority.

In general for NMFS species, animals that are deemed "Releasable," a 15-day advance written notification is necessary; however, 50 CFR Section 216.27 (a)(2)(i)(A) allows for waiving this advance notification in writing by the Regional Administrator. Generally, these cases are anticipated (e.g., the typical annual cluster of cases where the etiology is known and diagnosis and treatment is routine) and can be appropriately planned. For such waivers, the Stranding Network Participant should submit a protocol for such cases including location of release. These waivers will require pre-approval by the NMFS Regional Administrator on a schedule as prescribed in the Stranding Agreement. The *release determination recommendation* includes a signed statement from the attending veterinarian, in consultation with his or her Assessment Team, stating that the **marine mammal is medically and behaviorally suitable for release in accordance with the release criteria** (i.e., similar to a health certificate) and include a written *release plan and timeline*. NMFS may also require a concurrence signature from the "*Authorized Representative" or Signatory* of the Stranding Agreement. The Regional Administrator (i.e., NMFS staff) will review the recommendation and release plan and provide a signed written notification to the Stranding Network Participant indicating concurrence and authorization to release or direct an alternate disposition (50 CFR Section 216.27) (*letter of concurrence from the Regional Administrator*). For more challenging cases and potential "Conditionally Releasable" cases, plans for release should be submitted well in advance of the 15-day period to provide adequate time for evaluation. Also, it is highly recommended that dissenting opinions among members of the Assessment Team regarding an animal's suitability for release and/or the release plan be communicated to NMFS well in advance of the required 15-day advance notice so that additional consultation can be arranged in adequate time for resolution and planning.

By regulation (50 CFR Sec. 216.27 (a)(3), Appendix B), the NMFS Regional Administrator (or Office Director of Protected Resources) has the authority to modify requests for release of rehabilitated marine mammals. In accordance with 50 CFR 216.27 (a)(1), any marine mammal held for rehabilitation must be evaluated for releasability within six months of collection unless the "attending veterinarian determines that the marine mammal might adversely affect other marine mammals in the wild, release of the marine mammal to the wild will not likely be successful given the physical condition and behavior of the marine mammal, or more time is needed to determine whether the release of the marine mammal will likely be successful." If more time is needed, then NMFS will

require periodic reporting in writing from the attending veterinarian including a description of the condition(s) of the animal that precludes release and a prognosis of release. NMFS may require that the marine mammal remain at the original rehabilitation facility or be transferred to another rehabilitation facility for an additional period of time, be placed in permanent captivity, or be euthanized. NMFS may also require a change of conditions of the release plan including the release site and post-release monitoring. An expanded release plan may be required including a justification and detailed description of the logistics, tagging, location, timing, crowd control, media coordination (if applicable) and post release monitoring. NMFS may require contingency plans should the release be unsuccessful including recapture of the animal following a specified time after release.

Generally for animals deemed "Nonreleasable" and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a public display or research facility or euthanized. If the animals is to be placed in permanent captivity, the receiving facility must be registered or hold a license from APHIS [7 USC 2131 et seq.] and comply with MMPA (16 USC 1374 Section 104(c)(7)). These facilities (i.e., the rehabilitation facility or another authorized facility) are required to send a *Letter of Intent* to the Office of Protected Species Permits, Conservation and Education Division (http://www.nmfs.noaa.gov/pr/permits/mmpa_permits.htm) (NMFS PR1) to permanently retain or acquire the animal. This letter should include a signature of the "*Responsible Party of Record"*. As part of the decision making process, NMFS will consult with APHIS and may review the qualifications and experience of staff, transport protocols, and placement plans (i.e., integration based on appropriate composition of species, sex and age and the intended proposed plan for public display or scientific research). Once approved, NMFS PR1 will respond with a *Transfer Authorization Letter* and include Marine Mammal Datasheets (MMDS), OMB form 0648-0084, to be returned to NMFS PR1 within 30 days of transfer. Upon receipt of the MMDS, NMFS PR1 will acknowledge the transfer in writing and return updated MMDS to the receiving facility.

For FWS species, LOA and permit holders provide recommendations to the FWS Field Offices for decisions regarding releasability of rehabilitated marine mammals (see Appendix H for contact information). The FWS retains the authority to make the final determination on the disposition of these animals. If FWS determines that a marine mammal is non-releasable, the holding facility may request a permit for permanent placement in captivity as prescribed in Section 104(c)(7) of the MMPA for non-depleted species, or Section 104(c)(4) and Section 10(a)(1)(A) of the ESA for depleted species.

Manatee releases require a minimum 30-day advance notice (although exceptions may be made in the event of extenuating circumstances) and must also include a signed statement from the attending veterinarian that the **animal is medically and behaviorally suitable for release in accordance with the release criteria** (i.e., similar to a health certificate) and include a written release plan and timeline. Upon receipt, FWS will evaluate and determine the suitability of the release site and release conditions (see taxa specific sections for further guidance).

For cases involving declared *Marine Mammal Unusual Mortality Events*, the *Working Group on Marine Mammal Unusual Mortality Events* will be consulted to determine if event specific release standards should be implemented as stated in the **1996 NOAA Technical Memorandum – National Contingency Plan for Response to Unusual Marine Mammal Mortality Events**. Priority will be given to protecting the health of wild populations over the disposition of an individual animal. Provisions may require monitoring a representative subset of released animals to determine survivability impact on the affected population or holding rehabilitated animals beyond the projected release time to determine long term health effects.

2.3 Documentation for Rehabilitation and Release of Marine Mammals

2.3.1 NMFS

Pursuant to the Stranding Agreement between the Stranding Network Participant and appropriate NMFS Regional Offices that allows a stranding organization to respond to and/or rehabilitate marine mammals, the Stranding Network Participants must provide documentation to NMFS regarding their activities that involve the taking and disposition of marine mammals as described below. The same holds true for actions under 109(h). Figure 2.1 presents the documentation and procedures following submission of the written "release determination recommendation."

- **Marine Mammal Stranding Report Level A Data**, NOAA form 89-864, OMB No. 0648-0178 (Appendix C).

  This report is mandatory for all stranding events and includes basic information regarding the site and nature of the stranding event, a statement that the animal was found alive or a description of the condition of its carcass, morphologic information, photo or video documentation, initial disposition of any live animal, tag data, and information on disposal, disposition, and necropsy of dead animals. This report must be sent to appropriate NMFS Regional Office within the time stated in the Stranding Agreement.

- **Marine Mammal Rehabilitation Disposition Report,** NOAA form 89-878, OMB No. 0648-0178 (Appendix C)

  This report is mandatory for all rehabilitation cases (i.e., long term and short term temporary holding) and includes a brief history of the stranding and related findings of an individual marine mammal. It also includes the disposition of samples taken from the animal and disposition of the animal including release site and tagging information. This report includes verification and date that a pre-release health screen was done on the animal. This document must be sent to the appropriate NMFS Regional Office no later than 30 days following the final disposition (e.g. released or non-released) of the marine mammal or as prescribed in the Stranding Agreement. NMFS compiles these data annually to monitor success of rehabilitation and identify where changes and enhancements should be made.

- **Release Determination Recommendation 50 CFR Sec. 216.27 (a)(2)** (Appendix B)

  This regulation states that the custodian of a rehabilitated marine mammal must provide the appropriate NMFS Regional Office with written notification at least 15 days prior to the release of any marine mammal to the wild, including a release plan. The pre-notification requirement may be waived in writing for certain circumstances (e.g., the typical annual cluster of cases where the etiology is known and diagnosis and treatment is routine) by the NMFS Regional Administrator in accordance with specific requirements as stated in the Stranding Agreement. The required notification (release determination recommendation) should provide information sufficient for determining the appropriateness of the release plan, including a description of the marine mammal, that is, physical condition and estimated age, the date and location of release, and the method and duration of transport prior to release (50 CFR 216.27(a)(2)(ii)). The release recommendation should include a signed report or statement from the attending veterinarian that the marine mammal is medically and behaviorally suitable for release in accordance with NMFS release criteria (i.e., similar to a health certificate under the Animals Welfare Act). NMFS may also require a concurrence signature from the "Authorized Representative" or Signatory of the Stranding Agreement. In the case of more challenging releases such as animals considered Conditionally Releasable," requests for release should be submitted well in advance of the 15-day period to provide adequate time for review and planning. NMFS reserves the right to request additional information and impose additional requirements in any release plan to improve the likelihood of success or to protect wild populations (50 CFR Sec. 216.27 (a)(3)). NMFS also can order

other disposition as authorized upon receipt of the report (release determination recommendation) (50 CFR 216.27 (b)(2) and (b)).

- **Notification of Nonrelease/Transfer of Custody**

  For animals deemed "Nonreleasable" and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a public display or research facility or euthanized. If the animal is to be placed in permanent captivity, the receiving facility must be registered or hold a license from APHIS [7 USC 2131 et seq.] and comply with MMPA (16 USC 1374 Section 104(c)(7)). Facilities wishing to obtain nonreleasable animals should send a *Letter of Intent* to the Office of Protected Species Permits, Conservation and Education Division (http://www.nmfs.noaa.gov/pr/permits/mmpa_permits.htm) (NMFS PR1) to permanently retain (i.e., if affiliated with the rehabilitation facility) or acquire the animal. This letter should include a signature of the *"Responsible Party of Record"*. As part of the decision making process NMFS will consult with APHIS and may review the, qualifications and experience of staff, transport, and placement plans (i.e., integration based on appropriate composition of species, sex and age and the intended proposed plan for public display or scientific research). Once approved, NMFS PR1 will respond with a *Transfer Authorization Letter* and include Marine Mammal Datasheets (MMDS), OMB form 0648-0084, to be returned to NMFS PR1 within 30 days of transfer. Upon receipt of the MMDS, NMFS PR1 will acknowledge the transfer in writing and return updated MMDS to the receiving facility.

2.3.2 FWS

Requirements for the rehabilitation and release of marine mammals under FWS jurisdiction are specified under individual permits or LOAs. These requirements are specific to the species, the organization, and the activity being conducted. An example of required documentation for manatee rescue, rehabilitation, and release activities is provided in Appendix C.

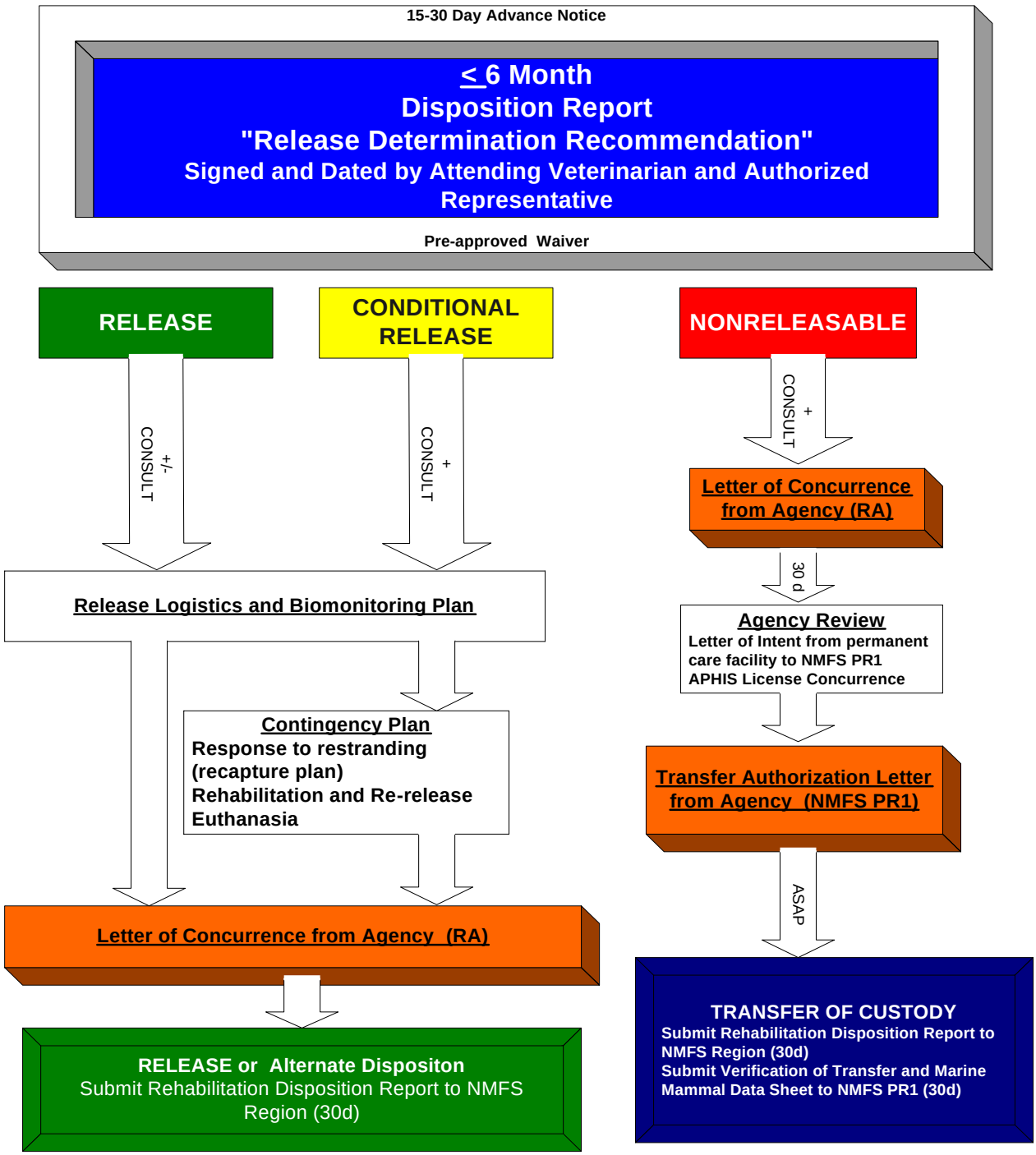

Figure 2.1 Documentation and Procedures Following Submission of the Written "Release Determination Recommendation."

2.4 Assessment Process for a Release Determination

These guidelines provide an evaluative process to determine if a stranded wild marine mammal, following a course of treatment and rehabilitation, is suitable for release to the wild. The basic format for these guidelines provides assignments for each taxonomic group (e.g., cetaceans, pinnipeds, manatees, sea otters, walrus, and polar bears) of rehabilitated marine mammals into "Release Categories." Release potential is characterized and categorized based on a thorough assessment of the health, behavior, and *ecological status* of the animal, as well as the release plan. It is critical that detailed historical, medical, and husbandry records are maintained and reviewed. Following a complete evaluation, the attending veterinarian and Assessment Team should categorize the animal into one of the following Release Categories: **Releasable**, **Conditionally Releasable**, **Conditionally Non-releasable (for manatees only)**, and **Nonreleasable.** Based on the findings from the Assessment Team, the attending veterinarian provides a recommendation on releasability to NMFS or FWS. The Agencies will review and consider this information as a part of the release determination review process.

In most release cases, NMFS requires release of marine mammals within six months of admission to rehabilitation (50 CFR 216.27(a)). This assessment can be done at more frequent intervals or earlier in the process of rehabilitation such as for obvious nonrelease cases (e.g., neonatal cetaceans, blind or deaf animals, etc). Rather than staying in a rehabilitation situation for up to six months, it may be in the best interest of the animal to immediately assess, determine releasability and transfer to a more suitable permanent care facility. This is particularly important for all marine mammals that need socialization or expert care.

The Assessment should include the following steps and general parameters (see Figure 2.2 on page 2-16):

1. **Historical Assessment**. The Assessment Team should complete a historical evaluation that includes information from the time of stranding through the duration of rehabilitation. Such information can impact the management of the case and determination of release. The following circumstances should be documented: an ongoing epidemic among other wild marine mammals, presence of environmental events such as a harmful algal bloom or hazardous waste spill, acoustic insult, and special weather conditions (e.g., El Nino, hurricane, extreme cold, extreme heat, changes in oceanographic parameters, etc). It should be noted if the animal has previously stranded and been released, if the animal was part of an

official Marine Mammal Unusual Mortality Event, if the animal had been exposed to other wild or domestic animals just prior to and/or during rehabilitation or if the animal had attacked and/or bitten a human while being handled. This assessment should also include if the animal is evidence and part of a *human interaction* or criminal investigation. Such information can help guide the diagnostic and treatment strategy during rehabilitation and may impact the plan for post-release monitoring. It should be noted that strict measures are to be in place to prevent any disease transmission from other wild and domestic animals and humans during the rehabilitation process. Other considerations that should be taken into account include whether the animal was transferred from another facility (i.e., short-term triage/holding facility or rehabilitation facility) and the quality of care and treatment of each rehabilitation facility.

2. **Developmental and Life History Assessment.** In order to be deemed "Releasable," all rehabilitated marine mammals should have achieved a developmental stage wherein they are nutritionally independent or released with their mothers. **Nursing nutritionally dependent animals should not be released in the absence of their mothers**. The ability of a young marine mammal to hunt and feed itself independently of its mother is critical to successful integration into the wild. Also of great importance is achievement of a robust body condition such that the animal has adequate reserves for survival. Other developmental issues such as reproductive status and advanced age seldom stand alone as determinants of release candidacy but are evaluated in conjunction with the overall health assessment. The Assessment Team should seriously consider information concerning the natural life history for the species; therefore, it is important that the makeup of the team include someone with expertise or working understanding of the species behavior and life history. Important questions to be addressed include: 1. Does the species depend on a social unit for survival or does it exist solitarily in the wild?; 2. Has the animal developed the skills necessary to find and capture food in the wild?; 3. Has the animal developed the social skills required to successfully integrate into wild societies?; 4. Is there knowledge of their home range or migratory routes?; and 5. Does the animal have skills in predator recognition and avoidance? In other words, how important is it to the survival of the animal to be released with or near other cohorts. The Assessment Team can work with NMFS to consult with outside experts to evaluate the animal and address these questions. Greater details regarding developmental assessment are included in the appropriate section for each taxonomic group.

3. **Behavioral and Ecological Assessment and Clearance.** In order to be deemed "Releasable," a marine mammal should meet basic behavioral criteria and some of which are specific for taxa. Across taxonomic groups, behavioral requirements for release include demonstration of normal breathing, swimming, and diving with absence of aberrant (i.e., abnormal) behavior, auditory, and/or visual dysfunction that may significantly compromise survival in the wild and/or suggest diseases of concern. The rehabilitated animal should also demonstrate the ability to recognize, capture, and consume live prey prior to its release when access to live natural prey is feasible, or, in the case of manatees, the ability to identify and feed on appropriate forage types. Because abnormal behavior may reflect illness or injury, this should be done in concert with the attending veterinarian and the medical assessment. The **"behavioral clearance"** should be part of the overall recommendation for release that is passed on to NMFS or FWS. Outstanding concerns regarding the behavioral suitability of the marine mammal for release are to be discussed with NMFS or FWS. Additional information is included in the behavioral assessment section for each taxonomic group.

   Also included in this thought process, is the concept of "**ecological status**." This concept attempts to integrate the medical and behavioral evaluations into an extrapolation of how the animal would likely do in the wild when exposed to typical ecological pressures (personal communication Wells 2005). It goes beyond the assessment of the current condition of the animal in an artificial environment of temporary captivity at the rehabilitation facility relative to a limited set of immediately observable or measurable parameters. It places the animal in its current rehabilitated condition in the context of everyday life in the wild. This process recognizes the importance of a team approach, involving complementary expertise, to evaluate the probability that a rehabilitated animal will survive and thrive back in the wild. It would be useful to include in the deliberations an expert such as a behavioral ecologist with knowledge of the species specific (or closely related species) solutions to ecological challenges in the wild, who is familiar with the habitat including oceanographic parameters, ranging patterns, life history, feeding ecology, potential predators, social structure, and anthropogenic threats likely to be faced by the animal once it is released.
4. **Medical Assessment and Clearance.** Although this document focuses on the evaluation and preparation of rehabilitated marine mammals for release, the medical assessment spans the entire time the animal is in rehabilitation and is critical to understanding the animal's health prior to release. The medical assessment includes information related to any diagnostic testing, treatment, and response to treatment. The attending veterinarian should perform a

hands-on physical examination upon admission and prior to the release determination. The attending veterinarian should review the animal's complete history including all stranding information, diagnostic test results (i.e., required by NMFS or FWS), and medical and husbandry records. The goal of required testing requested by NMFS or FWS is to safeguard the health of wild marine mammal populations and this is achieved by testing for diseases (reportable diseases) that pose a significant morbidity or mortality risk to wild populations.

Other reportable diseases include those that are of zoonotic or public health and safety concern and the agencies will require immediate notification to assure proper protocols are put into place. The agencies may request testing for other emerging diseases as part of a surveillance program to identify potential epidemics of concern or to determine health trends. Additional testing will be required if the animal was part of an official Marine Mammal Unusual Mortality Event. Specific testing requirements (i.e., pre-release health screen) will come from the NMFS Regional stranding coordinator through the Marine Mammal Health and Stranding Response Program and follows the term and responsibilities stated in the NMFS Stranding Agreement. For FWS species, contact the appropriate Field Office for guidance (see Appendix H for contact information).

Throughout the rehabilitation period, the frequency of physical exams and decisions for performance of additional diagnostic testing are determined by the attending veterinarian. The animal should be closely monitored for disease throughout rehabilitation. Regardless of the precise cause of the animal's stranding, the stranding event itself and the animal's abrupt transition to a captive environment can cause significant stress, which may increase its susceptibility to disease. (St. Aubin and Dierauf 2001). The rehabilitation facility may also harbor pathogens not encountered in the wild or new antibiotic resistant strains (Stoddard *et al*. 2005). Should the animal become infected with such a pathogen during rehabilitation, it could become ill or become a carrier of that pathogen and may pose a threat to a naïve wild population or even public health if it is released. Introduction of pathogens from rehabilitated animals to free-ranging wild animals is a significant concern for diseases with serious *epizootic or zoonotic* potential. (Gilmartin *et al.* 1993, Griffith *et al.* 1993, Spalding and Forrester 1993). Pathogens, particularly viruses, bacteria and some protozoans, can quickly replicate in their hosts and are susceptible to selective forces that can drive microbial adaptation and evolution leading to changes in transmission rates, virulence, and pathogenicity via genetic modification (Ewald 1980,

1983, 1994; Su *et al.* 2003). Thus, infectious agents may become more pathogenic as they pass through new individuals and naïve species.

The attending veterinarian is urged to utilize the full spectrum of diagnostic modalities available for health assessment of the animal. In addition to basic blood work, serology, microbial culture, cytology, urinalysis, and fecal exam, advanced techniques for pathogen detection such as Polymerase Chain Reaction (PCR), microarrays, and toxicology techniques are also available. A number of imaging techniques including radiology, bronchoscopy, and laparoscopy may also be utilized. The marine mammal literature has expanded to include numerous references on the performance and interpretation of diagnostic tests.

Except as otherwise noted, acquisition of blood for a complete blood count (CBC) and chemistry profile plus serum banking may be required by NMFS and FWS upon admission of a marine mammal to a rehabilitation facility. Such blood work should to be repeated by the original laboratory to avoid problems with inter-laboratory variability prior to release of the marine mammal. Microbial culture and isolation (aerobic and anaerobic bacterial, viral, fungal) should be a part of the medical evaluation and done upon admission and before exit from rehabilitation centers. Such paired tests help determine the types of pathogens that a marine mammal may have acquired in the wild and those that may have been acquired during its rehabilitation. This testing will be required for each cetacean entering a rehabilitation facility. Because the number of pinnipeds entering a rehabilitation facility annually may be quite high and presenting with similar diagnosis, particularly in El Nino years, NMFS may waive a thorough clinical evaluation as mentioned above for each pinniped but instead require that a percentage of these animals entering a facility have a through clinical work-up. This will be dependent on several factors such as the stranding location, time of year, the clinical diagnosis upon admission, and disease status of the wild population (e.g., ongoing outbreaks, Marine Mammal Unusual Mortality Events, etc). For walrus and polar bears, testing requirements will be on a case-by-case basis. The NMFS or FWS stranding coordinator can provide guidance on this and other recommendations mentioned above.

The attending veterinarian interprets the results of blood work and additional diagnostic tests in light of physical exam findings, the animal's age, reproductive status, molt status, and other relevant or historical factors. Circumstances surrounding the stranding, recent environmental events, known health issues of resident wild marine mammals, and exposure to other animals are examples of historical factors that may provide information regarding the health status of the stranded marine mammal. The attending veterinarian should also consider if the animal was held

in close proximity to other animals (e.g., penmates) undergoing rehabilitation and the disease history of those animals (e.g., within facility transmission). A number of references provide data useful for the interpretation of marine mammal diagnostic tests. Appendices E, F, G and H provide information on diseases of concern for cetaceans, pinnipeds, manatees and sea otters.

5. Release Considerations.

a. Required Identification Prior to Release. Marine mammals must be marked prior to release for individual identification in the wild (see 50 CFR Sec. 216.27(a)(5) for species under NMFS jurisdiction). Examples of identification systems include flipper roto tags, flipper All-Flex tags, Flipper Temple tags, passive integrated transponder tags (PIT tags), radio tags, and freeze branding (Geraci and Lounsbury 2005). Invasive procedures should be done under the direct supervision of the attending veterinarian and will need prior approval from NMFS and FWS. Proper photo identification can also be considered part of this protocol. Standard identification protocols exist for various groups of marine mammals that detail the methods and procedures for marking for future identification in the wild, and are included in the appropriate section for each taxonomic group. Contact the Agency stranding coordinator for more direction on tagging.

As described, roto tags or flipper tags (basic tags) for cetaceans and pinnipeds (except walrus) are to be obtained from or coordinated through the NMFS Regional Stranding Coordinator. For FWS species, tags for walrus are to be obtained from the *USGS* and tags for polar bears are obtained from FWS. Tags for manatees are to be obtained from FWS or the appropriate *State Agency*. Tags for sea otters are obtained by each individual LOA or permit holder.

Depending on the species, if the animal restrands or the tag is found, this information should be reported to the appropriate NMFS or FWS and/or USGS Stranding Coordinator. The recent rollout of the NMFS National Marine Mammal Stranding Database does centrally archive tag data for NMFS species. The FWS and/or USGS track these data for walruses, sea otters, and polar bears. For manatees, the State agencies maintain the tag data.

b. Release Site Requirements and Recommendations. Rehabilitated marine mammals are to be released to the wild under circumstances that reflect the natural

history of their species and maximize the likelihood for their survival. This will vary with age and sex of the individual. Timing should be set to minimize additional energetic and social demands and maximize foraging success and ease of social acceptance with conspecifics. For NMFS species, information regarding the date, location, and logistics of the release and any other information requested are included in the required 15-day advance notification of the Agency prior to release as cited in 50 CFR Sec. 216.27 (a)(2). Key factors in determining a release site include specific geographic and environmental factors such as weather, past successful releases, public use, potential for predators, and availability of prey as well as transport time. Maintenance of stock fidelity, proximity of conspecifics, timing in relation to breeding seasons and migration activities are also crucial considerations. As the natural history of each species provides the framework for planning a release, greater details for each taxonomic group are provided in the appropriate section of this document.

6. **Post-Release Monitoring.** Post-release monitoring is a key method by which the efficacy of rehabilitation efforts can be assessed and revised. Such monitoring may also provide an opportunity to recover individuals that are unable to readjust to the wild. Simple post-release monitoring plans include such methods as visually tracking tagged or marked animals by land, air, or sea. Although more costly, radio-telemetry and satellite tracking are highly desirable methods of post-release monitoring as they provide detailed information of the movement and behavior of released marine mammals. Post-release monitoring is recommended for all rehabilitated marine mammals and is required for some taxonomic groups such as cetaceans and manatees depending on “release category.” The intensity of post-release monitoring efforts is determined by such factors as the age and species of the marine mammal, its status as threatened or endangered, and concerns regarding its health or developmental issues that may impact its ability to readjust to the wild. Advanced post-release monitoring techniques may be required for "Conditionally Releasable" animals when significant concerns regarding their chances of survival exist. All post-release monitoring plans for rehabilitated marine mammals are to be approved in writing by and coordinated with NMFS or FWS. NMFS may require the submission of follow-up monitoring summaries at specified intervals post-release (e.g., 90 day intervals), until such time as contact with the animal has ended. The final update should include tracking data and an evaluation of the success of the rehabilitation and release along with recommendations for future cases. NMFS

may use these data in order to make future revisions to marine mammal rehabilitation and release guidelines. In order to compare individual cases, standardization of data collection protocols for monitoring released animals may be helpful. Formal study of monitoring data and its dissemination to the stranding network will aid in the assessment of marine mammal rehabilitation and release programs.

2.5 Emergency or Special Situations

NMFS and FWS are responsible for monitoring and protecting the health of wild marine mammal populations. To fulfill this responsibility and as stated in the NMFS Stranding Agreements, these agencies may require or recommend increased documentation, testing, and/or post-release monitoring of rehabilitated marine mammals when a stranding event appears to be related to wide spread environmental events such as algal blooms, hazardous waste spills, outbreaks of disease, Marine Mammal Unusual Mortality Events, etc. An increased incidence of illness or injury to marine mammals may prompt NMFS or FWS to require specific diagnostic testing as part of a surveillance program of stranded animals and additional communication regarding case outcomes. NMFS and FWS personnel are to provide Stranding Network Participants and rehabilitation facilities with this information and may be able to provide additional funding and other support regarding such circumstances. For example, NMFS holds contracts with specific diagnostic labs that can provide services for rehabilitation facilities free of charge.

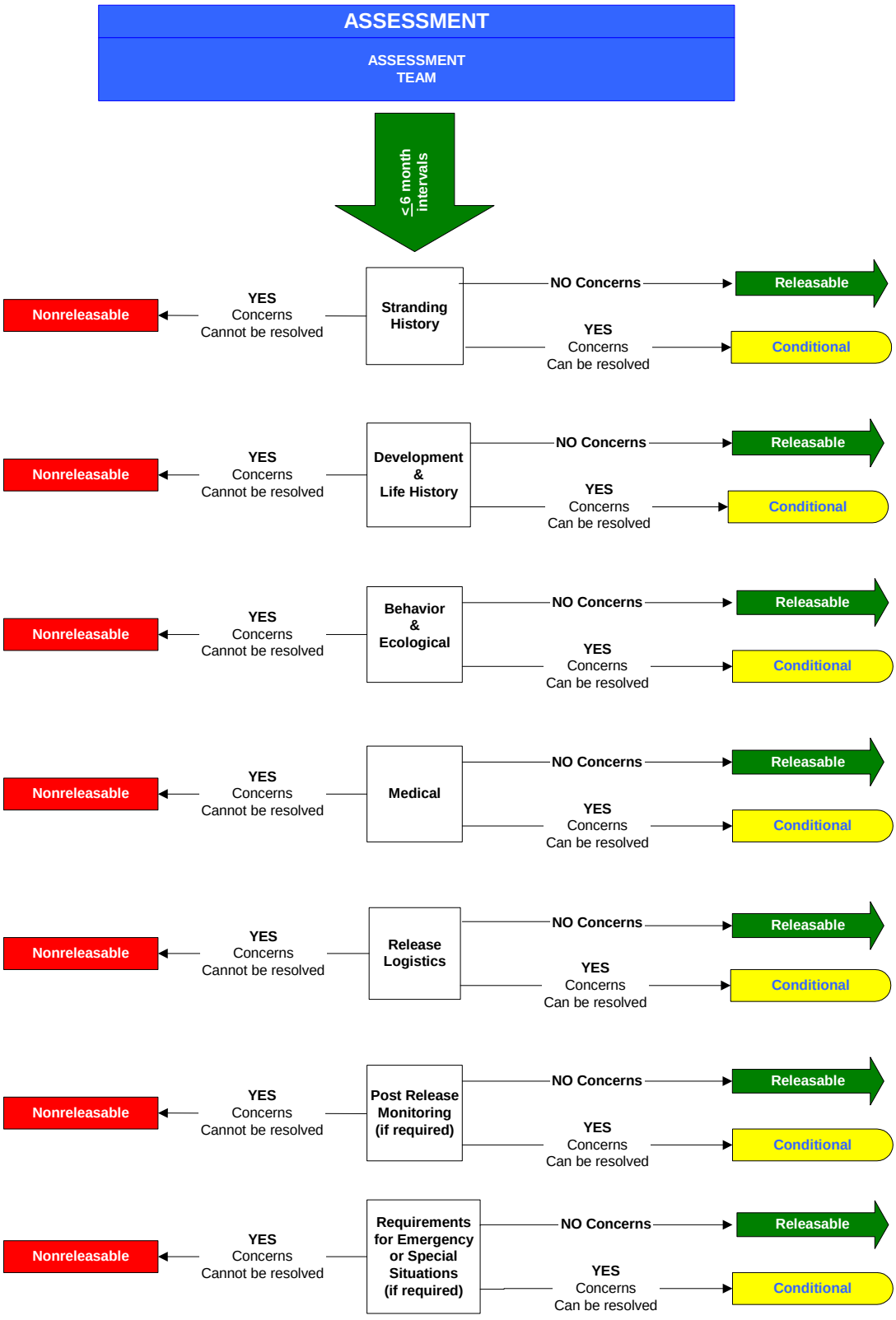

Figure 2.2 Steps and General Parameters for Animal Release Assessment

3. Guidelines for Release of Rehabilitated Cetaceans

3.1 Introduction

Few species of cetaceans (generally odontocetes) are rehabilitated in the United States each year. Although the natural history of cetacean differs among species, the general release criteria set forth in this document are applicable to all cetaceans in the United States. NMFS oversees rehabilitation and release of all cetacean species. Prior to release, NMFS requires that a thorough evaluation of the historical, developmental, behavioral, and medical records and status be completed by the Assessment Team (i.e., Stranding Network Participant, attending veterinarian, animal care supervisor, and biologist with knowledge of species behavior, ecology, and life history). For all cetacean cases, a release determination recommendation must be sent to the NMFS Regional Administrator at least 15 days (typically 30 day advance notice) in advance of a proposed release date. Waivers for advanced notice are not generally considered in cetacean cases. The release determination recommendation must include a signed statement from the attending veterinarian in consultation with his or her Assessment Team that the animal is **medically and behaviorally suitable for release in accordance with the release criteria** and include a written release plan and timeline. The request should also include a statement(s) from an expert biologist(s) with knowledge of the species or similar species that is being considered for release and should state that the animal meets behavior and ecological criteria for release in accordance with the release criteria. NMFS may recommend or require additional testing beyond these guidelines for reportable diseases in light of new findings regarding various disease and health issues. A release plan will require a justification statement and detailed description of the logistics for transporting, tagging, location, timing, crowd control, media coordination (if applicable), post release monitoring, and recovery should the animal fail to thrive. NMFS may require recapture contingency plan if the animal appears to be in distress or poses a risk following a specified time after release. NMFS may consult with individual experts for further guidance. NMFS reserves the right to impose additional requirements in the release plan as stated in 50 CFR 216.27 (a)(3).

3.2 Overview of "Release Categories" for Cetaceans

As further detailed in this chapter, cetaceans evaluated at rehabilitation facilities should fit into one of three **"RELEASE CATEGORIES:"**

1. **"RELEASABLE":** There are no significant concerns related to likelihood of survival in the wild and/or risk of introducing disease into the wild population. Also, the animal meets basic

historical, developmental, behavioral, ecological, and medical release criteria. The release plan (post-release identification, release site, and post-release monitoring) has been approved in writing by NMFS Regional Administrator via a letter of concurrence.

2. **"CONDITIONALLY RELEASABLE":** There are concerns about the historical, developmental, behavioral, ecological, and/or medical status of the animal raising a question of survival or health risk to wild marine mammals. A cetacean may be deemed conditionally releasable if requirements for release cannot be currently met but may be met in the future without compromising the health and welfare of the individual animal. In such cases, more time may be needed to determine the feasibility of release (see 50 CFR 216.27(a)(1)(iii)).

   All "Conditionally Releasable" cetaceans must be discussed with NMFS. NMFS may consult with individual experts to discuss specific cases. Experts include scientists and veterinarians with expertise in cetacean biology and medicine (particularly experts with species-specific knowledge). Such discussions will clarify the most appropriate disposition. For example, additional medical testing, rehabilitative therapy, and strategies for post-release monitoring may be required to release a "Conditionally Releasable" cetacean.
3. **"NON-RELEASABLE":** There are significant historical, developmental, behavioral, ecological, and/or medical concerns regarding its release to the wild. It has a documented condition demonstrating little chance for survival in the wild and/or a diagnosed health risk to wild marine mammals. This category also includes animals that have been in rehabilitation greater than two years (see 50 CFR 216.27(a)(1)(iii)). Additionally, a cetacean may be deemed "Non - Releasable" if an appropriate release site or post-release monitoring plan cannot be arranged.

For animals deemed "Nonreleasable" and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a public display or research facility or euthanized. If the animal is to be placed in permanent captivity, the receiving facility must be registered or hold a license from APHIS [7 USC 2131 et seq.] and comply with MMPA (16 USC 1374 Section 104(c)(7)). Facilities wishing to obtain nonreleasable animals should send a Letter of Intent to the NMFS Office of Protected Resources, Permits, Conservation and Education Division (NMFS PR1) (http://www.nmfs.noaa.gov/pr/permits/mmpa_permits.htm) to permanently retain (i.e., if affiliated with the rehabilitation facility) or acquire the animal. This letter should include a signature of the "Responsible Party of Record". As part of the decision making process will consult with APHIS and may review the, qualifications and experience of staff, transport, and placement plans (i.e., integration based on appropriate composition of species, sex and age and the intended

proposed plan for public display or scientific research). Once approved, NMFS PR1 will respond with a Transfer Authorization Letter and include Marine Mammal Datasheets (MMDS), OMB form 0648-0084, to be returned to NMFS PR1 within 30 days of transfer. Upon receipt of the MMDS, NMFS PR1 will acknowledge the transfer in writing and return updated MMDS to the receiving facility.

3.3 Historical Assessment of Cetaceans

Historical stranding information may guide the management of rehabilitation and the plan for post-release monitoring. Important historical information should include:

1. **A record of previous stranding –** Cetaceans that have previously stranded and been released, and subsequently strand again, are deemed "Conditionally Releasable" pending consultation with NMFS. Such animals should be reassessed and as they may have underlying health issues requiring additional evaluation, diagnostic testing and advanced post-release monitoring. Alternatively, such cetaceans may be assessed as "Non-Releasable" and be transferred to permanent captivity or euthanized.
2. **A mother-calf pair –** A stranding of a mother/calf pair may be the result of illness or injury to either the mother or calf or both. If the calf dies or is euthanized, the mother may be conditionally releasable to her known social group or with conspecifics. If the mother dies or is euthanized, the calf is likely non-releasable as it is dependent and cannot forage on its own and should be placed in permanent captivity or euthanized.
3. **An association with an ongoing epidemic among other wild marine animals or a Marine Mammal Unusual Mortality Event -** If the stranding of a cetacean occurs in close temporal or geographic proximity to an ongoing epidemic or Unusual Marine Mammal Mortality Event, fish kill, harmful algal bloom, hazardous waste spill, or other such environmental event, the cetacean is deemed "Conditionally Releasable" and consultation with NMFS is required. The agencies may request additional testing, documentation, and/or post-release monitoring of such cetaceans.
4. **Stranding location and active/ home range -** Areas that may require additional assessment related to increased human activity (e.g. active fishery, increased recreational use, military activity, shipping activity, etc.) or hazardous environmental conditions (e.g., harmful algal bloom or hazardous waste spill, and/or special weather conditions like El Nino, hurricane, extreme cold, extreme heat, etc). Information on areas of human activity and environmental hazards is also vital for determining an appropriate release site.

5. **Exposure to (or injury from) other wild or domestic animals –** Cetaceans with a history of exposure to terrestrial wild or domestic animals are deemed "Conditionally Releasable" and must be discussed with NMFS. Should a rehabilitating cetacean contract such a pathogen, it could transmit the illness to its wild cohorts. Such transmission of pathogens can occur even when a rehabilitated cetacean is not showing clinical signs of disease. Consultation with NMFS is thus required for cetaceans that have a history of exposure to terrestrial animals.
6. **Was transferred from another holding, triage or rehabilitation facility** – The opportunity for exposure to pathogens can occur at different stages of response and rehabilitation; therefore, it is important to obtain medical records and document the quality of care and treatment at each stage of this process.
7. **Is evidence or part of a human interaction or criminal investigation;**
8. **Part of a Mass Stranding (stranding involving more that one cetacean if not a cow-calf pair)** – Mass strandings are typically influenced by behavior with the majority of animals stranding healthy but in need of assistance to return to the ocean. If a stranding response can mounted quickly and safely and the animals are assessed and deemed healthy, individuals of a mass stranding may be relocated for immediate release. However, some individuals may be admitted into rehabilitation and may be conditionally releasable based on the pathologic findings of the pod mates that perished during the event.

3.4 Developmental Assessment of Cetaceans

A fundamental criterion for developmental clearance of a rehabilitated cetacean is that it has attained a sufficient age to be nutritionally independent, including the ability to forage and hunt. The cetacean calf grows from a state of total nutritional dependence through nursing to partial maternal dependence as it learns to forage for fish and/or squid. Eventually the young cetacean achieves total nutritional independence and forages completely on its own. Factors including individual and species variations, rehabilitation practices, health status plus environmental factors affect the rate at which such development occurs (see Appendix I for Developmental Stages by Cetacean Species). For *Tursiops truncatus*, the age at which a calf may be completely weaned is approximately 1-4 yrs. Calves that are nutritionally dependant at the time of admission to rehabilitation are automatically placed in the "Conditionally Releasable" category and must be discussed with NMFS. In situations where a nursing dependent calf strands with its mother and both animals achieve medical, behavioral and ecological clearance, the calf must be released with its mother. Very young nursing calves that strand

alone or whose mothers die may lack socialization and basic acquired survival skills as they grow older. Neonatal and very young nursing calves will be deemed “Non-Releasable.” Cases involving older calves and juveniles having some foraging skills must also be discussed with NMFS. With thorough assessment and optimum plans for release and subsequent monitoring, some of these older calves and young juveniles may be “Conditionally Releasable.”

Reproductive status in and of itself does not impact release candidacy unless a female strands with its calf or gives birth during rehabilitation. For instance, a single pregnant female should be returned to the wild as soon as both medical and behavioral clearance has been achieved and NMFS approves of the release plan. However, all mother-calf cetacean pairs are deemed "Conditionally Releasable" and must be fully discussed with NMFS and its advisors. The well-being of both the mother and the calf is to be carefully considered in such cases. Efforts should be made to reduce their time in captivity and to keep the mother-calf pair together, yet allow for continued treatment and rehabilitation of either or both individuals if warranted by medical conditions.

Cases involving cetaceans showing signs of advanced age should also be discussed with NMFS. Although it is not always feasible to precisely determine the age of a living adult cetacean, the physical condition of the animal may suggest to the Assessment Team that it is geriatric. Geriatric animals may have underlying clinical conditions that contributed to their stranding or may be behaviorally or ecologically unsuited for continued life in the wild. Thus, these animals should be deemed "Conditionally Releasable" and thoroughly evaluated.

3.5 Behavioral Assessment of Cetaceans

Complete assessment of the behavior and ecological potential may be limited by the confines of a temporary captive environment and behavior of the animal will differ from that displayed in the wild. A full understanding of what constitutes “normal” for a given cetacean species also may be lacking. Behavioral and ecological clearance is thus founded on evaluation of basic criteria necessary for the survival of the animal in the wild. Behavioral evaluation often overlaps with medical evaluation as abnormal behavior may indicate an underlying disease process. Experts with species specific knowledge of cetacean behavior and ecology, in addition to the attending veterinarian, should each assess the behavior of the rehabilitated cetacean. These assessments should involve closely evaluating and documenting behavior throughout rehabilitation (i.e. *ethogram*), relating the behavioral, sensory, and physical capabilities of the animal to its prospects of surviving and thriving in the wild.

To achieve basic behavioral clearance, a cetacean should breathe normally (including rate, pattern, quality, and absence of respiratory noise), swim and dive effectively without evidence of aberrant behavior, auditory, or visual dysfunction that may compromise its survival in the wild or suggest underlying disease that may threaten wild marine mammals. Behavioral clearance also should include confirmation that the cetacean is able to recognize, capture, and consume live prey when such tests are practical (for example, it may not be possible to obtain live prey for offshore or deep water species). Documented dependency on or attraction to humans and human activities in the wild would warrant special consideration as a possible conditional release or non-release decision.

Basic behavioral conditioning of wild cetaceans for husbandry and medical procedures may be necessary during rehabilitation as long as every effort is made to limit reinforced contact with humans. Station training may be necessary to assure animals are appropriately fed and to control social dominance when multiple animals are being treated in the same pool or pen. Also, such conditioning may reduce stress for the animal during examinations and acquisition of biological samples. Behavioral conditioning of cetaceans is to be done for the shortest time necessary to achieve rehabilitation goals and is to be eliminated prior to release such that association of food rewards with humans is diminished. Additional information on behavioral conditioning of marine mammals is provided in the references.

3.5.1 Breathing, Swimming and Diving

The Assessment Team should evaluate respiration to determine that the animal does not exhibit abnormal breathing patterns or labored breathing. Respiratory measurements should be standardized to record the number of breaths per five-minute intervals. Evaluation of swimming and diving should confirm that the cetacean moves effectively and does not display abnormalities such as listing, difficulty submerging, asymmetrical motor patterns, or other potentially disabling conditions. In small pools (i.e., less that 50ft diameter), cetaceans may not be able to demonstrate a full range of locomotor and maneuvering abilities; therefore, evaluation in larger pools is highly recommended. Cetaceans exhibiting persistent abnormalities of breathing, swimming, or diving, are to be considered "Conditionally" or "Nonreleasable" and must be discussed with NMFS. Medical records should document the level of organ evaluation, such as thoracic x-rays, ultrasound, bronchoscopy, etc. Discussions of releasability by the Assessment Team should be based on these records.

3.5.2 Aberrant Behavior

The behavioral clearance of the cetacean should include confirmation that the animal does not exhibit aberrant behavior. Examples of aberrant behavior include but are not limited to regurgitation, head pressing, postural abnormalities such as repetitive arching or tucking, decreased range of motion, abnormal swimming or breathing as described above or excessive interest in interaction with humans. Cetaceans displaying abnormal behavior may have an underlying disease process or may have permanent injury or tendencies that will decrease their chance of survival in the wild. Cetaceans displaying aberrant behavior are considered "Conditionally Releasable" or "Nonreleasable" and thus are to be reported to and fully discussed with NMFS.

3.5.3 Auditory and Visual Acuity

The behavioral and ecological clearance of the cetacean should include evaluation of auditory and visual acuity. Auditory dysfunction, involving production or reception of typical sounds or signals occurring in the wild, may be a reflection of active disease, permanent injury, or degenerative changes associated with aging. Evaluators may suspect that a cetacean has compromised auditory function if it appears to have difficulty locating prey items or various objects via echolocation or if it minimally responds to novel noises. In each case, it is highly recommended that hydrophone-recording systems with an appropriate frequency response be used to record sound production by the cetacean to document production or normal classes and qualities of sounds. It is required that cetaceans assessed as having compromised auditory function be discussed with NMFS, as reduced auditory abilities can compromise the ecological functionality and social abilities of some species, thus reducing the probability of survival in the wild. Additional diagnostic testing such as evoked auditory potential may be necessary to further evaluate the animal and this requires approval and coordination with NMFS. Cetaceans having discoloration, swelling, abnormal shape, position or appearance of the eye or eyelids may have visual dysfunction and also require discussion with NMFS.

3.5.4 Prey Capture

The rehabilitated cetacean should demonstrate foraging behavior (i.e., the ability to hunt and capture live prey) prior to its release when practical. Consumption of solid food should also be part of the medical assessment (able to swallow and free of pharangeal and/or gastrointestinal abnormalities). Prey items normally found in the animal's environment and of good quality should be used whenever possible. Natural prey items may not be available for rehabilitating pelagic cetacean species; evaluators may try to utilize other prey species. However, many cetaceans often will not consume

non-prey species. For social species, it may be just as important to look for cooperative or coordinated feeding behavior. NMFS should be notified if a rehabilitated cetacean appears compromised in its ability to recognize and/or capture live prey or if logistical issues preclude assessment of this behavior.

Cetaceans that are believed to have had limited foraging experience prior to stranding (i.e., young juveniles) require particularly careful assessment of prey capture ability. This behavior is learned and cetaceans that strand at a young age may not have gained adequate foraging skills to sustain themselves in the wild. Also, knowledge of the natural history of the species may be useful. If the species forages and hunts as a social unit, this may affect its ability to survive in the wild if released as a solitary animal. Similarly, amputated appendages may preclude the use of some specialized feeding techniques or attainment of sufficient speed or maneuverability for prey capture, or diminished auditory function may prevent individuals that prey on soniferous (i.e., noise-producing) fishes from locating sufficient prey to survive (e.g., coastal bottlenose dolphins).

3.5.5 Predatory Avoidance

Testing a cetacean's ability to avoid predators is not practical in most cases, but indirect evidence of abilities can be evaluated. If the individual is determined to have stranded primarily as a direct result of a shark attack (as opposed to secondarily, as an attack on an otherwise compromised animal), then this suggests that the animal may lack the skills or physical abilities to continue to survive in the wild. This would be especially important in the case of young animals, recently separated from their mothers. For social species, observations of group behavior may indicate the cohesiveness of the group.

3.5.6 Social Factors

The survival of an individual cetacean may be critically dependant on social organization and conspecifics (see Appendix I for Cetacean Species Specific Group Occurrence). A tremendous range of variability of sociality exists across the cetaceans. Members of species involved in mass strandings (i.e., presumably a social species) should not be rehabilitated singly or in unnatural groups (e.g., a group of neonates without their mothers). The composition of these groups should be carefully considered when animals are recovered from a stranding. It would be naïve to assume that any two cetacean species can be put together to form a functional social unit or that even two unfamiliar members of the same species will bond into a functional social unit. Therefore for social species, it is important to assess the group dynamics and behavior (*reasonable social group*) in the same manor as

for individuals. Cetaceans that do not live in social groups do not necessarily require conspecifics for release, as long as they are released into an appropriate habitat where conspecifics are likely to occur. Indications of social problems that may be a contributing factor or direct cause of the stranding (e.g., evidence of extensive fresh tooth raking marks in the absence of other medical factors) should be considered. Medical concerns related to dentition, appendages, or hearing and sound production capabilities may be missing tools for socialization and require special consideration.

3.6 Medical and Rehabilitation Assessment of Cetaceans

The medical assessment includes information related to any diagnostic testing, treatment, and response to treatment. The attending veterinarian should perform a hands-on-physical examination upon admission and prior to the release determination. The attending veterinarian should review the animal's complete history including all stranding information and diagnostic testing (i.e., required by NMFS and any additional data), and medical and husbandry records (including food consumption and weight and length progression). The primary goal of the testing required by NMFS is to determine the risk to the health of wild marine mammal populations. This is achieved by testing for diseases that pose a significant morbidity or mortality risk to wild populations (i.e., reportable diseases). Those that are zoonotic or public health and safety concern require immediate NMFS notification to assure proper protocols are put into place. Additional testing will be required if the animal was part of an official Marine Mammal Unusual Mortality Event. NMFS may request testing for other emerging diseases as to support surveillance for potential epidemics of concern and to monitor changes in disease status due to rehabilitation practices. The directive for the pre-release health screen will come from the NMFS Regional Stranding Coordinator through the Marine Mammal Health and Stranding Response Program. Appendix D lists diseases of concern for cetaceans.

A complete health screen should be completed upon admission and just prior to release including basic blood collection for a CBC, chemistry profile (Chem-12 including BUN and creatinine, enzymes and electrolytes), serology, microbial and fungal culture (i.e., blow hole, rectal, and lesions), cytology, urinalysis, and fecal exam. If the animal is female and at reproductive age, it is advisable that pregnancy be ruled out prior to prescribing potentially fetal toxic medication. Serum (3ml) should be banked at the time of admission and just prior to release for retrospective studies. Cessation of antibiotics should occur two weeks prior to release examination to assure that the animals is no longer dependant on the medication and that the drug has cleared based on the pharmacokinetics and requirements made by the veterinary community and the Food and Drug Administration. Some antibiotics clear the body quickly and require shorter withdrawal time; therefore, when this

recommendation cannot be met seek advice from NMFS. The attending veterinarian should provide written notification to the NMFS Regional Stranding Coordinator that a health screen and assessment of the cetacean scheduled to be released has been performed. The notification must also include the final release plan and a plan for hands-on physical examination by the attending veterinarian (including last blood draw and evaluation) within 72 hours of its release. The required documentation and signed release determination recommendation will be part of the administrative record along with the signed (by the NMFS Regional Administrator) letter of concurrence approval for release.

It is of extreme importance that the cetacean be monitored closely for disease throughout its rehabilitation. Regardless of the stranding etiology, handling and care can cause significant stress increasing susceptibility to disease. If not properly managed, rehabilitation facilities provide an environment where genetically altered or novel pathogens not typically encountered in the wild can easily be transmitted from animal to animal. This scenario can be problematic when an animal is exposed and becomes a carrier of that pathogen to a naïve wild population if released. Introduction of pathogens from rehabilitation centers to the wild is a significant concern as diseases with serious epizootic potential have previously been detected (Stoddard *et al.* 2005). Infectious agents may become more pathogenic as they pass through new individuals and naïve species or become genetically altered from indiscriminant use of antibiotics.

The attending veterinarian is urged to utilize the full spectrum of diagnostic modalities available for health assessment of the cetacean. In addition to basic blood work, serology, microbial and fungal culture (i.e., blow hole, rectal, and lesions), cytology, urinalysis, and fecal exam, advanced techniques for pathogen detection such as PCR and toxicology analyses are available. A number of diagnostic imaging techniques including radiology, CAT scans and MRI may be used as well as bronchoscopy and laparoscopy. The cetacean literature has expanded to include numerous references on the performance and interpretation of diagnostic tests.

Both agencies may request testing for other *emerging diseases* as part of a *surveillance program* to identify potential *epidemics of concern*. Additional testing will be required if the animal was part of an official Marine Mammal Unusual Mortality Event. Specific testing requirements (i.e., pre-release health screen) will come from the NMFS Regional stranding coordinator through the Marine Mammal Health and Stranding Response Program and follows the term and responsibilities stated in the NMFS Stranding Agreement.

3.7 Release Site Selection for Cetaceans

Ideally, the rehabilitated cetacean is released into its home range, genetic stock, and social unit. For species such as coastal resident bottlenose dolphins, returning the animal to its exact home range may be extremely important. For widely ranging species such as the pilot whale, specificity of the release site may be less critical as the genetics of these cetaceans may be more *panmictic*. Returning the animal to its home range or species range may increase the likelihood that the animal will have a knowledge of available resources, potential predators, environmental features, and social relationships that would support its successful return to the wild. Also, consideration should be given to time of year since the range of the animal may change based on season and where conspecifics are along their migration route at a given point in time.

In many cases, the precise home range of the individual will not be known. There may not be any information regarding the animal's social unit or its individual ranging patterns prior to its stranding. In some cases, photographic identification records may help identify the home range or social group for some species. When the home range of the cetacean is unknown, the animal should be released at a location near to its stranding site that is occupied regularly by its conspecifics, ideally those of the same genetic stock. Genetic analyses of a tissue sample via a qualified laboratory and appropriate tissue archive may aid with determining the appropriate stock of origin. Pelagic cetaceans are to be released offshore into a habitat occupied by conspecifics at that time of year. For animals that mass strand depending on the life history, social units should be maintained whenever possible thus cetaceans that stranded together should be released together as a group. Because much of cetacean behavior is learned, juveniles should be released with adults or in the presence of conspecifics and mothers with their dependant young.

Other factors to be considered in release site selection are availability of resources and condition of the habitat. NMFS and the Stranding Network Participant are to ensure that severely depleted resources or degraded habitat at the release site do not pose an obvious threat to the released animal. Release plans should include alternative release sites or schedules if there is a substantial decline in resources or habitat quality such as massive fish kills, significant declines in commercial and/or recreational fish landings, harmful algal blooms, or high concentrations of environmental contaminants. Animals should not be released into areas of dense public use and/or high commercial and recreational fishing activity.

3.8 Marking for Individual Identification of Cetaceans Prior to Release

If feasible, three forms of identification should be obtained and/or applied including photo-identification (documenting individual identifying physical characteristics such as scars, color pattern, dorsal fin shape, etc.), freeze branding, and dorsal fin tag. For delphinids, photo-identification should include body, face, dorsal fin, flukes, and pectoral flippers. A numerical freeze brand, at least 2" high, is to be placed on both sides of the dorsal fin and on the animal's side just below the dorsal fin, except for species that lack a dorsal fin or have small dorsal fins such as the harbor porpoise. Roto-tags should be attached on the trailing edge of the dorsal fin. Tag application and freeze branding should only be done by experienced personnel as improper tagging may cause excessive tissue damage, infection or premature loss of the tag or mark. Marking of non-delphinid cetaceans can be more challenging due to unique anatomical features and should be determined in consultation with NMFS. NMFS must receive advance notification of and approve any additional forms of identification that a rehabilitation facility voluntarily wishes to place on a cetacean besides those mentioned above. For instance, NMFS authorization is required prior to placement of VHF radio or satellite-linked radio tag.

The identification system to be used on cetaceans deemed "Conditionally Releasable" must be approved by NMFS. As these animals are required to have an advanced post-release monitoring plan, conditionally releasable cetaceans will often be VHF or satellite tagged in addition to photo-identification, freeze-branding, and placement of a visual fin tag.

3.9 Post-Release Monitoring of Cetaceans

Few data are currently available regarding the fates of released cetaceans. Post-release monitoring provides essential information to develop and refine marine mammal rehabilitation and release practices. "Conditionally Releasable", cetaceans should be monitored daily for at least two months after release. The specific post-release monitoring plan for each cetacean is to be coordinated through NMFS. Post-release monitoring methods may include visual observations from land, sea, or air, and/or radio or satellite-linked monitoring. It is understood that post-release monitoring of cetaceans, particularly pelagic species, is an extensive undertaking for which significant support is required, often from multiple sources. NMFS may be able to provide resources such as financial support, personnel, and equipment for post-release monitoring on a case-by-case basis but is not typical. Therefore, this requirement should be considered at the time of stranding and influence decisions regarding rehabilitation.

The first month after release of the cetacean is a particularly critical period during which it will become evident whether the animal is thriving, including avoiding predators, capturing sufficient prey and being accepted by conspecifics. For coastal species it is recommended that monitoring continue on a regular basis for at least one full year and such funding resources as the Prescott Stranding Grant program can assist with the financial burden of such endeavors. NMFS requires periodic and final reports on released animals. These reports will facilitate future revisions to the marine mammal rehabilitation and release guidelines. In order to compare individual cases, standardization of data collection protocols for monitoring released cetaceans will be required. NMFS will provide the stranding network with the desired format for receipt of tracking data in reports. Presentation, discussion and formal study of monitoring data and its dissemination to the stranding network will aid in the assessment of cetacean rehabilitation and release programs.

Release plans should include the feasibility and contingency plans that are available for recovering the animal, should monitoring indicate its failure to thrive. The release plans should also address treatment and euthanasia if the animal is retrieved or restrands. In addition, NMFS may require such contingency plans for "Conditionally Releasable" cetaceans, depending on the circumstances.

3.10 Decision Tree – Cetacean Release Categories

3.10.1 Releasable

The cetacean is cleared for release by the attending veterinarian (including the Assessment Team) and the NMFS Regional Administrator concurs in writing. This means that the requirements for the health and behavior assessment, marking/tagging, and release plan (including contingency plans) have been met and both veterinary and biological opinions regarding release have been received (See text for details). For an animal to be considered "releasable" the response to all of the essential release criteria below should be met.

History - Cetacean has no historical information requiring consultation with NMFS such as stranding in close temporal or geographic relation to an unusual marine mammal mortality event, stranding associated with an environmental event of concern such as a harmful algal bloom, a hazardous waste spill, an acoustic insult, part of a human interaction or criminal investigation, or involvement in a mass stranding.

Developmental Stage/Life History

a) Cetacean has attained sufficient size and age to be nutritionally independent.
b) Cetacean is not a female with calf.
c) Cetacean is not deemed to be a geriatric animal and not compromised due to age related conditions.
d) Cetacean was not exposed to captive or domestic animals during rehabilitation.

Behavioral Clearance

a) Cetacean breathes normally, swims and dives effectively.
b) Cetacean does not exhibit aberrant behavior, auditory, or visual deficits.
c) Cetacean demonstrates appropriate foraging ability.
d) Cetacean did not strand as direct result of a failure to avoid predators (an example of possible lack of predator avoidance would be evidence of extensive shark attack wounds in the absence of other primary causes of stranding).
e) Cetacean did not strand as a result of taking food from humans in the wild.
f) Cetacean did not strand as a direct result of a demonstrated inability to obtain sufficient food in the wild (e.g., emaciation without a clear medical cause).
g) Cetacean did not strand as a direct result of conspecific injury.

Medical Clearance

a) Health status of the cetacean is deemed appropriate for release by the attending veterinarian (animal is likely to survive in the wild and does not pose a threat to wild marine mammal populations).
b) Hands-on physical exam by the veterinarian at time of admission to rehabilitation and within three days (72 hours) of release.
c) Laboratory tests performed at time of admission and within seven days of release are complete and submitted for review:
    - CBC;
    - Chemistry Profile to include: Glucose, Sodium, Potassium, Chloride, Calcium, Phosphorus, Iron, Bicarbonate, Alkaline Phosphatase, ALT, AST, GGT, BUN, Creatinine, Uric Acid, CPK;
    - Serum Banking (3 ml upon admission and 3 ml at time of release, more if available; and
    - Aerobic Bacterial Cultures (Blowhole, Rectal, Lesions).

d) Cetacean is free of drugs (excluding sedatives used for transport) a minimum of 2 weeks prior to release (should document that treatment was effective; clinical values remain normal for at least 2 weeks).

Release Logistics

a) Tagging/Marking - Delphinids: 3 forms of identification approved by NMFS (dorsal fin tag, freeze brand, photo, other).
b) Release Site - Return to appropriate stock and geographical site under favorable environmental conditions, and for social species, introduced in areas with conspecifics.
c) Tracking - minimum of 2 months post-release monitoring coordinated with NMFS (provide NMFS with regular tracking updates).
d) Provide NMFS a report at the end of the tracking period.

3.10.2 Conditionally Releasable

The cetacean did not meet one or more of the essential release criteria but may be releasable in the future pending resolution of the problems identified by the attending veterinarian and Assessment Team (See text for details). This may involve discussion with outside experts in consultation with NMFS. Contingency for recapture, treatment, permanent care and euthanasia should be required if releases is unsuccessful and animal restrands. The following may be true for one or more assessment points.

History

a) Cetacean stranded in close temporal or geographic relation to a Marine Mammal Unusual Mortality Event.
b) Cetacean stranded in association with an environmental event of concern such as a harmful algal bloom, a hazardous waste spill, an anthropogenic acoustic insult.
c) Cetacean was involved in a mass stranding.
d) Cetacean stranded previously on one or more occasions.
e) Single stranding of a social species.

Developmental Stage/Life History

a) Cetacean is nutritionally dependant based on known life history but older calf with some foraging skills.

b) Cetacean is recently weaned.
c) Cetacean is a female with calf.
d) Cetacean is a geriatric animal and is compromised due to age related conditions.

Behavioral Assessment

a) Cetacean exhibits aberrant behavior, which may include but is not limited to, abnormal breathing, swimming, and/or diving, auditory or visual dysfunction.
b) Ability of the cetacean to forage for prey is questionable or logistical circumstances prevent testing of forage or prey capture ability.
c) Cetacean requires significant conditioning due to developmental stage and/or medical condition.
d) Predator wounds were likely secondary to another cause of the stranding.
e) Attraction to humans in the wild has been extinguished.
f) Cetacean is a social species and has stranded due injury from conspecifics.

Medical Assessment - The attending veterinarian determines that the health status of the cetacean is uncertain regarding suitability for release (concern that the animal has a lower or questionable chance of survival or has a questionable condition or test results indicating that it may pose a health risk to wild marine mammals –reportable disease). The veterinarian arrives at a determination of "Conditionally Releasable" through performance and interpretation of physical examinations and interpretations of tests such as CBC, chemistry profile, cultures and other tests required by NMFS, plus any other diagnostic tests he/she deems necessary to fully evaluate the animal. Response of the cetacean to therapy and the clinical judgment of the veterinarian may also contribute to a determination of "Conditionally Releasable." Further tests may be required including ultrasound or radiographs to clarify medical issues.

Cetaceans exhibiting any of the following medical or physical conditions are to be discussed with NMFS, with the expectation that without resolution, such conditions will make the animal an unsuitable candidate for release:

a) Compromised function of sensory systems (auditory, visual).
b) Decreased range of motion.
c) Deformed or amputated appendage.

d) Laboratory tests interpreted as abnormal or suspicious of disease (CBC, chemistry, cultures, or other tests).

Release Logistics

a) Tagging, marking, post-release monitoring - Extensive post-release monitoring of cetaceans deemed "Conditionally Releasable" is required and is to be approved and coordinated through NMFS. Post-release monitoring of such animals should be at least two months duration, likely longer, and is also likely to include advanced tracking techniques such as satellite tracking via radio-tracking or photographic identification searches if the animal is likely to move outside of the range of monitoring. The cetacean will continue to be deemed "Conditionally Releasable" until the post-release monitoring plan required by NMFS can be implemented.
b) Stock of origin is unknown, uncertain, or temporarily unreachable due to environmental (weather conditions) or natural history factors (migration) - When such circumstances exist, the case is to be discussed with NMFS. The cetacean will be deemed "Conditionally Releasable" until specifics of release are approved by NMFS.
c) Plan for recapture - NMFS may request a recapture plan if reasonably feasible for a "Conditionally Releasable" cetacean prior to its release as a contingency for the animal should it appear unable to readjust to the wild. The cetacean will continue to be deemed "Conditionally Releasable" until NMFS approves a recapture plan.
d) Contingency plans if the release is not successful or the animal restrands. This should include plans for follow up treatment, permanent care and/or euthanasia

3.10.3 Non-Releasable

The cetacean is determined to be unsuitable for release by the attending veterinarian and Assessment Team and the NMFS Regional Administrator concurs. The animal did not meet the essential release criteria, and thus does not have a reasonable chance of survival in the wild or poses health risks to wild marine mammals. See section B3 the procedure for placement of nonreleasable animals.

History

a) Cetacean has been in captivity for more than two years or is otherwise too habituated and counter-conditioning techniques have been unsuccessful.

b) Cetacean stranded previously on one or more occasions.

Developmental Stage/Life History

a) Cetacean is nutritionally and socially dependent, and based on known life history, is not of age to be nutritionally independent (neonate and young nursing calf without foraging skills).
b) Cetacean is geriatric and exhibiting other medical and/or behavioral abnormalities.

Behavioral Clearance

a) Exhibits abnormal breathing, swimming, diving, or other aberrant behavior that may compromise survival in the wild or may be caused by a disease process of concern to wild marine mammals.
b) Exhibits auditory or visual dysfunction that would compromise survival in the wild or may be caused by an ongoing disease process of concern to wild marine mammals.
c) Unable to capture and consume live prey.
d) Demonstrated inability to avoid predators.

Medical Clearance - The attending veterinarian determines that the health of the cetacean precludes release. In such cases, the medical condition of the animal prevents normal function to a degree that would compromise its survival in the wild or pose a health risk to wild marine mammals. The veterinarian supports the determination of "Non-Releasable" status with required physical examinations and tests such as CBC, chemistry profile, cultures and those required by NMFS plus any other tests he/she deems necessary to fully evaluate the animal. Further tests may be required including ultrasound or radiographs to clarify medical issues. The veterinarian presents his/her findings to the NMFS regional stranding coordinator and recommends that the cetacean be maintained in captivity or be euthanized.

Conditions that warrant consideration that a cetacean be deemed "Non-Releasable" include and are not limited to the following:

a) Compromised function of sensory systems (auditory, visual).
b) Decreased range of motion.
c) Deformed or amputated appendage.
d) Laboratory tests interpreted as abnormal or suspicious of disease of concern.
e) Geriatric, believed to have chronic disease, which may compromise survival in the wild.

Release Logistics

a) Tagging/Biomonitoring - the cetacean requires extensive post-release monitoring for which there are insufficient resources.

4. Guidelines for Release of Rehabilitated Pinnipeds

4.1 Introduction

Each year in the United States, several different species of pinnipeds from three taxonomic families, Phocidae (true seals), Otariidae (eared seals), and Odobenidae (walrus) are rescued and rehabilitated. As walrus are under the jurisdiction of FWS, these guidelines should be generally applied but there are a few exceptions. Close consultation with FWS is required with each walrus case.

Except as otherwise noted, each pinniped is required to have a complete historical, developmental, behavioral, and medical status assessment by the attending veterinarian and animal care supervisor and be properly marked for identification prior to release. The release determination recommendation must include a signed statement from the attending veterinarian in consultation with his or her Assessment Team that the animal is **medically and behaviorally suitable for release in accordance with the release criteria** and include a written release plan and timeline. NMFS or FWS may require additional testing for reportable diseases in light of new findings regarding various disease and health issues and this information should be included in the release request. A release plan will require a justification statement and detailed description of the logistics for transporting, tagging, location, timing, crowd control, media coordination (if applicable), post release monitoring, and recovery should the animal fail to thrive (e.g., restrands). NMFS or FWS may require recapture if the animal appears to be in distress following a specified time after release. Recapture will require special authorization from NMFS or FWS prior to this activity. NMFS or FWS may consult with individual experts for further guidance. NMFS reserves the right to impose additional requirements in the release plan as stated in 50 CFR 216.27 (a)(3).

The NMFS Regional Administrator may allow for pre-approved waivers for routine pinniped cases as stated in 50 CFR Section 216.27(a)(2)(i)(A). Typically these cases are anticipated (e.g., the typical annual cluster of cases where the etiology is known and diagnosis and treatment is routine) and can be appropriately planned. For such waivers, the Stranding Network Participant should submit a protocol for such cases including location of release. These waivers will require pre-approval by the NMFS Regional Administrator on a schedule as prescribed in the Stranding Agreement. NMFS may require that a certain percentage of these cases that present with similar clinical signs and diagnosis be thoroughly tested and assessed each year. Similarly, NMFS may give blanket authorization for pre-approved release sites and for post-release monitoring plans.

4.2 Overview of Release Categories for Pinnipeds

Pinnipeds evaluated at rehabilitation facilities can be grouped into one of three "Release Categories" based on historical, developmental, behavioral, ecological, and medical criteria set forth in a **standardized checklist**. It is recommended that the standardized checklist in section V.G. should be used to assess and document the release candidacy of rehabilitated pinnipeds. The checklist includes a health statement (i.e., health certificate) to be signed by the attending veterinarian, which verifies that a pinniped meets appropriate standards for release.

The majority of walrus typically strand as calves and are not good release candidates due the extended period of maternal dependency. FWS generally considers walrus calves to be "nonreleasable" and considers all stranded walrus on a case-by-case basis for permanent placement. If the animal is placed in permanent captivity, the receiving facility must hold an Exhibitor's License from APHIS [7 USC 2131 et seq.] and comply with MMPA (16 USC 1374 Section 104(c)(7)). Questions regarding disposition of stranded walrus should be directed to the FWS contact as identified in Appendix H.

1. **"RELEASABLE":** There are no significant concerns and the animal meets basic historical, developmental, behavioral, ecological, and medical criteria, supporting the likelihood of survival and a lack of risk to the health of wild marine mammals. The release plan (post-release identification, release site, contingency plans, and post-release monitoring) has been approved in writing by NMFS via the letter of concurrence. For the pinniped to be deemed "Releasable," **all** items on the checklist should be answered as **"Yes."** The attending veterinarian signs the checklist confirming the information and the assessment.

2. **"CONDITIONALLY RELEASABLE":** One or more items on the standardized checklist have been marked **"No"** for pinnipeds in this category. This may pertain to historical, developmental, behavioral, ecological, and/or medical status concerns regarding the animal's potential to survive in the wild and/or its potential to pose a health risk to other marine mammals. A pinniped may also be deemed conditionally releasable if requirements for release cannot be met at present but may be met in the future and without compromising the health and welfare of the individual animal. In such cases, more time may be needed to determine the feasibility of release (see 50 CFR 216.27(a)(1)(iii) for species under NMFS jurisdiction).

All "Conditionally Releasable" pinnipeds must be discussed with NMFS or FWS. NMFS or FWS may consult with individual experts to discuss specific cases. Experts include scientists and veterinarians with expertise in pinniped biology and medicine (particularly experts with species specific knowledge). Such discussions will clarify the most appropriate disposition. For example, additional medical testing, rehabilitative therapy, and additional strategies for post-release monitoring may be required to release a "Conditionally Releasable" pinniped.

3. **"NON-RELEASABLE":** One or more items on the standardized checklist have been marked **"No"** for pinnipeds in this category. This may pertain to historical, developmental, behavioral, ecological, and/or medical status concerns that preclude release to the wild. It has a documented condition demonstrating little chance for survival in the wild and/or a diagnosed health risk to wild marine mammals. For NMFS species, this category also includes animals that have been in rehabilitation greater than two years (see 50 CFR 216.27(a)(1)(iii)). Additionally, a pinniped may be deemed "Non - Releasable" if an appropriate release site or post-release monitoring plan cannot be arranged. Rehabilitation facilities that believe that they may have a walrus that is non-releasable must contact the FWS Marine Mammals Management Office (as identified in Appendix H) for concurrence on this finding and eventual disposition of the animal. If FWS determines that a walrus is non-releasable, the holding facility may request a permit for permanent placement of the animal as long as the facility meets the requirements under Section 104(c)(7) of the MMPA.

   For animals deemed "Nonreleasable" and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a public display or research facility or euthanized. If the animal is to be placed in permanent captivity, the receiving facility must be registered or hold a license from APHIS [7 USC 2131 et seq.] and comply with MMPA (16 USC 1374 Section 104(c)(7)). Facilities wishing to obtain nonreleasable animals should send a *Letter of Intent* to the Office of Protected Species Permits, Conservation and Education Division (http://www.nmfs.noaa.gov/pr/permits/mmpa_permits.htm) (NMFS PR1) to permanently retain (i.e., if affiliated with the rehabilitation facility) or acquire the animal. This letter should include a signature of the *"Responsible Party of Record"*. As part of the decision making process will consult with APHIS and may review the, qualifications and experience of staff, transport, and placement plans (i.e., integration based on appropriate composition of species, sex and age and the intended proposed plan for public display or scientific research). Once approved, NMFS PR1 will respond with a *Transfer Authorization*

Letter and include Marine Mammal Datasheets (MMDS), OMB form 0648-0084, to be returned to NMFS PR1 within 30 days of transfer. Upon receipt of the MMDS, NMFS PR1 will acknowledge the transfer in writing and return updated MMDS to the receiving facility.

4.3 Historical Assessment of Pinnipeds

Historical stranding information may guide the management of rehabilitation and the plan for post-release monitoring. Important historical information should include:

1. **A record of previous stranding -** Pinnipeds that have previously stranded and been released, and subsequently strand again, are deemed "Conditionally Releasable" pending consultation with NMFS or FWS. Such animals should be reassessed and as they may have underlying health issues requiring additional evaluation, diagnostic testing and advanced post-release monitoring. Alternatively, such pinnipeds may be assessed as "Non-Releasable" and be transferred to permanent captivity or euthanized.

2. **An association with an ongoing epidemic among other animals or with a Marine Mammal Unusual Mortality Event -** If the stranding of a pinniped occurs in close temporal or geographic proximity to an Unusual Marine Mammal Mortality Event, fish kill, harmful algal bloom, hazardous waste spill, or other such environmental event, the pinniped is deemed "Conditionally Releasable" and consultation with NMFS or FWS is required. The agencies may request additional testing, documentation, and/or post-release monitoring of such pinnipeds.

3. **Stranding location and active or home range -** Areas that are worth assessing are increased human activity (e.g. active fishery, increased recreational use, military activity, shipping activity, etc.) or hazardous environmental conditions (e.g., harmful algal bloom or hazardous waste spill, and/or special weather conditions like El Nino, hurricane, extreme cold, extreme heat, etc). During an El Niño event, the rehabilitation center should consult with NMFS regarding management and release of the animal because unfavorable environmental conditions may persist once an animal is ready for release and thus the animal should be deemed "Conditionally Releasable." Information on areas of human activity and environmental hazards is also vital for determining an appropriate release site.

4. **Exposure to (or injury from) other wild or domestic animals -** Pinnipeds having a history of exposure to terrestrial wild or domestic animals are deemed "Conditionally Releasable" and must be discussed with NMFS or FWS. Pinnipeds may contract disease from terrestrial wild or domestic animals such as foxes or dogs. For instance, canine distemper represents a serious health threat to pinnipeds. Should a rehabilitating pinniped contract such an pathogen, it could transmit the illness to its wild cohorts. Such transmission of pathogens can occur even when a rehabilitated pinniped is not showing clinical signs of disease. Consultation with NMFS or FWS is thus required for pinnipeds that have a history of exposure to terrestrial animals.

5. **A record of attacking or biting a human -** Pinnipeds that have inflicted a bite on a human are deemed "Conditionally Releasable" and must be discussed with NMFS or FWS. A variety of infectious diseases may be transmitted from animals to humans via bite wounds. Although documentation of rabies among pinnipeds is rare, the fatal outcome of this disease in humans warrants careful consideration of factors surrounding pinniped bites to people. NMFS or FWS may require consultation with state public health officials regarding pinnipeds that inflict bites on humans and may request that the facility follow state policies and guidelines for unvaccinated non domestic animal bites. NMFS may also impose quarantine or additional diagnostic testing requirements prior to authorizing release.

6. **Is evidence or part of a human interaction or criminal investigation**;

7. Was transferred from another holding, triage or rehabilitation facility – The opportunity for exposure to pathogens can occur at different stages of response and rehabilitation; therefore, it is important to obtain medical records and document the quality of care and treatment at each stage of this process.

4.4 Developmental Assessment of Pinnipeds

In order to be deemed "Releasable," a young pinniped should be able to feed itself, and have adequate body condition to survive readjustment to the wild. Generally, pups are to be held in rehabilitation centers for roughly the normal duration of lactation. Because of maternal dependence may vary greatly in some species, it is recommended that the straight length and weight of each pinniped pup be taken at admission and again when evaluating the animal for release to aid in assessment of the

animal's body condition. Such measurements may be compared to known weaning lengths and weights of appropriate wild pinniped species or to data from successfully rehabilitated and released stranded pups.

Reproductive status in and of itself does not impact release candidacy of a pinniped unless a female strands with her pup or gives birth during rehabilitation. Such females and their offspring are "Conditionally Releasable" and are to be discussed with NMFS or FWS. The natural history of the pinniped species involved and factors related to maternal relationship may impact the timing and conditions of release for mother or pup. For instance, a pup that has not reached weaning weight may be releasable with its mother, but not alone. A healthy mother may be kept in rehabilitation to assist its sick or injured pup; however, this should be weighed against the risk of habituation that could minimize the chance of a successful release. Female pinnipeds in estrus or late pregnancy are releasable unless the attending veterinarian believes that the health history of the animal warrants extra precautions to minimize stress during its return to the wild. Such animals are "Conditionally Releasable" due to health concerns and are to be discussed with NMFS or FWS.

Pinnipeds that are in molt are "Conditionally Releasable" and these cases should be discussed with NMFS. Because behavior and physiology change during a molt, factors related to the pinnipeds health history, age, reproductive status, and other relevant parameters should be considered in order to determine if release is preferable to holding the animal until molting is completed.

4.5 Behavioral Assessment of Pinnipeds

The limitations imposed by the captive environment of rehabilitation may preclude a detailed behavioral assessment where behavior of the captive animal may differ from that displayed in the wild. Also, there lacks a set of behavioral and functional tests that relate to behavior in the wild and there are limitations on the complete knowledge of "normal" behavioral parameters of each species. Behavioral clearance is thus founded on basic criteria necessary for survival of the animal in the wild. The behavioral evaluation often overlaps with the medical evaluation as abnormal behavior may indicate an underlying illness. Biologists and animal care supervisors with expertise in pinniped behavior and the attending veterinarian should jointly assess the behavior of the animal.

To achieve behavioral clearance, a pinniped should breathe normally and demonstrate effective swimming, diving, and locomotion on land (if appropriate for its species). The animal should display aberrant behavior, auditory or visual dysfunction that may compromise its survival in the wild or suggest underlying disease of concern to wild marine mammals (i.e., reportable disease). Behavioral

clearance also includes confirmation that the animal can respond to and able to capture, and consume live prey.

4.5.1 Breathing, Swimming, Diving, Locomotion on Land

Evaluation of respiration is done to determine that the pinniped does not exhibit abnormal breathing patterns or labored breathing during exertion. Evaluation of swimming, diving, and locomotion on land is done to confirm that the pinniped moves effectively and does not exhibit abnormalities such as listing to one side, decreased capacity to submerge, asymmetrical motor patterns, etc. Pinnipeds that display abnormalities of breathing, swimming, diving, or locomotion on land are deemed "Conditionally Releasable" or "Non-Releasable," depending on the nature and degree of their dysfunction.

4.5.2 Aberrant Behavior

Behavioral clearance of the pinniped includes confirmation that the animal does not exhibit aberrant behavior that may compromise survival in the wild or suggest underlying disease of concern to wild marine mammals. Examples of aberrant behavior include but are not limited to regurgitation, head pressing, postural abnormalities such as repetitive arching or tucking, head swaying, stereotypic or idiosyncratic pacing, decreased or unusual range of motion, and abnormalities of breathing, swimming, diving, and locomotion on land as previously discussed. Pinnipeds displaying aberrant behavior are deemed "Conditionally Releasable" or "Non-Releasable" depending on the nature and degree of the behavior.

4.5.3 Auditory and Visual Function

Behavioral clearance of the pinniped includes evaluation of auditory and visual function. Auditory dysfunction may be a reflection of active disease, permanent injury, or degenerative changes associated with aging. Evaluators may suspect that a pinniped has compromised auditory function if it responds minimally to loud noises created above or below water. Pinnipeds that have visual dysfunction may show difficulty locating prey items, tendency to collide with boundaries of their enclosure, or difficulty maneuvering about objects placed in their path. Discoloration, swelling, abnormal shape, position, or appearance of the eye or eyelids may suggest visual dysfunction. Pinnipeds with auditory or visual dysfunction should be deemed "Conditionally Releasable" or "Non-Releasable" depending on the degree and nature of their condition.

4.5.4 Prey Capture

Rehabilitated pinnipeds should demonstrate the ability to chase, capture, and consume live prey prior to their release. Prey items found in the animal's natural environment should be used whenever possible. If natural prey items are not available, evaluators may utilize other prey species. Evaluation of the pinniped includes assessment of each component of feeding behavior including the ability to chase prey, to actually capture prey, and to consume prey without assistance from humans. Pinnipeds that display ineffective prey capture and consumption are deemed "Conditionally Releasable" or "Nonreleasable." If logistical issues preclude evaluation of prey capture and consumption or there is a question about the quality of live prey, NMFS or FWS should be consulted.

Rehabilitated pinnipeds that have been in captivity longer than one year and young pinnipeds having little or no previous foraging experience in the wild require particularly careful assessment of feeding behavior. Repeated feeding trials using live prey with concurrent assessment of the animal's ability to maintain good body condition are helpful in thoroughly evaluating such animals.

4.6 Medical Assessment of Pinnipeds

The medical assessment includes information related to any diagnostic testing, treatment, and response to treatment. The attending veterinarian should perform a hands-on-physical examination upon admission and prior to the release determination. The attending veterinarian should review the animal's complete history including all stranding information and diagnostic testing (i.e., required by NMFS and any additional data), and medical and husbandry records (including food consumption and weight and length progression). The primary goal of testing required by NMFS or FWS is to safeguard the health of wild marine mammal populations. This is achieved by testing for diseases that pose a significant morbidity or mortality risk to wild populations (i.e., reportable diseases). Those that are zoonotic or public health and safety concern require immediate NMFS notification to assure proper protocols are put into place. Additional testing will be required if the animal was part of an official Marine Mammal Unusual Mortality Event. NMFS may request testing for other emerging diseases as part of a surveillance program to identify potential epidemics of concern and to monitor changes in disease status that may have occurred due to rehabilitation practices. The directive for the pre-release health screen will come from the NMFS Regional Stranding Coordinator through the Marine Mammal Health and Stranding Response Program. Appendix -E lists diseases of concern for pinnipeds.

A complete health screen should be completed upon admission and just prior to release including basic blood collection for a CBC, chemistry profile (Chem-12 including BUN and creatinine, enzymes and electrolytes), serology, microbial and fungal culture (i.e., blow hole, rectal, and lesions), cytology, urinalysis, and fecal exam. If the animal is female and at reproductive age, it is advisable that pregnancy be ruled out prior to prescribing potentially fetal toxic medication. Serum (3ml) should be banked at the time of admission and just prior to release for retrospective studies. Cessation of antibiotics should occur two weeks prior to release examination to assure that the animals is no longer dependant on the medication and that the drug has cleared based on the pharmacokinetics and requirements made by the veterinary community and the Food and Drug Administration. Some antibiotics clear the body quickly and require shorter withdrawal time; therefore, when this recommendation cannot be met seek advice from NMFS. The attending veterinarian should provide written notification to the NMFS Regional Stranding Coordinator that a health screen and assessment of the pinniped scheduled to be released has been performed. The notification must also include the final release plan and a plan for hands-on physical examination by the attending veterinarian within 72 hours of its release. The required documentation and signed release determination recommendation will be part of the administrative record along with the signed (by the NMFS Regional Administrator) letter of concurrence approval for release.

It is of extreme importance that the pinniped be monitored closely for disease throughout its rehabilitation. Regardless of the stranding etiology, handling and care can cause significant stress increasing susceptibility to disease. If not properly managed, rehabilitation facilities provide an environment where genetically altered or novel pathogens not typically encountered in the wild can easily be transmitted from animal to animal. This scenario can be problematic when an animal is exposed and becomes a carrier of that pathogen to a naïve wild population if released. Introduction of pathogens from rehabilitation centers to the wild is a significant concern as diseases with serious epizootic potential have been detected (Stoddard et. al., 2005). Infectious agents may become more pathogenic as they pass through new individuals and naïve species or genetically altered from indiscriminant use of antibiotics.

The attending veterinarian is urged to utilize the full spectrum of diagnostic modalities available for health assessment of the pinniped. In addition to basic blood work, serology, microbial culture, cytology, urinalysis, and fecal exam, advanced techniques for pathogen detection such as PCR and toxicology analyses are available. A number of diagnostic imaging techniques including radiology, CAT scans and MRI may be used as well as bronchoscopy and laparoscopy. The pinniped literature

has expanded to include numerous references on the performance and interpretation of diagnostic tests.

Both agencies may request testing for other emerging diseases as part of a surveillance program to identify potential epidemics of concern and identify health trends. Additional testing will be required if the animal was part of an official Marine Mammal Unusual Mortality Event. Specific testing requirements (i.e., pre-release health screen) will come from the NMFS Regional stranding coordinator through the Marine Mammal Health and Stranding Response Program and follows the term and responsibilities stated in the NMFS Stranding Agreement.

4.7 "Recommended" Standard Checklist to Determine Release Category of all Rehabilitated Pinnipeds (except walrus)

Completion of the recommended checklist below including a signature from the attending veterinarian documents fulfillment of NMFS requirements for assessment of the pinniped prior to release. **By checking "Yes" to all statements asserts that the pinniped is suitable for release. By checking "No" to any of the statements means that a condition has been identified that requires consultation with NMFS in order to determine the release candidacy of the pinniped.**

Yes = true statement

No= untrue statement

History	Yes	No	Page Reference
1. Stranding was NOT associated with an El Niño event			
2. Stranding was NOT associated with a Marine Mammal Unusual Mortality Event			
3. Stranding was NOT associated with anthropogenic environmental accident (e.g., hazardous waste spill, acoustic insult)			
4. Stranding was NOT associated with an environmental event of NMFS concern (e.g., harmful algal bloom, fish kill, etc.)			
5. The animal is NOT evidence or part of a human interaction or criminal case			
6. There is NO evidence that the release candidate was exposed to terrestrial wild or domestic animals prior to and during rehabilitation			

7. The release candidate is NOT known to have inflicted a bite on human(s)		
8. The release candidate has NOT previously stranded		
Developmental Stage		
9. The release candidate is weaned, and has a proven ability to feed itself		
10. The release candidate is sufficiently robust, having adequate reserves to survive readjustment in the wild		
11. The release candidate shows no sign of molt		
Behavioral Clearance		
12. The release candidate demonstrates appropriate breathing, swimming, diving, and locomotion on land		
13. The release candidate does not exhibit auditory or visual dysfunction		
14. The release candidate demonstrates a capacity to chase and capture live prey		
15. The release candidate demonstrates an absence of aberrant behavior		
Medical Clearance		
16. The attending veterinarian has reviewed the release candidate's history and medical records		
17. The attending veterinarian has examined the release candidate within 10 days of release		
18. The required health screen and assessments were conducted with good results		
19. Hands-on physical exam performed by attending veterinarian		
20. NO congenital defects		
21. NO nonfunctional or damaged appendages		
22. NO visual defects		
23. CBC compatible with good health		
24. Chemistry profile compatible with good health		
25. Serum banked upon admission and prior to release (3 ml)		

26. Additional testing requested and reviewed by NMFS and no apparent concerns		
27. Free of drugs (exclusive of sedatives used for transport) minimum of 2 weeks prior to release		
28. Veterinarian's signature on health statement		

Health Statement

I have examined the pinniped (Species and ID#)_____ on (Date) _____ and have determined that the animal is medically and behaviorally suitable for release in accordance with the release criteria in that the animal will not pose a risk to the wild population and is likely to survive upon reintroduction to the wild.

_____ _____

Signature of the Attending Veterinarian *Printed Name of the Attending Veterinarian*

4.8 Release Site Selection for Pinnipeds

The release of a rehabilitated pinniped should be planned to maximize its chances for survival. The release should be timed and staged to increase its likelihood of foraging success and acceptance by conspecifics. Factors including its species, age, reproductive status, previous home range, social unit, and migratory patterns should be considered. Weather conditions at the release site, other environmental factors impacting the habitat and food availability should also be evaluated.

The rehabilitated pinniped is to be released into its home range, genetic stock, and social unit whenever possible. Return of the animal to its home range is preferable as the reacclimating pinniped would presumably have familiarity with available resources, potential predators, environmental features, and social relationships. In many cases, this can be accomplished by releasing the pinniped at its stranding site through a simple hard-release process (i.e., the animal is released directly after transport to the release site without acclimation through holding in a temporary enclosure at the site).

For migratory species such as hooded and ringed seals, the release site selection, is considered on a case-by-case basis. Consultation with NMFS is required for these cases. If conspecifics migrate to a site distant from the original stranding site, rehabilitators may consider various options depending on the natural history of the species and the temporal relationship of release to seasonal distribution. The

pinniped may be released to migrate on its own or with conspecifics still in the vicinity. Alternatively, the pinniped may be held in captivity until conspecifics return or it may be transported to the location of its migrated cohorts. The risks of extended time for the pinniped in captivity, logistics of transport to a migration site, and costs associated with the extended stay are examples of factors to be considered. As explained later in this section, movement of pinnipeds recovering from infectious disease to other sites should be carefully considered regarding disease risk to wild pinnipeds.

When information on the animal's ranging patterns or social unit prior to stranding is not known, or when a pinniped strands outside of the previously known range of its species, NMFS is to be consulted regarding an appropriate release strategy. For pinniped species that have vast territorial ranges such as those that naturally traverse the length of the North American continent, knowledge of the animal's specific ranging patterns previous to stranding may not be necessary. Such pinnipeds may be released in the general vicinity of their stranding site or anywhere within the vast range inhabited by that species with the following important exception (see below).

When a pinniped has recovered from an infectious disease, it may be preferable to release the animal near its original stranding site in order to minimize disease risks to wild pinnipeds. For example, even if the entire population of a far-ranging pinniped species has been exposed to a particular infectious agent, changes in the virulence of the pathogen may initially occur at distinct geographical sites. A seal exposed to a particularly virulent strain of pathogen in the far Northeast may pose a health risk to pinnipeds in the Mid-Atlantic that have not yet encountered that particular strain of virus. Additionally, the clinical signs of many infectious diseases mimic each other. As rehabilitation centers cannot always perform definitive diagnostic tests for all viral agents, moving rehabilitated pinnipeds from the general region of their stranding to distant locations for release may pose some risk to wild marine mammals. NMFS is to be consulted regarding the preferred release site when pinnipeds recovering from infectious illness cannot be released near their original stranding site.

It is important to ensure that conditions at the release site do not pose any obvious immediate threat to the released animal such as areas where resources and habitat is severely depleted or degraded. If evidence exists of a substantial decline in resources or habitat quality such as massive fish kills, significant declines in commercial and/or recreational fish landings, red tides, etc., it may not be appropriate to release the pinniped until conditions at the release site improve or a different release

site is found. Also, release in areas of dense public use and/or high commercial and recreational fishing activity should be avoided.

4.9 Identification of Rehabilitated Pinnipeds Prior to Release

NMFS and FWS have determined that all pinnipeds must be flipper tagged for identification prior to release to the wild. Tags and placement instructions are to be obtained from NMFS or FWS and/or USGS (for walrus) as appropriate for the pinniped species (see Appendix H for contact information. Although resightings of flipper-tagged individuals may provide some information regarding the relative success of a rehabilitation effort, flipper tags are not reliable for long-term monitoring. They may be difficult to read from a distance and may become damaged or lost. Other methods for identification such as freeze-branding, glue tags, etc. may be used in addition to flipper tags (Geraci and Lounsbury 2005).

4.10 Post-Release Monitoring of Pinnipeds

Post-release monitoring of pinnipeds provides essential information for the development and refinement of marine mammal rehabilitation and release practices. Post-release monitoring methods may include visual observations of tagged or freeze-branded pinnipeds from land, sea or air, as well as radio or satellite-linked monitoring. Radio and satellite-linked monitoring programs are highly desirable as they provide a wealth of information regarding the activities and fates of released animals. NMFS or FWS may require and coordinate post-release monitoring plans for "Conditionally Releasable" pinnipeds. Additionally, rehabilitation centers may voluntarily provide post-release monitoring plans for routinely released pinnipeds. When such monitoring will be performed voluntarily, the rehabilitation center is required to inform NMFS or FWS of the intent to implement post-release monitoring when seeking authorization for release of the pinniped.

The first month after release of the pinniped is a particularly critical period during which it will become evident whether the animal is thriving, including capturing sufficient prey and being accepted by conspecifics. It is recommended that monitoring continue on a regular basis via field observations, radio, or satellite-linked monitoring for up to one full year and such funding resources as the Prescott Stranding Grant program can assist with the financial burden of such endeavors. NMFS may request these data in order to make future revisions to pinniped rehabilitation and release guidelines. In order to compare individual cases, standardization of data collection protocols for monitoring released pinnipeds may be helpful and this should include the length of the tracking time, the type of tracking

equipment, and assessment of outcome. Formal study of monitoring data and its dissemination to the stranding network can aid in the assessment of pinniped rehabilitation and release programs.

Release plans should include contingencies for recovering the released pinniped should monitoring indicate its failure to thrive including options for treatment, permanent care, or euthanasia. In addition, NMFS will request such contingency plans for "Conditionally Releasable" pinnipeds, depending on the circumstances.

5. Guidelines for Release of Rehabilitated Manatees

5.1 Introduction

West Indian manatees (*Trichechus manatus*) are found throughout the Caribbean basin. In the United States, the Florida subspecies (*Trichechus manatus latirostris*) is commonly found in southeastern coastal waters, with Florida at the core of its range. The Antillean subspecies (*Trichechus manatus manatus*) is found outside of Florida throughout the Caribbean basin (including Puerto Rico and possibly Texas). While most reports of distressed manatees occur in Florida, manatees have been rescued throughout the region. The focus of manatee rescue and release activities is to promote the conservation of wild manatee populations.

Reports of distressed manatees include animals compromised by human activities and natural causes. Human causes of distress include collisions with watercraft, entrapment in structures, entanglement in and ingestion of fishing gear and debris, and other sources. Natural causes of distress include exposure to cold and brevetoxins, mother/calf separation, seasonal disorientation, etc. All rescue-related communications and the day to day decision making process in the field are generally handled by the local field Stations of the Florid Fish and Wildlife Conservation Commission (FFWCC) in conjunction with report from the public utilizing the 1-888-404-FWCC hotline. All activities related verification of a report of a manatee in trouble, subsequent rescue, and transport to rehabilitation facilities are communicated through the FFWCC Field Stations, according to established protocols. The FWS Jacksonville Field Office coordinates the manatee rescue, rehabilitation, and release program to assist these animals. The FWS Jacksonville Field Office conducts this program according to the provisions of an Endangered Species Act/Marine Mammal Protection Act (ESA/MMPA) marine mammal enhancement permit issued by the FWS Division of Management Authority (DMA). The permit authorizes “take” activities for an unspecified number of manatees for the purpose of enhancing its survival and recovery, consistent with the FWS manatee recovery plan developed pursuant to the ESA.

The FWS Jacksonville Field Office coordinates a network of individuals, facilities, and agencies authorized as subpermittees under their enhancement permit and through Letters of Authorization (LOA) issued under Section 109(h) and 112(c) of the MMPA [16 U.S.C. sections 1379(h) and 1382(c)] to authorize activities related to the rescue (including temporary capture, possession, transport, and transfer), rehabilitation, and post-release monitoring of manatees.

The following guidelines were first developed by program participants in 1991 and subsequently revised in 2001. They are based on more than twenty years of program history and include the experiences, advice, and expertise of resource managers, field biologists, veterinarians, behavioral experts, animal keepers, and other dedicated individuals. The guidelines are to be used by authorized participants to guide the return of rehabilitated manatees to the wild.

5.2 Overview of Release Categories for Manatees

Manatees undergoing rehabilitation are evaluated by program participants and placed into one of four Release Categories:

1. **"RELEASABLE":** Manatees that have been successfully treated, are of an appropriate size, demonstrate appropriate behaviors, have the skills necessary to thrive in the wild, and do not pose a threat to wild populations will be considered releasable. Additionally, distressed manatees that are assisted in the wild and then released on-site are characterized as "Releasable". These include fit (healthy, non-injured) manatees superficially entangled in fishing gear, animals isolated by high water or detained by structures such as water control structures, sheet pile walls, booms, and other barriers, seasonally disoriented animals, and others. ("Seasonally disoriented" manatees include otherwise fit animals that fail to migrate to appropriate winter habitats during the periods of cold weather. These animals are typically relocated to warm water sites within their region of origin.)

2. **"CONDITIONALLY RELEASABLE":** Manatees with a condition and/or circumstances that present a question regarding the success of release or ability to thrive in the wild but likely not pose a threat to wild populations will be considered conditionally releasable. Animals described as "Conditionally Releasable" typically include medically-cleared, captive-reared animals and older, long term-captives. The status of animals considered to be "Conditionally Releasable" may change to "Releasable" if their condition or circumstances improve or to "Conditionally Non-releasable" if their condition or circumstances deteriorate.

3. **"CONDITIONALLY NON-RELEASABLE":** Manatees that cannot be released because their condition and/or circumstances threaten the well-being of the animal and/or may pose a threat to the wild population will be considered conditionally non-releasable. The status of animals considered to be "Conditionally Non-releasable" may change to "Releasable" or

"Conditionally Releasable" if their condition or circumstances improve over time. This category may include individuals with permanently debilitating medical conditions.

4. **"NON-RELEASABLE":** The FWS will review, on a case-by-case basis, requests to establish the non-releasability of certain captive-held manatees. Manatees deemed non-releasable will be medically characterized by a disease process that proves to be a significant risk to the wild population or by significant physical injuries (such as loss of paddle or significant spinal trauma) that would preclude the ability of an animal to thrive in the wild. Petitions to establish non-releasability of individual manatees will be reviewed by an independent panel which will make their recommendations to the FWS. The FWS will consider the request and recommendation and will then determine the status of the animal. Should an animal be deemed non-releasable by the FWS, the receiving facility will need to meet the requirements to receive an enhancement permit in accordance with Section 104 (c)(4) of the MMPA (16 U.S.C. 1374(c)(4)), Section 10(a) of the ESA (16 U.S.C. 153(a) and the FWS issuance criteria at 50 CRF 17.22.

5.3 Historical Assessment of Manatees

Efforts are made to maintain complete, detailed records that document rescued manatees from the time of rescue to their eventual disposition. These records generally include information describing the rescue, circumstances surrounding the stranding (*e.g.,* red tide, cold weather, etc.), treatment(s), captive care, and resolution of the case (*i.e.*, death, euthanasia, or release). In the case of previously known wild individuals, these records can include documentation of behavioral and reproductive patterns, migratory habits, and site fidelity. For all released animals, these records should also include all post-release monitoring information.

These records guide the treatment of individual stranded manatees and provide an evaluative tool that allows program managers and participants to assess and improve methods and procedures to better ensure success. As an example, in the case of red tide-related strandings, records detail the rescue of a manatee(s), noting the stranding site in the context of a red tide event, the presentation of the animal (beached, convulsing, etc.), any behaviors noted during transport, appropriate neurologic treatment, post treatment observations, and eventual release. (Release plans for the animal should require information characterizing the status of red tide within the planned release area.) Such detailed documentation has helped with efforts to develop effective rescue, rehabilitation, and release methods for red tide stranded animals.

5.4 Developmental Assessment of Manatees

"Releasable" animals must be nutritionally independent (weaned and off of supplemental nutritional support), greater than 200 cm in total length and more than 600 pounds in weight, and there should be no concerns regarding the animal's length of time in captivity, relative to its age. On occasion, smaller suckling calves are released with their dam to ensure that the dam's wild experience is passed on to her calf. Based on observations of cow/calf bonding behavior, this will help to improve the calf's wild skills and ability to survive in the wild.

"Conditionally Releasable" manatees should demonstrate nutritional independence, especially in the case of older calves planned for release. Recently weaned juveniles are also considered as release candidates. In both instances, animals should meet "Releasable" criteria for length and weight. Manatees that have spent lengthy periods of time in captivity (relative to their age) also fall into this category. Concern has been expressed that older, long-term captives may have a diminished ability to thrive in the wild (at the extreme are animals that have been in captivity for more than 50 years). While concern for these older animals may be well-placed, it is difficult to know at what age (if any) these animals' condition and lack of wild skills will compromise the success of their release. As such, older animals are considered on a case-by-case basis for release. The release of older manatees is being conducted in the context of a research program that will yield data to help ensure success for subsequently released individuals meeting similar criteria.

"Conditionally Non-releasable" manatees include animals that are not nutritionally independent, do not meet the length and weight criteria for "Releasable" animals, and/or lack the wild skills that are essential for a successful release.

"Non-releasable" manatees will be reviewed by the FWS on a case-by-case basis.

5.5 Behavioral Assessment of Manatees

"Releasable" manatees must exhibit normal behaviors while in captivity and are, therefore, expected to be able to meet behavioral challenges when in the wild. Normal behaviors include typical breathing, swimming, diving, and foraging/drinking patterns. Foraging behaviors include the ability to feed in salt, brackish, and fresh water environments without becoming dehydrated. Manatees must also demonstrate an ability to feed on natural vegetation located at various levels in the water column. Historically, captive manatees have been fed at the water surface. Naive animals fed in this fashion

have had difficulties finding food on the bottom after release. Current feeding practices include feeding at the bottom and top of the water column.

While abnormal behaviors in manatees have not been defined, animals that exhibit atypical behaviors (as determined by FWS and its advisors) while in captivity will be considered for release on a case-by-case basis. Behaviors that elicit concerns include stereotypic behavioral displays, adaptability or sensitivity to change (including going off feed, shutting down, etc.), and perceived affinities for humans and human activities while in captivity. These affinities should not be confused with the manatee's innate ability to explore their captive environment, including humans, especially in the absence of other engaging stimuli. Efforts should be made to de-condition or extinguish these behaviors before release.

5.6 Medical Assessment of Manatees

Prior to release, release candidates must be examined by a veterinarian experienced in manatee medicine. Examinations should include a review of the animal's complete history, a hands-on physical examination, and diagnostic testing. The exam should include bloodwork, including CBC and serum chemistries. Serological and bacteriological assessments should be conducted when deemed necessary by the attending veterinarian. Results of analyses should be consistent with known values for animals of similar age, size, and sex and consistent with historical values for that specific animal. A "medically cleared" manatee will be free of medical problems, not limited in its ability to thrive in the wild, and will not pose a threat to wild populations.

Manatees that have unresolved injuries, compromising physical conditions (malnutrition, dehydration, etc.), active/infectious disease processes, injuries that significantly affect mobility and range of motion (e.g., the loss of a paddle, failure to adapt appropriate buoyancy control, etc.) and other debilitating conditions are considered to be "Conditionally Non-releasable". In the event that these concerns are resolved, these animals may be categorized as "Releasable" or "Conditionally Releasable".

5.7 Decision Tree for Release Categories - Manatees

The following is a list of criteria used to help determine the release status of captive manatees. Please note that an animal's status may change as various criteria are met. (These criteria generally apply to all species/subspecies of manatees unless otherwise indicated.)

5.7.1 RELEASABLE

Developmental Stage/Life History

a) Nutritionally independent.
b) For Florida manatees, length must be >200 cm. and weight >600 lbs. (unless released with dam).
c) No concerns about length of time in captivity relative to age.

Behavioral Assessment

a) Must exhibit normal behaviors, including typical breathing, swimming, and diving patterns, while in captivity.
b) Must be able to eat natural vegetation and adapt to salt, brackish, and fresh water regimes.
c) Must demonstrate ability to feed on natural vegetation at various levels in water column.

Medical Assessment

a) No active, demonstrable medical problems.
b) Medically cleared based on examination by a veterinarian experienced in manatee medicine.
c) Poses no threat to wild populations.

Pre-release Requirements

b) The animal must be individually recognizable.
    i. All identifiable markings should be completely documented with sketches and photographs.
    ii. In the absence of individually identifiable markings, the animal should be freeze branded. The brands should be sketched and photographed.
    iii. All released manatees should be PIT tagged and information recorded and logged.
c) Blood and/or tissue samples must be taken for serum banking and genetics.
d) Ultrasound measurements of blubber layers must be taken as an initial indicator of health status.

Release Logistics (a release plan should be prepared for each released animal)

a) Telemetry should be considered when appropriate, subject to approval by FWS.
b) Animals should be released in close proximity to their point of origin, when appropriate (in the case of previously known animals, suitable sites may be selected within the animal's home range).
c) Release sites should be free of harmful algal blooms and other compromising factors.
d) For captive-reared, naive animals in Florida, release sites should include natural warm water sites within the animal's home range or that of the parent. Such releases should occur during the winter, thereby improving possibilities for bonding to the site and building associations with cohorts.

5.7.2 CONDITIONALLY RELEASABLE

Developmental Stage/Life History - Developmental considerations include animals that may be characterized by one or more of the following conditions:

a) Partial nutritional independence.
b) For Florida manatees, less than 200 cm in length and/or 600 lbs in weight.
c) Social dependence.
d) Recent weaning (stranded as a neonate, captive weaned, etc.).
e) Extended period of time (relative to age) in captivity.

Behavioral Assessment

a) Exhibits abnormal behavior(s) in captivity.
b) Unable to eat natural vegetation and adapt to salt, brackish, and fresh water regimes.
c) Unable to feed on natural vegetation at various levels in water column.

Medical Assessment: Animals with the following conditions may be considered for release:

a) Physical impairment (may include animals with damage to or loss of appendages, animals with impaired range of motion, etc.)
b) Reproductive condition (may include pregnant females, lactating females with calves, etc.)

Pre-release Requirements

a) The animal must be individually recognizable.
    i. All identifiable markings should be completely documented with sketches and photographs.
    ii. In the absence of individually identifiable markings, the animal should be freeze branded. The brands should be sketched and photographed.
    iii. All released manatees should be PIT tagged and information recorded and logged.
b) Blood and/or tissue samples must be taken for serum banking and genetics.
c) Ultrasound measurements of blubber layers must be taken as an initial indicator of health status.

Release Logistics

a) Requires radio-tagging and intensive monitoring efforts following guidelines developed by FWS and its advisors (including veterinarians, animal behavior specialists, and researchers).

5.7.3 CONDITIONALLY NON-RELEASABLE

Developmental Stage/Life History - Developmental considerations include animals that may be characterized by one or more of the following conditions:

a) Nutritionally dependent.
b) For Florida manatees, less than 200 cm in length and/or 600 lbs in weight.
c) Extreme concerns about length of time in captivity relative to age.

Behavioral Assessment

a) Exhibits abnormal behavior(s).
b) Unable to eat natural vegetation and adapt to salt, brackish, and fresh water regimes.
c) Unable to feed on natural vegetation at various levels in water column.

Medical Assessment

a) Not medically cleared (animals with active/infectious diseases, permanent, demonstrable physically debilitating injuries, and/or other concerns).
b) Poses a threat to wild populations.

5.7.4 NON-RELEASEABLE

a) Animals deemed permanently non-releasable will be:
   i. Permanent captive
   ii. Euthanized, as deemed necessary to prevent pain and suffering or in cases with an inevitable outcome.

   If FWS has determined that a manatee is permanently non-releasable, the holding facility may request a permit for permanent placement of the animal as long as the facility meets the requirements under Section 104(c)(3) or (c)(4) of the MMPA and Section 10 of the ESA.

b) Inbred animals: There are currently two inbred manatees in the U.S. captive manatee population. At the present time, these animals are considered to be conditionally non-releasable due to concerns regarding immunological compromise. Other concerns include observed problems with inbreeding, as seen in the European captive manatee population, which includes high infant mortality and breeding suppression. Given these concerns and questions about the effects of the release of inbred animals into the wild population, these two animals can not be released at this time are presently considered conditionally non-releasable.

c) Pre-Act animals: The U.S. captive manatee population currently includes four Florida manatees brought into captivity prior to the adoption of Federal prohibitions preventing the display of endangered marine mammals. The care and disposition of these "Pre-Act" animals are the responsibility of their respective owners.

5.8 Pre-release Requirements for Manatees

Prior to release, all animals must be individually recognizable. While many animals are either naturally marked or have scars from encounters with boat propellers, other animals have no markings and should be freeze branded with a unique number/letter combination (the selection of the sequential number/letter combination must be made beforehand in consultation with FWS). All markings (including freeze brands) should be done well in advance of release if possible and all markings should be sketched and photographed. PIT tags (one on either side of the shoulders, cranial to each scapula) should also be implanted. Ultrasound measurements of blubber layers must be taken prior to release as a baseline indicator of the animal's body condition. Blood and/or tissue samples should also be taken prior to release for serum banking and genetics.

5.9 Release and Post-release Logistics for Manatees

If at all possible, animals should be released in close proximity to the site where originally rescued. For captive-reared, Florida manatees with no wild experience, these animals should generally be released within their region of genetic origin and into natural warm-water areas during the winter to encourage winter site fidelity and familiarity with local conditions and association with wild manatees. When appropriate, telemetry may occur, pursuant to approval from FWS. (Current tagging methodologies make it difficult to radio tag and belt manatees less than 220 cm in total length.) In the case of rehabilitated, wild born adults, many of these animals can be released back into areas where researchers actively track wild manatees and can be monitored as part of these projects.

Post-release monitoring is required for all conditionally releasable animals. Such monitoring includes equipping animals with transmitters (satellite, VHF, and/or sonic, as appropriate) for both remote and on-site monitoring, On-site monitoring should include visual observations of the animal once or twice a week; protocols vary between higher and lower risk candidates. At a minimum, biomedical assessments should be conducted within the first three months after release, six months after release, and twelve months after release. (If there is any question about the animal's health based on field or remote observations, assessments should occur more frequently. If the animal's well-being has been compromised as determined by these assessments, the animal should be returned to captivity.) Biomedical monitoring includes an examination of overall body condition, length and other morphometrics that include girths, weight, blubber thickness, collection of blood, fecal, urine, milk, semen, and tissues samples when possible. Results of analyses should be consistent with known values for animals of similar age, size, and sex and consistent with historical values for that specific animal. While there is no agreed upon definition of success, program participants generally agree that if an animal has thrived in the wild (and met foraging and fresh water needs) for at least a year, if it has demonstrated an ability to successfully winter at a warm water site (Florida manatees), and if it has contributed to the production of offspring, then it is considered a successful release.

Pre-release conditioning may be required for conditionally releasable animals. Such conditioning may include exposing manatees to natural forage positioned at the surface and on the bottom of their tank. Natural forage includes a variety of vegetative types found within the animal's range and may also include palatable exotics such as *Hydrilla*. If an animal is to be released into water that differs from the type of water in their tank of origin, the animal should be acclimated to the type of water best suited to the release environment to minimize post-release stress, especially in the case of naive

animals. Conditioning may also include minimizing exposure to humans to reduce or eliminate any affinity the animal may have or may potentially develop toward humans and human activity. Trained/learned behaviors must be extinguished to the greatest extent possible prior to release.

In special cases, "soft release" methodologies should be considered as a means to enhance survivorship in the wild. "Soft releases" typically rely upon temporary holding facilities established within the release area. Manatee(s) are kept in these facilities where they are maintained and observed for a period of at least several weeks. This temporary adaptation period allows for acclimation to waters at the release site, introduction to in situ forage, close observation of behaviors, and ease in capture/handling for biomedical assessments prior to release. Supplemented forage can be reduced during the containment period. At release, the "soft release" concept initially encourages brief forays away from the enclosure and allows for the individual to return to the now familiar holding facility. Further reduction in supplemental feeding will promote greater use and exploration of surrounding habitats. Use of this methodology is to be considered where individual cases warrant additional release scrutiny and release locations allow for its implementation.

5.10 Manatee Rescue, Rehabilitation, and Rescue Program Reporting/Requesting Requirements

The FWS uses an electronic database that requires program participants to report events within 24 hours of occurrence. Release requests should be received and requested electronically 30 days prior to the release. The Reporting Requirements are listed in Appendix C.

6. Guidelines for Release of Rehabilitated Sea Otters

6.1 Introduction

Sea otters (*Enhydra lutris*) are found in near shore waters of the North Pacific. Several subspecies and stocks have been identified in California, Washington, Canada, Alaska, and Russia. Sea otters may strand for a variety of reasons including trauma, disease, inability to forage, etc. Guidelines for release of rehabilitated sea otters are intended to address the welfare of these animals and any impacts the rehabilitated animals may have on wild otter populations.

Like many other marine mammals, stranded sea otters are often reported on beaches frequented by humans. In some cases, humans intercede and otherwise healthy pups are removed from the wild. The sea otter's small size makes it relatively easy to transport; however, there are currently few facilities capable of meeting the requirements for successful rehabilitation. These guidelines are intended to be used by facilities authorized to rehabilitate marine mammals under the MMPA and ESA, if applicable, and that are actively involved in the rehabilitation of sea otters for subsequent return to the wild. Questions regarding disposition and release approval of stranded sea otters must be directed to the appropriate FWS specialist as identified in Appendix H.

6.2 Developmental Assessment of Sea Otter Pups

Sea otter pups are generally dependent on their mothers for the first 6 to 12 months of life. Newborn pups are readily distinguished by their natal pelage, small size (generally less than 6 pounds), and inability to care for themselves. Pups prematurely separated from their mothers or found stranded on a beach shortly after weaning are generally less than 20 pounds in weight and typically lack foraging skills necessary for survival.

Successful rehabilitation of stranded sea otter pups for release to the wild requires a significant commitment of time and resources. Facilities that receive a stranded pup and are unable to rear the pup for possible release to the wild must immediately contact the FWS (as identified in Appendix H) to determine the disposition of the animal.

Rehabilitated sea otter pups that are at least 6 months of age, weigh at least 20 pounds, demonstrate adequate foraging, grooming, and social skills may be released to the wild. Rehabilitated sea otter pups must be monitored closely post-release to determine if their transition to the wild is successful (see post-release monitoring below).

6.3 Behavioral Assessment of Sea Otters

Certain behaviors are necessary for survival of rehabilitated sea otters. In addition, aberrant behaviors may preclude release to the wild. Rehabilitated sea otters may be released to the wild if the following behavioral criteria are met in the opinion of rehabilitation personnel familiar with normal sea otter behavior:

1. The rehabilitated sea otter must demonstrate the ability and willingness to forage and capture live prey. This includes the use of tools such as rocks used to pound shelled prey;
2. The rehabilitated sea otter must demonstrate basic survival skills and activities including active foraging, pelage management, diving, and resting;
3. The rehabilitated sea otter must demonstrate "normal" social skills including interest in other sea otters and should exhibit a wariness of humans and anthropogenic activities; and
4. The rehabilitated sea otter must not exhibit any aberrant behavior including behavior that may pose an unusual threat to human health and safety, wild sea otter populations, or other marine mammal populations.

6.4 Medical Assessment of Sea Otters

All rehabilitated sea otters must have a comprehensive, hands-on physical examination by a veterinarian experienced in sea otter medicine prior to release. The attending veterinarian must determine that the sea otter is likely to survive in the wild and must certify that:

1. Blood sampling performed within two weeks of the proposed release date, including a CBC and serum chemistry profile, falls within normal ranges for the species;
2. Medical diagnostic tests performed within two weeks of the proposed release date (e.g., cultures, biopsies, urinalysis, serology, virology, parasitology, immunology, etc) fall within normal parameters for the species or indicate a satisfactory state of health (reference CRC Handbook of Marine Mammal Medicine, 2nd Edition, Eds. Lesley A. Dierauf and Frances M.D. Gulland, CRC Press, 2001);
3. The rehabilitated sea otter should be free of drug residues (excluding sedatives used for transport or to facilitate physical examinations) and maintain good clinical health for two weeks prior to release or for a period that satisfies the attending veterinarian that the animal is healthy;

4. The rehabilitated sea otter must have functional vision and hearing, reasonable dental health, and good control and function of all appendages, at least to the degree that its survival in the wild is not compromised; and
5. The rehabilitated sea otter does not pose a known threat (e.g., transmission of pathogens, congenital defects) to the wild sea otter populations or human health and safety.

6.5 Release Categories for Sea Otters

Despite our best efforts to rehabilitate stranded sea otters, many animals die or can never be released to the wild. The following categories have been identified to help determine the status of sea otters being held for rehabilitation:

1. **RELEASABLE:** All rehabilitated sea otters meeting the medical and behavioral criteria listed above shall be considered releasable. Every effort should be made to release these animals to the wild as soon as they are deemed fit for release.

2. **CONDITIONALLY RELEASABLE:** All live-stranded sea otters admitted to a rehabilitation program shall be considered conditionally releasable pending the outcome of rehabilitative treatments and a full medical examination and behavioral evaluation.

3. **NON-RELEASABLE:** Sea otters that fail to meet one or more of the required criteria for release may be considered non-releasable. Rehabilitation facilities that believe that they may have an animal that is non-releasable must contact FWS (as identified in Appendix H) for concurrence on this finding and eventual disposition of the animal. Once FWS has determined that a sea otter is non-releasable, the holding facility may request a permit for permanent placement of the animal as long as the facility meets the requirements under Section 104(c)(7) of the MMPA for non-depleted species, or Section 104(c)(3) or (c)(4) and Section 10 of the ESA for depleted species.

6.6 Identification of Sea Otters Prior to Release

Rehabilitation facilities must affix colored and numbered "Temple" tags to the rear flippers of each sea otter prior to release. In addition, a PIT tag must be implanted in the right inguinal area of each otter. With an appropriate scientific research permit issued by FWS, the rehabilitation facility may implant an abdominal VHF transmitter to facilitate post-release tracking and monitoring of the animals. In all cases, the selection of identification numbers, tag colors/positions, and VHF

frequencies must be coordinated with other facilities and researchers in the area that sea otters are released.

6.7 Release Site Selection for Sea Otters

All rehabilitated sea otters should be released at or near the site where they originally stranded. In cases where this is not feasible, other release sites may be considered under existing Federal permits, letters of authorization, or through consultation with personnel from the FWS (as identified in Appendix H. In all cases, rehabilitated sea otters must be released into the same stock or population from which they originated.

6.8 Post-Release Monitoring of Sea Otters

All facilities releasing rehabilitated sea otters must establish a post-release monitoring program appropriate for each sea otter. The purpose of post-release monitoring is to determine the success of rehabilitation efforts and provide an opportunity for rescue of animals not able to make the transition back to the wild. Sea otters brought into rehabilitation as young pups must be tracked intensively immediately after release. Juveniles or sub-adults may require a focused effort while adult animals may be tracked opportunistically. Sea otters implanted with VHF transmitters should be tracked and monitored periodically for the duration of the battery life of the transmitters (i.e., 1-3 years).

7. Policies Regarding Release of Rehabilitated Polar Bears

Polar bears (*Ursus maritimus*) occur in most ice-covered seas of the Northern Hemisphere and are circumpolar in distribution, although not continuously. Off the Alaskan coast, they normally occur as far south as the Bering Strait. In the Beaufort and Chukchi seas, polar bears make extensive migrations between the United States and Canada or Russian territories, respectively. These movements are thought to be related to seasonal and annual changes in ice position and condition.

Polar bears normally found stranded in Alaska and subsequently recovered are generally orphaned cubs-of-the-year that are either incapable of fending for themselves or have not yet developed the skills to adequately survive in the wild. While these animals are temporarily placed in facilities for the purposes of rehabilitation and release, in the long term, it is highly unlikely that such cubs would be suitable for release back into the wild. Hunting and survival skills are learned during the 2 ½ year dependence on the mother, are not innate to polar bear cubs, and will not be developed in captivity.

For the reasons noted above, the FWS considers polar bear cubs to be poor candidates for release into the wild. If releases were to occur the predicted likely outcomes would be death by starvation or death caused by a predacious attack of another polar bear. Further, adoption by another family group is unlikely or impractical due to the low probability of encountering a receptive family group. Adoption of cubs into family groups has been attempted in Canada with very poor success and Canada is re-evaluating the feasibility of adoption as a management technique. The process of adoption requires substantial investment in searching out a family group in the wild, capture of the group (assisted by helicopter), and placement and follow-up on the fate of the adoptee. In Alaska, holding facilities co-located near release sites are not available. Therefore, we do not consider adoption to be a viable alternative and generally consider polar bear cubs to be non-releasable and more suitable for permanent placement in public display facilities. In these cases, the holding facility may request a permit for permanent placement of the animal as long as the facility meets the requirements under Section 104(c)(7) of the MMPA. However, we will continue to evaluate potential release into the wild or permanent placement in public display facilities on a case-by-case basis. Questions regarding disposition of stranded polar bears must be directed to the FWS as identified in Appendix H.

8. References (incomplete)

Ewald 1993 — Ewald, Paul. W. 1993. Host-parasite relations, vectors, and the evolution of disease severity. *Annual Review of Ecological Systems* 14: 465-485.

Geraci and Lounsbury 2005 — Geraci, J.R. and V.J. Lounsbury. 2005. Tagging and monitoring. Marine Mammals Ashore: A Field Guide for Strandings, Second Edition. National Aquarium in Baltimore, Baltimore, MD.

Gilmartin *et al.* 1993 — Gilmartin, W., E. Jacobson, W. Karesh, and M. Woodford. 1993. Working group report: Monitoring, investigation, and surveillance of disease in free-ranging wildlife. *Journal of Zoo and Wildlife Medicine* 23(3): 389-393.

Griffith *et al.* 1993 — Griffith, B., J.M. Scott, J.W. Carpenter, and C. Reed. 1993. Animal translocations and potential disease transmission. *Journal of Zoo and Wildlife Medicine* 24(3): 231-236

Spalding and Forrester 1993 — Spalding, M.G. and D.J. Forrester. 1993. Disease monitoring of free-ranging and release wildlife. *Journal of Zoo and Wildlife Medicine* 24(3):271-280.

St. Aubin and Dierauf 2001 — St. Aubin, D.J. and, L.A. Dierauf 2001. Stress and marine mammals. In CRC Handbook of Marine Mammal Medicine. Edited by L.A. Dierauf and F.M.D. Gulland, CRC Press, Boca Raton.

Stoddard *et al.* 2005 — Stoddard, R.A., F.M.D. Gulland, E.R. Atwill, J. Lawerence, S. Jang, and P.A. Conrad. 2005. Salmonella and campylobacter spp. in northern elephant seals. *Emerging Infectious Diseases* 11(12): 1967-1969.

Su *et al.* 2003 — Su, C., D. Evans. R.H. Cole, J.C. Kissinger, J.W Ajioka, and L.D. Sibley. 2003. Recent expansion of *toxoplasma* through enhanced oral transmission. *Science* 229: 414-416.

9. Glossary (incomplete)

Animal Care Supervisor - Key personnel who have substantial experience in marine mammal care and rehabilitation and will be responsible for supervising the overall rehabilitation efforts.

Attending Veterinarian- U.S. licensed veterinarian who has the responsibility to oversee veterinary medical aspects of live animal care and is also responsible for assuring the health of marine mammals released back to the wild following rehabilitation.

Authorized Representative- The individual with signatory authority for the stranding organization. This individual may be the signatory of the stranding agreement (e.g., Executive Director, President, CEO, etc.).

Cohorts- Belonging to same species.

Conspecifics- Belonging to same species.

Diseases of Public Health and Safety Concern-

Diseases of Zoonotic Concern-

Emerging Diseases- A newly recognized serious disease, the cause of which may or may not yet be established, that has the potential to spread within and between populations.

Epidemic- Affecting or tending to affect an atypically large number of individuals within a population, community, or region at the same time.

Epizootic- An outbreak of disease affecting many animals of one kind at the same time (similar to epidemic and term typically used in for animals)

Ethogram- A catalogue of the discrete behaviors typically employed by a species. These behaviors are sufficiently stereotyped that an observer may record the number of such acts, or the amount of time engaged in the behaviors in a period of time.

FWS (U.S. Fish and Wildlife Service)- The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

FWS Division of Management Authority- The Division of Management Authority implements domestic laws and international treaties to promote long term conservation of global fish and wildlife resources. In response to ever-increasing global pressures of wildlife trade and habitat loss on species worldwide, the office dedicates its efforts to conserving species at risk through trade and implementing policies that have a broad impact on conservation overall.

FWS Field Offices- The program operations of the FWS are performed at various types of field installations within FWS Regional Offices. The FWS Field Offices that are involved with health and stranding of marine mammals under the jurisdiction of the FWS are identified in Appendix H.

FWS Letter of Authorization- LOAs are issued by the FWS to authorize identified network individuals, facilities, and agencies to rescue, rehabilitate, and release species under their jurisdiction that are in need of assistance. Authorizations and requirements are specific to the species, the organization, and the activity being conducted.

Humane Care- Treatment of an animal in such a way to both minimize pain and suffering and (by providing for proper care and use of the animal) to maximize well being of the individual and the population into which it is to be released.

Human Interaction-

Letter of Concurrence from the NMFS RA-

Letter of Intent- A letter from a prospective permanent care facility requesting custody of a nonreleasable animal. This letter must be sent to the NMFS Office of Protected Species Permits, Conservation and Education Division (http://www.nmfs.noaa.gov/pr/permits/mmpa_permits.htm).

NMFS- National Marine Fisheries Service

NMFS Disposition Regulation and Policy-

NMFS National Stranding Coordinator- Develops national policy and guidance and oversees the national marine mammal stranding program (part of the NMFS Marine Mammal Health and Stranding Response Program)

NMFS Office Director- Director of the Office of Protected Resources, National Marine Fisheries Service

NMFS Regional Director- Regional Administrator for National Marine Fisheries Service Regional Office (regional specific)

NMFS Regional Stranding Coordinator- Coordinates administration of the stranding program within the region.

Official Marine Mammal Unusual Mortality Event - A stranding that is unexpected, involves a significant die-off of any marine mammal population, and demands immediate response.

Panmictic- Referring to unstructured populations (random mating).

Pre-Release Health Screen- Required to be completed prior to release of animals following rehabilitation in accordance with these guidelines

Release Determination Recommendation-

Release Plan-

Reasonable Social Groups-

Reportable Diseases-

Signatory- The individual who signed the official stranding agreement between the stranding organization and NMFS (Executive Director, President, CEO, etc.).

Stranding Agreement- The official written agreement between NMFS and a Stranding Network Participant as allowed under 112(c) of the Marine Mammal Protection Act.

Stranding Network Participant- Nongovernmental entity authorized by an agreement with NMFS (Section 112(c) of Marine Mammal Protection Act provides special exemption from the take prohibition) to respond to stranded marine mammals.

Sub Designee- An entity acting under the authority and oversight of the Stranding Network Participant.

Surveillance Program- Method of surveillance that generates a source of information on the animal health status of populations.

Working Group on Marine Mammal Unusual Mortality Events- Official panel of scientific experts established by the Marine Mammal Protection Act to who advise the NMFS and FWS regarding unusual mortality events.

109(h) Stranding Participant- State or local government official (Section 109h of Marine Mammal Protection Act provides special exemption from the take prohibition) who can respond to a stranded marine mammal for the protection or welfare of the marine mammal and protection of public health and welfare.

APPENDICES

APPENDIX A

Chronology of Development of the Release Criteria

1977 1st Workshop on Marine Mammal Strandings; sponsored by Marine Mammal Commission - Geraci, J.R. and D. J. St Aubin (eds.) 1979. Biology of marine mammals: Insights through strandings. Marine Mammal Comm. Rep. No. MMC-77/13. U.S. Dep. Commer., NTIS Doc. PB 293 890, 343 p. (August 1977 Athens, GA). One of the workshop objectives was to (4) provide recommendations regarding the handling, care, and disposition of live-stranded animals. A relevant finding that came from this workshop and was published in the proceedings included that if live-stranded animals are rescued and rehabilitated, decisions whether these animals should be released or maintained in captivity must take into account the possibility that the animals may have lost their natural capacity to locate and capture appropriate prey species, avoid predators, and interact normally with other members of the species.

1987 2nd Workshop on Marine Mammal Strandings; sponsored by the Marine Mammal Commission and the National Marine Fisheries Service - Reynolds, J.E. and D.K. Odell (eds.) 1991. Marine mammal strandings in the United States: proceedings of the second marine mammal stranding workshop; 3-5 December 1987, Miami, FL. Dep. Commer., NOAA Tech. Rep. NMFS 98. A recommendation that came from this workshop and was published in the proceedings was a call to establish guidelines and procedures for determining whether and how live-stranded animals should be marked and returned to the sea, transported to a holding facility, rehabilitated, and subsequently released or maintained in captivity, or euthanized to avoid further pain and suffering.

1991 Workshop on rescue, rehabilitation, and release of marine mammals; sponsored by the Marine Mammal Commission and the National Marine Fisheries Service - St. Aubin, D.J., J.R. Geraci, and V.J. Lounsbury (eds.) 1996. Rescue, rehabilitation, and release of marine mammals: an analysis of current views and practices. Proceedings of a workshop December 3-5, 1991, Des Plaines, IL. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR-8, 65 p. The participants were charged to address five critical questions as well as discuss other outstanding and relative issues. They made several recommendations to include the assembly a panel of medical and behavioral specialists to recommend criteria for assuring that released animals will prosper humanely and pose no undesirable risk to the wild population. The guidelines should include a recommended set of medical determinations by species, with appropriate reference ranges for blood constituents and other clinical measures, morphometric limits (weight at length and age), a checklist for physical examination, and a means of scoring behavioral attributes that would influence survival in the wild. Minimum values should be set for each of these criteria, such that no animal failing any measure would be released. The panel would incorporate the recommendations of the group considering the risks associated with specific pathogens, particularly for "carriers" that are otherwise normal and healthy. The participants also made recommendations on disease transmission and monitoring.

1992 Amendment of MMPA Title IV - 16 U.S.C. 1421a, Sec. 402. (a) DETERMINATION FOR RELEASE. The Secretary shall, in consultation with the Secretary of the Interior, the Marine Mammal Commission, and individuals with knowledge and experience in marine science, marine mammal science, marine mammal veterinary and husbandry practices, and marine conservation, including stranding network participants, develop objective criteria, after an opportunity for public review and comment, to provide guidance for determining at what point a rehabilitated marine mammal is releasable to the wild. Sec 402 (b) COLLECTION - The Secretary shall, in consultation with the Secretary of the Interior, collect and update, periodically, existing information on – (1) procedures and practices for – (A) rescuing and rehabilitating stranded marine mammals, including criteria used by stranding network participants, on a species-by-species basis, for determining at what point a marine mammal undergoing rescue and rehabilitation is returnable to the wild.

1994 Expert Panel on Behavior, Life History, and Natural History Criteria for Release of Rehabilitated Marine Mammals

Acting on the findings of the 1991 workshop entitled "Workshop on rescue, rehabilitation, and release of marine mammal," NMFS consulted with the Working Group on Unusual Marine Mammal Mortality Events to develop draft criteria. An expert panel of 12 biologists, veterinarians, and animal care professionals was queried by Dr. Randall Wells of the Chicago Zoological Society in August 1994 to address 12 specific questions on marine mammal behavior, life history, and natural history relative to release. Dr. Wells submitted a report summarizing the panel's responses to NMFS in November 1994, and reported the findings at the annual meeting of the Marine Mammal Commission in November 1994. This report included recommendations for release criteria, preparations for release, release, follow-up monitoring, and dissemination of findings. These recommendations were included in the draft document.

1994 Model for Marine Mammal Medical Criteria for Introduction to the Wild

In 1994, Dr. Gregory Bossart of the University of Miami School of Medicine established a committee 7 nationally-recognized marine mammal veterinarians to formulate a draft of medical criteria that would act as guidelines for the re-introduction of wild marine mammal species. Marine mammal species included in this draft were cetaceans, pinnipeds, sea otters and manatees. This draft was submitted to NMFS and became the working template for the present NMFS draft release medical guidelines.

1996 Final Rule NMFS 50 CFR Sec. 216.27(a) require release of a marine mammal held for rehabilitation within six months of capture unless "…the attending veterinarian determines that: (i) The marine mammal might adversely affect marine mammals in the wild (ii) Release of the marine mammal to the wild will not likely be successful given the physical condition and behavior of the marine mammal; or (iii) More time is needed to determine whether the release of the marine mammal in the wild will likely be successful…"

1998 FR Notice Draft NOAA Tech Memo - NMFS and FWS Release for Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria Vol.63, No. 67/ Wed, April 8, 1998 - A notice of availability and request for comments was published in the Federal Register.

2001 April 24, 2001 Summary of Public Comments Draft NOAA Tech Memo - NMFS and FWS Release for Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria - contractor Dr. Rose Borkowski assimilates public comments. NMFS received official responses from 20 individuals or organizations. There were several outstanding issues that required more development and clarification. NMFS decided to convene special working groups to address the comments.

2001 Working groups on pinnipeds and cetaceans – three working groups were assembled by NMFS and FWS to address outstanding issues noted during the public comments period. Their recommendations have been incorporated in the current document.

APPENDIX B

Key Legislation: Marine Mammal Rescue, Rehabilitation, and Release to the the Wild

- **Marine Mammal Protection Act (MMPA) of 1972**
  - Title I. - Conservation and Protection of Marine Mammals
    - Section 109 (h) - Taking of Marine Mammals as Part of Official Duties
    - Section 112 (c) - Contracts, Leases, and Cooperative Agreements
  - Title IV. - Marine Mammal Health and Stranding Response
    - Sec. 402 (a) - Determination for Release
      (b) (1) – Procedures and Practices

- **Endangered Species Act of 1973, as amended**

- **Code of Federal Regulations, Title 50, part 216 – Regulations governing the taking and importing of marine mammals**
  - Section 22 – Taking by the State or Local Government Officials
  - Section 27 - Release, Non- Releasability, and Disposition Under Special Exception Permits for Rehabilitated Marine Mammals
    - (a) Release Requirements, (b) Non-releasability and postponed determinations, (c) Disposition for special exceptions purposes, (d) Reporting
  - Subpart D – Special Exceptions for Threatened and Endangered Marine Mammals
    - Marine Mammal Health and Stranding Response Program Enhancement Permit

- **Code of Federal Regulations, Title 50, part 18 – Marine Mammals**
  - Section 22 – Taking by Federal, State, and Local Government Officials
  - Section 31 – Scientific Research Permits and Public Display Permits

- **Code of Federal Regulations, Title 50, part 17 – Endangered and Threatened Wildlife and Plants**

  - Section 21 (c)(3) – Endangered Wildlife Prohibitions – Take
  - Section 31 (b) – Threatened Wildlife Prohibitions
  - Section 22 – Endangered Wildlife Permits for Scientific Purposes, Enhancement of Propagation of Survival, or for Incidental Taking
  - Section 32 – Threatened Wildlife Permits - General

APPENDIX C

REQUIRED REPORTING AND DOCUMENTATION

Marine Mammal Stranding Report - Level A Data (NOAA 89-864, OMB #0648-0178)

Marine Mammal Rehabilitation Disposition Report (NOAA 89-878, OMB #0648-0178)

Manatee Rescue, Rehabilitation and Release Report

MARINE MAMMAL STRANDING REPORT - LEVEL A DATA

FIELD #: _____ **NMFS REGIONAL #:** _____ (NMFS USE) **NATIONAL DATABASE#:** _____ (NMFS USE)

COMMON NAME: _____ **GENUS:** _____ **SPECIES:** _____

EXAMINER Letterholder: _____

Name: _____ Affiliation: _____

Address: _____ Phone: _____

LOCATION OF INITIAL OBSERVATION
State:_____ County:_____
City: _____
Body of Water: _____
Locality Details: _____
_____
_____
Latitude: _____ N ☐ actual
Longitude: _____ W ☐ estimated
How lat/long determined (Check ONE):
☐ GPS
☐ Map
☐ Internet/Software

OCCURRENCE DETAILS ☐ Restrand GE#: _____ (NMFS USE)

Group Event: ☐ YES ☐ NO
If Yes, Type: ☐ Cow/Calf Pair ☐ Mass Stranding # Animals: _____ ☐ actual ☐ estimated

Findings of Human Interaction: ☐ YES ☐ NO ☐ Could not Be Determined (CBD)
If Yes, Check one or more: ☐ 1. Boat Collision ☐ 2. Shot ☐ 3. Fishery Interaction
☐ 4. Other Human Interaction: _____
Describe How Determined:_____
Gear Collected? ☐ YES ☐ NO Gear Disposition: _____

Other Findings upon Level A: ☐ YES ☐ NO ☐ CBD
If Yes, Check one or more: ☐ 1. Illness ☐ 2. Injury
☐ 3. Other Findings: _____
Describe How Determined:_____

INITIAL OBSERVATION
Date: Year: _____ Month: _____ Day: _____
First Observed: ☐ Beach or Land ☐ Floating ☐ Swimming

CONDITION AT INITIAL OBSERVATION (Check ONE)
☐ 1. Alive
☐ 2. Fresh dead
☐ 3. Moderate decomposition
☐ 4. Advanced decomposition
☐ 5. Mummified/Skeletal
☐ 6. Unknown

LEVEL A EXAMINATION ☐ Not Able to Examine
Date: Year: _____ Month: _____ Day: _____

CONDITION AT EXAMINATION (Check ONE)
☐ 1. Alive
☐ 2. Fresh dead
☐ 3. Moderate decomposition
☐ 4. Advanced decomposition
☐ 5. Mummified/Skeletal

INITIAL LIVE ANIMAL DISPOSITION (Check one or more)
☐ 1. Left at Site
☐ 2. Immediate Release at Site
☐ 3. Relocated
☐ 4. Disentangled
☐ 5. Died at Site
☐ 6. Euthanized at Site
☐ 7. Transferred to Rehabilitiation:
Date: _____ Facility:_____
_____
☐ 8. Died during Transport
☐ 9. Euthanized during Transport
☐ 10. Other: _____

CONDITION/DETERMINATION (Check one or more)
☐ 1. Sick ☐ 4. Deemed Healthy 7. Location Hazardous:
☐ 2. Injured ☐ 5. Abandoned/Orphaned ☐ a. To animal
☐ 3. Out of Habitat ☐ 6. Inaccessible ☐ b. To public
☐ 8. Unknown/CBD ☐ 9. Other: _____
Comments:_____
_____

MORPHOLOGICAL DATA

SEX (Check ONE)
☐ 1. Male
☐ 2. Female
☐ 3. Unknown

AGE CLASS (Check ONE)
☐ 1. Adult
☐ 2. Subadult
☐ 3. Yearling
☐ 4. Pup/Calf
☐ 5. Unknown

Straight Length:_____ ☐ cm ☐ in ☐ actual ☐ estimated
Weight:_____ ☐ kg ☐ lb ☐ actual ☐ estimated

PHOTOS/VIDEOS TAKEN: ☐ YES ☐ NO
Photo/Video Disposition:_____
_____

TAG DATA
Tags Were:
Present at Time of Stranding (pre-existing): ☐ YES ☐ NO
Applied during Stranding Response: ☐ YES ☐ NO

ID #	Color	Type	Placement * (Circle ONE)	Applied	Present
_____			D DF L LF LR RF RR	☐	☐
_____			D DF L LF LR RF RR	☐	☐
_____			D DF L LF LR RF RR	☐	☐

* D = Dorsal; DF= Dorsal Fin; L = Lateral Body
LF=Left Front; LR = Left Rear; RF = Right Front; RR = Right Rear

WHOLE CARCASS STATUS (Check one or more)
☐ 1. Left at site
☐ 2. Buried
☐ 3. Rendered
☐ 4. Towed: Lat _____ Long _____
☐ 5. Sunk: Lat _____ Long _____
☐ 6. Frozen for Later Examination
☐ 7. Landfill
☐ 8. Unknown
☐ 9. Other:____

SPECIMEN DISPOSITION (Check one or more)
☐ 1. Scientific collection
☐ 2. Educational collection
☐ 3. Other: _____
Comments:_____
_____

NECROPSIED ☐ YES ☐ NO Date:_____
NECROPSIED BY: _____

PLEASE USE THE BACK SIDE OF THIS FORM FOR ADDITIONAL REMARKS

ADDITIONAL REMARKS

ADDITIONAL IDENTIFIER: _____ (If animal is restranded, please indicate any previous field numbers here)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

DISCLAIMER

THESE DATA SHOULD NOT BE USED OUT OF CONTEXT OR WITHOUT VERIFICATION. THIS SHOULD BE STRICTLY ENFORCED WHEN REPORTING SIGNS OF HUMAN INTERACTION DATA.

DATA ACCESS FOR LEVEL A DATA

UPON WRITTEN REQUEST, CERTAIN FIELDS OF THE LEVEL A DATA SHEET WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR CREDIT THE STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE. THE NATIONAL MARINE FISHERIES SERVICE WILL NOTIFY THE CONTRIBUTING STRANDING NETWORK MEMBERS THAT THESE DATA HAVE BEEN REQUESTED AND THE INTENT OF USE. ALL OTHER DATA WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR OBTAIN PERMISSION FROM THE CONTRIBUTING STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE.

PAPERWORK REDUCTION ACT INFORMATION:

PUBLIC REPORTING BURDEN FOR THE COLLECTION OF INFORMATION IS ESTIMATED TO AVERAGE 30 MINUTES PER RESPONSE, INCLUDING THE TIME FOR REVIEWING INSTRUCTIONS, SEARCHING EXISTING DATA SOURCES, GATHERING AND MAINTAINING THE DATA NEEDED, AND COMPLETING AND REVIEWING THE COLLECTION OF INFORMATION. SEND COMMENTS REGARDING THIS BURDEN ESTIMATE OR ANY OTHER ASPECT OF THE COLLECTION OF INFORMATION, INCLUDING SUGGESTIONS FOR REDUCING THE BURDEN TO: CHIEF, MARINE MAMMAL CONSERVATION DIVISION, OFFICE OF PROTECTED RESOURCES, NOAA FISHERIES, 1315 EAST-WEST HIGHWAY, SILVER SPRING, MARYLAND 20910. NOT WITHSTANDING ANY OTHER PROVISION OF THE LAW, NO PERSON IS REQUIRED TO RESPOND TO, NOR SHALL ANY PERSON BE SUBJECTED TO A PENALTY FOR FAILURE TO COMPLY WITH, A COLLECTION OF INFORMATION SUBJECT TO THE REQUIREMENTS OF THE PAPERWORK REDUCTION ACT, UNLESS THE COLLECTION OF INFORMATION DISPLAYS A CURRENTLY VALID OFFICE OF MANAGEMENT AND BUDGET (OMB) CONTROL NUMBER.

NOAA Form 89-864 (rev.2004)
OMB No. 0648-0178; Expires August 31, 2007

MARINE MAMMAL REHABILITATION DISPOSITION REPORT

FIELD #: _____ **NMFS REGIONAL #:** _____ (NMFS USE) **NATIONAL DATABASE#:** _____ (NMFS USE)

COMMON NAME: _____ **GENUS:** _____ **SPECIES:** _____

REHABILITATION FACILITY: _____

Address: _____ **Phone:** _____

STRANDING/BIRTH HISTORY ☐ Restrand
Date: Year: _____ Month:_____ Day: _____
Location: State: _____ County: _____ City: _____
Sex: ☐ 1. Male ☐ 2. Female
Was this animal born to a female in rehab?
☐ 1. NO ☐ 2. YES; Female's ID #: _____

ADMISSION INTO REHABILITATION
Date: Year: _____ Month:_____ Day: _____
Received From: _____
Straight Length:_____ ☐ cm ☐ in ☐ actual ☐ estimate
Weight:_____ ☐ kg ☐ lb ☐ actual ☐ estimate

MEDICAL RECORD AND SPECIMEN TRACKING

Samples Collected: ☐ 1. YES ☐ 2. NO

Pre-Release Health Screen Date:
Year:_____ Month:_____ Day:_____

Specimen Tracking: ☐ 1. Scientific collection
☐ 2. Education collection
☐ 3. Other: _____

Sample or Specimen Type/Diagnostic Test/Disposition:
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

DISPOSITION

Animal Morphological Data at Time of Disposition:
Straight Length:_____ ☐ cm ☐ in ☐ actual ☐ estimate
Weight:_____ ☐ kg ☐ lb ☐ actual ☐ estimate

Age Class at Time of Disposition:
☐ 1. Adult ☐ 3.Yearling ☐ 5. Unknown
☐ 2. Subadult ☐ 4. Pup/Calf

Animal Disposition (Check one or more)

☐ **1. Transferred to Another Rehabilitation Facility**
Year: _____ Month:_____ Day: _____
Facility:_____
Address: _____
Comments:_____
_____

☐ **2. Deemed Nonreleaseable/**
Transferred to Permanent Captivity
Year: _____ Month:_____ Day: _____
Facility:_____
Comments:_____
I.D.#: _____ (NMFS USE)

☐ **3. Died** ☐ Euthanized
Year: _____ Month:_____ Day: _____
Location: _____
Cause of Death: _____
Comments: _____
_____
Necropsied: ☐ 1. YES ☐ 2. NO Date: _____
Necropsied by:_____

☐ **4. Released**
Year:_____ Month:_____ Day:_____
Last Day of Antibiotics: Year:_____ Month:_____ Day:_____
State: _____ County:_____ City:_____
Locality Details: _____
_____
Latitude:_____ N
Longitude:_____W
Released: ☐ Singly ☐ With Other Rehabilitated Animals

TAG DATA (*D=Dorsal; LF=Left Front; LR=Left Rear; RF=Right Front; RR=Right Rear)
Tags were:
Pre-existing (Present at Time of Stranding): ☐ YES ☐ NO
Applied During Stranding Response: ☐ YES ☐ NO

I.D.#	Color	Type	Placement (Circle ONE)	Applied	Present
_____			D DF L LF LR RF RR	☐	☐
_____			D DF L LF LR RF RR	☐	☐
_____			D DF L LF LR RF RR	☐	

NOAA Form 89-878 (rev. 2004)
OMB No. 0648-0178, Expires August 31, 2007

PLEASE USE BACK SIDE OF THIS FORM FOR ADDITIONAL REMARKS

ADDITIONAL REMARKS

ADDITIONAL IDENTIFIER: _____

DISCLAIMER

THESE DATA SHOULD NOT BE USED OUT OF CONTEXT OR WITHOUT VERIFICATION. THIS SHOULD BE STRICTLY ENFORCED WHEN REPORTING SIGNS OF HUMAN INTERACTION DATA.

DATA ACCESS

UPON WRITTEN REQUEST, CERTAIN FIELDS OF THE MARINE MAMMAL REHABILITATION DISPOSITION REPORT WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR CREDIT THE STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE. THE NATIONAL MARINE FISHERIES SERVICE WILL NOTIFY THE CONTRIBUTING STRANDING NETWORK MEMBERS THAT THESE DATA HAVE BEEN REQUESTED AND THE INTENT OF USE. ALL OTHER DATA WILL BE RELEASED TO THE REQUESTOR PROVIDED THAT THE REQUESTOR OBTAIN PERMISSION FROM THE CONTRIBUTING STRANDING NETWORK AND THE NATIONAL MARINE FISHERIES SERVICE.

PAPERWORK REDUCTION ACT INFORMATION:

PUBLIC REPORTING BURDEN FOR THE COLLECTION OF INFORMATION IS ESTIMATED TO AVERAGE 30 MINUTES PER RESPONSE, INCLUDING THE TIME FOR REVIEWING INSTRUCTIONS, SEARCHING EXISTING DATA SOURCES, GATHERING AND MAINTAINING THE DATA NEEDED, AND COMPLETING AND REVIEWING THE COLLECTION OF INFORMATION. SEND COMMENTS REGARDING THIS BURDEN ESTIMATE OR ANY OTHER ASPECT OF THE COLLECTION OF INFORMATION, INCLUDING SUGGESTIONS FOR REDUCING THE BURDEN TO: CHIEF, MARINE MAMMAL CONSERVATION DIVISION, OFFICE OF PROTECTED RESOURCES, NOAA FISHERIES, 1315 EAST-WEST HIGHWAY, SILVER SPRING, MARYLAND 20910. NOT WITHSTANDING ANY OTHER PROVISION OF THE LAW, NO PERSON IS REQUIRED TO RESPOND TO, NOR SHALL ANY PERSON BE SUBJECTED TO A PENALTY FOR FAILURE TO COMPLY WITH, A COLLECTION OF INFORMATION SUBJECT TO THE REQUIREMENTS OF THE PAPERWORK REDUCTION ACT, UNLESS THE COLLECTION OF INFORMATION DISPLAYS A CURRENTLY VALID OFFICE OF MANAGEMENT AND BUDGET (OMB) CONTROL NUMBER.

Manatee Rescue, Rehabilitation and Release Report

(see below)

Rescue: Reporting Requirements

Name of Reporting Organization
Date Report Filed
Date Event Occurred
Type of Rescue
Identification
- Name (if any)
- Studbook Number
- Identification Numbers (in the case of multiple numbers, all numbers should be entered)

PIT Tag
- Right (identifying number)
- Left (identifying number)

Freeze Brand (yes/no)
- Number

Sex
Weight (lbs/kg)
- Actual/estimated

Length (cm/inches)
- Actual/estimated

Ultrasound (yes/no)
County
Nearest Town/Community
Waterbody
Latitude/Longitude
Probable Cause for Rescue
- (Drop down list includes various common causes; additional information is required for entangled animals.)

Health Status at Time of Report
Rehabilitation Facility (if any)
Veterinarian
Facility Supervisor
Rescue Participants
Name of Reporter
Telephone Number

Release: Request Information

Name of Requesting Organization
Date Request Filed
Date Event Proposed
Identification
- Name (if any)
- Studbook Number
- Identification Numbers (in the case of multiple numbers, all numbers should be entered)

PIT Tag
- Right (identifying number)
- Left (identifying number)

Freeze Brand (yes/no)
- Number

Other Tags
Name of Tracker/Affiliation
Tracker Telephone Number
Sex
Weight (lbs/kg)
- Actual
- Date Taken

Length (cm/inches)
- Actual
- Date Taken

Peduncle Girth (cm)
- Date Taken

Ultrasound (yes/no)
County Where Rescued
Nearest Town/Community
Waterbody
Latitude/Longitude
Date of Rescue
Weight at Time of Rescue
Length at Time of Rescue
Proposed Date of Release
Actual Date of Release
County Where Released
Nearest Town/Community Where Released
Waterbody Where Released
Veterinarian
Facility Supervisor
Release Participants
Name of Reporter
Telephone Number

Transfer: Request Information
Name of Requesting Organization
Date Request Filed
Date Event Proposed
Identification
- Name (if any)
- Studbook Number
- Identification Numbers (in the case of multiple numbers, all numbers should be entered)

Sex
Weight (lbs/kg)

- Actual
- Date Taken

Length (cm/inches)
- Actual
- Date Taken

Date Brought Into Captivity
Date of Proposed Transfer
Actual Date of Transfer
Veterinarian
Facility Supervisor
Release Participants
Name of Reporter
Telephone Number

Death: Reporting Requirements
Name of Reporting Organization
Date Report Filed
Date Died
Identification
- Name (if any)
- Studbook Number
- Identification Numbers (in the case of multiple numbers, all numbers should be entered)

Sex
Date Rescued
Probable Cause of Death (or Euthanised)
Disposition of Carcass
Veterinarian
Facility Supervisor
Name of Reporter
Telephone Number

Captive Birth: Reporting Requirements
Name of Reporting Organization
Date Report Filed
Date Born
Identification
- Name (if any)
- Studbook Number
- Identification Numbers (in the case of multiple numbers, all numbers should be entered)

Sex
Weight (lbs/kg)
- Actual
- Date Taken

Length (cm/inches)
- Actual
- Date Taken

Present Health Status
Origin of Dam
Circumstances of Birth
Dam Identification
    Name (if any)
    Studbook Number (if any)
    Identification Numbers (in the case of multiple numbers, all numbers should be entered)
Sire Identification
    Name (if any)
    Studbook Number (if any)
    Identification Numbers (in the case of multiple numbers, all numbers should be entered)

APPENDIX D

DISEASES OF CURRENT CONCERN FOR CETACEANS

The diseases listed below are of current concern for cetaceans. Numerous additional diseases exist among cetaceans and should also be considered during diagnostic work-ups. Testing for specific diseases of cetaceans is not required at this time. However, thorough diagnostic testing of rehabilitated cetaceans is strongly recommended as warranted by their history and clinical signs of illness. Clinicians are particularly encouraged to test cetaceans for brucellosis and morbillivirus. NMFS may require disease testing for specific individuals prior to release if concern for the health of wild marine mammals exists or concern exists regarding the animal's likelihood of survival in the wild. Contact the NMFS coordinator for information regarding the appropriate diagnostic laboratories.

A good resource to obtain updated literature on diseases of marine mammals is through the Animal Welfare Information Center (http://awic.nal.usda.gov), part of the United States Department of Agriculture National Agriculture Library.

BACTERIAL DISEASES	COMMENTS
Brucellosis	Serologic evidence or isolation of this bacterium has been made several species of cetaceans as well as those in captivity. Different serovar than terrestrial species. Current limited understanding of pathophysiology and significance. May cause reproductive illness, isolated from an aborted captive bottlenose dolphin fetus. Zoonotic. Human case followed handling of marine mammal tissues. (Dunn et.al., 2001; Brew et al., 1999; Clavareau, 1998; Miller, et.al., 1999).
Erysipelothrix	Has caused acute septicemia or generalized dermatitis in several cetacean species including wild orca. Believed to be acquired from ingestion of fish contaminated with the organism. Zoonotic, causes dermatitis, arthritis, pneumonia, or septicemia in man. (Dunn et.al., 2001; Young et.al., 1997; Cowan et.al., 2001.)
Respiratory Illness	Respiratory illness is common among both captive and wild cetaceans. Such disease often involves bacterial pathogens and is frequently fatal. *Staphylococcus areus* and *Pseudomonas aeruginosa* as well as Gram negative bacterial organisms are often involved. Pulmonary parasitism may contribute to development of bacterial respiratory disease. (Dunn et.al., 2001; Howard et.al.1983; Kinoshita et al. 1994).

VIRAL DISEASES

Morbillivirus	Has caused major epizootics with high mortalities in bottlenose dolphins, common dolphins, and striped dolphins. Has also infected other cetacean species. Testing for cetacean morbillivirus is strongly recommended for all cetaceans in rehabilitation centers. (Kennedy-Stoskopf, 2001; Kennedy, 1998; Duigan, 1999).
Poxvirus	Common infection of captive and wild cetaceans characterized by skin lesions. Not known to cause systemic infection. Appearance of lesions may correlate with weaning, poor general health, and/or compromised environmental conditions. (Kennedy-Stoskopf, 2001; Van Bressem and Van Waerebeek ,1996; Geraci et.al. 1979).
Papillomavirus	Has caused lesions of the skin, genital area, stomach ,and tongue of several cetacean species. Sometimes referred to as benign tumors. Genital lesions may be transmitted venereally and may interfere with copulation. (Kennedy-Stoskopf, 2001; Deguise et.al., 1994; Van Bressem et al., 1996).

PARASITIC DISEASES

Toxoplasmosis gondii	Protozoan parasite which has caused serious disease and death in cetacean species. Source of infection not clearly defined. (Dailey, 2001; Migaki, 1990.)
Anasakid nematodes	Family of nematodes which parasitize the cetacean gastrointestinal tract. Infections may cause gastritis and ulceration. (Dailey, 2001; Smith, 1989).
Hepatic trematodes	Heavy infection may cause serious liver disease associated with weight loss, increased susceptibility to bacterial infection. May result in death. (Dailey, 2001; Zam et.al, 1971.)
Nasitrema sp.	Nematode parasite which infects nervous systems of cetaceans. May be a significant cause of stranding in odontocetes. Causes eighth cranial neuropathy, encephalitis, and cerebral necrosis. (Dailey, 2001).
Lungworms	Includes nematode genera such as *Halocercus* which may cause severe respiratory disease and may cause death, depending on severity of infection. (Dailey,2001; Measures, 2001; Moser and Rhinehart, 1993).

NONINFECTIOUS DISEASES

Anthropogenic trauma Entanglement in debris such as fishing nets and lines, collisions with boats, and underwater detonation of explosives may injure or kill cetaceans. The number of animals affected relative to total population may cause particular concern for some species (i.e. right whales and boat collisions, small odontocetes and fisheries by-catch). (Gulland et al. 2001, Kraus, 1990, Perrin et.al., 1994).

Biotoxins Toxins naturally produced from dinoflagellates and diatoms have been associated with illness and death in cetaceans. Brevetoxin was a possible cause of bottlenose dolphin mortality in 1946-47 and 1987-1988. Humpback whale mortality was associated with consumption of mackerel containing saxitoxin. (Gunter et.al., 1948; Geraci, et.al., 1989).

Neoplasia Belugas of the St. Lawrence River have had a concerning rate of neoplasia. Other cases of neoplasia have been reported in several species. Etiology of cetacean tumors is not known. Interplay of physical, chemical, and/or infectious agents with host factors such as age, sex, and genetic make-up likely involved with tumorigenesis. (Gulland et.al., 2001; De Guise et.al., 1994).

APPENDIX E

DISEASES OF CURRENT CONCERN FOR PINNIPEDS

The diseases listed below are of current concern for pinnipeds. Numerous additional diseases exist among pinnipeds and should also be considered during diagnostic work-ups. Testing for specific diseases of pinnipeds is not required at this time. However, thorough diagnostic testing is strongly recommended for pinnipeds as warranted by their history and clinical signs of illness. NMFS, or in the case of walrus the FWS, may require disease testing for specific individuals prior to release if concern for the health of wild marine mammals exists or if there is significant concern regarding the animal's likelihood of survival in the wild. Contact the NMFS coordinator, or the FWS in the case of walrus, for information regarding appropriate diagnostic laboratories.

A good resource to obtain updated literature on marine mammal diseases is through the Animal Welfare Information Center (http://awic.nal.usda.gov), part of the United States Department of Agriculture National Agriculture Library.

BACTERIAL DISEASES	**COMMENTS**
Brucellosis	Serologic evidence or isolation of this organism has been obtained for phocids and walrus. Different serovar than terrestrial species. Current limited understanding of pathophysiology and significance. May cause reproductive illness. Zoonotic. Human case followed handling of marine mammal tissues. (Dunn et.al., 2001; Garner et. al., 1997).
Leptospirosis	Severe systemic illness that frequently affects California sea lions and northern fur seals. Infection may be obtained at sea, in rookeries, or via contact with fresh water sources contaminated by infected terrestrial mammals via contamination of water sources. May be treated with antibiotics. Zoonotic. (Dunn et.al., 2001; Schoenwald et. al., 1971; Gulland et.al., 1996, Stamper et al., 1998).
Mycobacterial Disease	Illness characterized primarily by skin or pulmonary lesions diagnosed in several pinniped species. Caused by organisms which include those responsible for tuberculosis. Recently diagnosed in wild subantarctic fur seals. Zoonotic. (Dunn et. al., 2001, Cousins et.al., 1993, Bastida et.al., 1999).

VIRAL DISEASES

Adenovirus Caused fatal hepatitis in California sea lions. Source of virus unknown, but may be related to canine adenovirus. (Kennedy-Stoskopf, 2001; Dierauf et.al., 1981).

Calicivirus Several pinniped species susceptible. Causes skin lesions in California sea lions. Numerous animal species may be infected by calicivirus including fish, reptiles, mammals. Transmission from marine mammals to terrestrial animals and vice versa possible. Unconfirmed as zoonotic but possibility exists. (Kennedy-Stoskopf, 2001; Smith and Boyt, 1990; Gage, et.al., 1990; Barlough et.al., 1998).

Herpes Virus May infect several pinniped species including walrus. Causes fatal disease in neonatal Pacific harbor seals characterized by severe adrenal gland and liver pathology. (Kennedy-Stoskopf, 2001; Gulland et.al., 1997).

Influenza Caused high mortality among Atlantic harbor seals. Endemic among this population. Changes in virulence may cause disease outbreaks. Related to avian influenza. Zoonotic. Has caused severe conjunctivitis among humans. (Kennedy-Stoskopf, 2001; Webster et.al., 1981).

Morbillivirus Endemic in several phocid species. May cause high morbidity and mortality. Seals have been infected by the canine morbillivirus as well as a morbillivirus specific for phocids. (Kennedy-Stoskopf, 2001; Kennedy, 1998; Duignan, 1999).

Pox Causes skin lesions in several pinniped species. Outbreaks may be associated with stress as with postweanling animals recently introduced to captivity. Zoonotic. May cause skin lesions on humans. (Kennedy-Stoskopf, 2001; Hicks and Worthy, 1987).

PARASITIC DISEASES

Helminths A variety of nematode, trematode, and cestode parasites infect pinnipeds, causing varying degrees of clinical disease. For instance, the nematode *Contracaecum corderoi* has caused gastrointestinal perforations and fatal peritonitis in California sea lions. (Dailey, 2001; Fletcher, 1998.)

Cryptosporidiosis	Protozoan gastrointestinal parasite recently isolated from several pinniped species. Limited current knowledge of pathophysiology in pinnipeds. Zoonotic. (Miller, et.al., 2001; Deng, et.al., 2000).
Giardia	Protozoan gastrointestinal parasite identified in phocids and the California sea lion. Incidence and severity of clinical illness not fully understood. Zoonotic. (Miller, et.al., 2001; Measures and Olson, 1999.)
Sarcocystis	Protozoan parasite that may cause severe neurologic disease and death. Important cause of mortality among Pacific harbor seals. Organism may be found in waste from humans or their activities (Miller, et. al., 2001; LaPointe, et.al., 1998).

NONINFECTIOUS DISEASES

Anthropogenic trauma	Gunshot, underwater detonation of explosives, and entanglement in debris such as fishing nets and lines cause morbidity and mortality among pinnipeds. (Gulland, et.al., 2001).
Biotoxins	Harmful algal blooms producing domoic acid have caused significant sea lion mortality. (Gulland, 2000; Schoelin, et.al. 2000).
Neoplasia	Carcinoma, an aggressive tumor often associated with the urogenital system is common in California sea lions. May be linked to viral infections and/or exposure to environmental contaminants. (Buckles, et.al., 1996, Gulland, et.al., 1996, Lipscomb, et.al., 2000).

APPENDIX F

DISEASES AND ISSUES OF CURRENT CONCERN FOR MANATEES

The diseases and issues listed below are of current concern for manatees. Other diseases exist among manatees and should also be considered during diagnostic work-ups. Testing for specific diseases of manatees is not required at this time. However, thorough diagnostic testing of rehabilitated manatees is strongly recommended as warranted by their history and clinical signs of illness. FWS may require disease testing for specific individuals prior to release if concern for the health of wild marine mammals exists or concern exists regarding the animal's likelihood of survival in the wild. Contact the FWS stranding support staff for information regarding the appropriate diagnostic laboratories.

A good resource to obtain updated literature on marine mammal diseases is through the Animal Welfare Information Center (http://awic.nal.usda.gov), part of the United States Department of Agriculture National Agriculture Library.

BACTERIAL DISEASES	**COMMENTS**
Brucellosis.	Antibodies to *Brucella* spp. have been reported in Florida manatees, although lesions consistent with brucellosis have not been observed (Geraci et al., 1999).
Other.	Systemic mycobacteriosis due to *Mycobacterium marinum* and *M. chelonei (Boever et al., 1976),* and mycotic dermatitis (Dilbone, 1965; Tabuchi et al., 1974), have been reported in adult manatees.
VIRAL DISEASES	
Cutaneous papillomatosis.	Recently described in a captive population of manatees. PCR analyses has demonstrated a virus consistent with Type I bovine papilloma virus. (Bossart et al., 1998a)
Morbillivirus.	Serologic evidence of morbillivirus has been demonstrated in manatees, although signs of clinical disease or active infection has not been observed (Duignan et al., 1995).
Other.	Pseudorabies, San Miguel sea lion virus Type I, and eastern, western, and Venezuelan equine encephalitis have been reported in Florida manatees (Geraci et al., 1999). While these are serologically evident, no signs of clinical disease or active infection have been observed.
PARASITIC DISEASES	

Meningoencephalitis.	*Toxoplasma gondii* has caused the death(s) of Florida manatees (Buerguelt and Bonde, 1983).
Other.	Endoparasites are commonly found in manatees; however, pathological signs or clinical disease are rare (Bossart 2001).

NONINFECTIOUS DISEASES

Anthropogenic trauma.	Collisions with boats, entanglement in fishing gear (monofilament fishing line, crab float lines, etc.), crushing in water control structures, etc., are sources of injury and mortality
Biotoxins.	Brevetoxins associated with *Kerenia brevi* and possibly other dinoflagellates have killed dozens of Florida manatees. Suspected vectors include ingestion of toxin-containing ascidians and sea grasses and inhalation of aerosolized toxicants (Bossart 2001).
Cold stress syndrome.	Exposure to cold for extended periods of time initiates clinical signs and disease processes that characterize manatee cold stress syndrome. Effects include lethargy, anorexia, and terminal hypothermia. Numerous significant cold fronts extending the length of the Florida peninsula have caused deaths and cold stress in dozens of manatees aver the past few decades (Bossart 2001).

APPENDIX G

DISEASES OF CURRENT CONCERN FOR SEA OTTERS

The diseases listed below are of current concern for sea otters. Numerous additional diseases exist among sea otters and should also be considered during diagnostic work-ups. Testing for specific diseases of sea otters is not required at this time. However, thorough diagnostic testing is strongly recommended for sea otters as warranted by their history and clinical signs of illness. FWS may require disease testing for specific individuals prior to release if concern for the health of wild marine mammals exists or if there is significant concern regarding the animal's likelihood of survival in the wild. Contact the FWS coordinator for information regarding appropriate diagnostic laboratories.

A good resource to obtain updated literature on marine mammal diseases is through the Animal Welfare Information Center (http://awic.nal.usda.gov), part of the United States Department of Agriculture National Agriculture Library.

BACTERIAL DISEASES	COMMENTS
Septicemias	Overwhelming bacterial infections, sometimes from infected wounds, dental problems, and intestinal infections, are a common cause of mortality in southern sea otters, often secondary to infectional perforation by acanthocephalans (CDFG unpubl. data), and a significant cause of mortality in northern sea otters in Alaska (FWS unpubl. data). Connections with sewage or animal wastes are suspected in some infections; however, for northern sea otters, the source of this infection is often unknown.
Valvular endocarditis	This a sporadic disease secondary to chronic bacterial seeding from a primary source of infection such as a bite wound or tooth abscess. However, northern sea otters in Alaska have been diagnosed with VE without a primary source (FWS unpubl. data). These animals have tested positive for the *Streptococcus bovis/equinus* complex. In human cases, there is an association between *S.bovis* endocarditis cases and a malignancy of the GI tract.
Brucellosis	One culture and PCR-confirmed case in a California sea otter with a chronic toe joint infection and low-level systemic disease (CDFG unpubl. data). Fastidious in culture and easily missed. Marine Brucellae have demonstrated zoonotic potential, so caution is advised when handling fetal tissues, or live or dead animals with infected joints and wounds.

Dental disease Dental disease is common, particularly in older animals and can lead to systemic bacterial infections.

Leptospirosis Problem common in sea lions (see above pinniped section). Positive serologic titers in southern sea otters (Hanni *et al*. 2003). Cases reported in northern sea otters in Washington State. No clinical case identified in southern sea otters to date, although seropositive animals are observed. No cases reported for northern sea otters in Alaska.

FUNGAL DISEASES

Coccidiomycosis Low levels of infections (less than 1%) in southern sea otters, mostly off the San Luis Obispo county coast around the mouth of the Santa Maria River. Cases always fatal. Not reported in northern sea otters. Biohazard for people handling dead sea otters.

VIRAL DISEASES

Morbillivirus Conflicting evidence on whether exposure is relatively common or not in southern sea otters. Canine distemper has been diagnosed in a river otter in coastal British Columbia (Mos *et al*. 2003) and positive serologic titers have been noted in northern sea otters in Washington State. Care must be taken in moving otters if this virus is present in some populations and not others. Seropositivity to both canine and phocine distemper has been identified in northern sea otters in Washington and Alaska (FWS unpubl. data).

Papillomavirus Some evidence of this type of viral infection occurs, significance probably not great. Typically presents as small, raised variably pigmented plaques on the lips, tongue, or buccal mucosa. Occurrence often episodic and invariably incidental in southern sea otters (CDFG unpubl. data).

Herpesvirus Associated with corneal, oral, and esophageal ulcers, often in debilitated animals in California and Alaska.

PARASITIC DISEASES

Toxoplasma gondii Protozoan parasite which can cause serious disease and death in southern sea otters (Miller *et al*. 2004) and northern sea otters in Washington State. High prevalence of exposure in California with moderate mortality rate. There is evidence of wide exposure in

	California and Washington State (Lindsay *et al*. 2001; Miller *et al*. 2002; Dubey *et al*. 2003; Conrad *et al.* 2005). Northern sea otters in Alaska rarely test positive (FWS unpubl. data). Source of infection not clearly defined but hypothesized to be associated with freshwater inputs to the ocean in California (Miller *et al*. 2002; Dailey 2001; Migaki 1990).
Sarcocystis neurona	Protozoan parasite that may cause severe neurologic disease and death. Important cause of mortality among southern sea otters and northern sea otters in Washington State. Infections appear to progress more quickly than *T. gondii* (Miller *et al*. 2001; Miller 2006). No evidence of this in northern sea otters in Alaska.
Helminths	A variety of nematode, trematode, and cestode parasites infect sea otters, causing varying degrees of clinical disease. Acanthocephalan thorny headed worms, particularly the *Profilicollis* spp. may be pathogenic when overwhelming infestations occur, particularly in young animals (Mayer *et al.* 2003).
Mites	Nasal mite infestations are uncommon in wild animals, but heavy infections may occur in captive and rehabilitated animals. Heavy infections can result in secondary bacterial nasopharyngitis and pneumonia.
Giardia	Some live, captive northern sea otters in Alaska have tested positive (FWS unpubl. data).

NONINFECTIOUS DISEASES

Anthropogenic trauma	Gunshot, boatstrike, oil spills, and entanglement in debris such as fishing nets, fishing lines, and hooks cause morbidity and mortality among sea otters. Alaskan otters have died from impactions with fish bones when feeding at cannery outfalls (FWS unpubl. data).
Biotoxins	Harmful algal blooms particularly those producing domoic acid have caused some morbidity and mortality of sea otters in California (Gulland 2000; Jessup *et al.* 2004).
Persistent organic pollutants	Levels in southern sea otters and northern sea otters in Alaska adjacent to known military dump sites are high (50-100 times control populations). Potential effects on endocrine and immune functions are a cause for concern, but evidence for this or for acute toxicity are lacking.

Predation White shark predation on southern sea otters is well documented. Some cases may be secondary to brain infections or intoxications that render otters helpless. Killer whale predation is hypothesized to be very significant in the decline of certain northern sea otter populations in Alaska.

Neoplasia A number of types of neoplasia have been documented in northern sea otters (FWS unpubl. data).

Intestinal Disease Sea otters have been known to suffer from intestinal intussusceptions, torsions, and impactions not caused by human related causes.

Conspecific Trauma Territorial males will often attack other male or pups. Males may also injure females during mating.

References:

Conrad, P.A., M.A. Miller, C. Kreuder, E.R. James, J. Mazet, H. Dabritz, D.A. Jessup, F. Gulland, and M.E. Grigg. 2005. Transmission of *Toxoplasma*: Clues from the study of sea otters as sentinels of *Toxoplasma gondii* flow into the marine environment. International Journal for Parasitology 35:1155-1168.

Dailey, M. D. 2001. Parasitic Diseases. *In* CRC Handbook of Marine Mammal Medicine, 2nd Edition L. A. Dierauf and F. M. D. Gulland (eds.). CRC Press, Boca Raton, Florida. Pp. 309-335.

Dubey, J.P., R. Zarnke, N.J. Thomas, S.K. Wong, W.Van Bonn, M. Briggs, J.W. Davis, R. Ewing, M. Mense, O.C.H. Kwok, S. Romand, and P. Thulliez. 2003. *Toxoplasma gondii, Neospora caninum, Sarcocystis neurona,* and *Sarcocystis canis*-like infections in marine mammals. Veterinary Parasitology 116:275-296.

Gulland, F. 2000. Domoic acid toxicity in California sea lions (*Zalophus californianus*) stranded along the central California coast, May-October 1998. Report to the National Marine Fisheries Service Working Group on unusual Marine Mammal Mortality Events. US Dept. Commerce NOAA Technical Memorandum NMFS-OPR-17, December 2000.

Hanni, K.D., J.A.K. Mazet, F.M.D. Gulland, J. Estes, M. Staedler, M.J. Muray, M. Miller, and D.A. Jessup. 2003. Clinical pathology and assessment of

pathogen exposure in southern and Alaskan sea otters. Journal of Wildlife Diseases 39(4):837-850.

Jessup D.A., M.A. Miller, M.Harris, B. Hatfield, J.A. Estes. 2004. The 2003 southern sea otter (*Enhydra lutris nereis*) unusual mortality event: A preliminary report to NOAA and USFWS.

Lindsay, S.D., N.J. Thomas, A.C. Rosypal, and J.P. Dubey. 2001. Dual *Sarcocystis neurona* and *Toxoplasma gondii* infection in a Northern sea otter from Washington state, U.S.A. Veterinary Parasitology 97:319-327.

Mayer, K., M. Dailey and M. Miller. 2003. Helminth parasites of the southern sea *otter (Enhydra lutris nereis*) from central California: abundance, distribution and pathology. Diseases of Aquatic Organisms. 53:77-82.

Migaki, G., Sawa, T.R. and Dubey, J.P. 1990. Fatal disseminated toxoplasmosis in a spinner dolphin (*Stenella longirostris*). Vet. Pathol. 27:463-464.

Miller, M.A., P. R. Crosbie, K. W. Sverlow, K. Hanni, B. C. Barr, N. Kock, M. J. Murray, L. J. Lowenstine, A. Packham and P. A. Conrad. 2001. Isolation and characterization of *Sarcocystis* from brain tissue of a free-living southern sea otter (*Enhydra lutris nereis*) with fatal meningoencephalitis. Parasitology Research. 87:252-257.

Miller, M..A., I.A. Gardner, A. Packham, J.K. Mazet, K.D. Hanni, D.A. Jessup, J. Estes, R. Jameson, E. Dodd, B.C. Barr, L.J. Lowenstine, F.M. Gulland and P.A. Conrad. 2002. Evaluation of an indirect fluorescent antibody test (IFAT) for demonstration of antibodies to *Toxoplasma gondii* in the sea otter (*Enhydra lutris*). J. Parasitol. 88:594-599.

Miller, M.A., M.E. Grigg, C. Kreuder, E.R. James, A.C. Melli, P.R. Crosbie, D.A. Jessup, J.C. Boothroyd, D. Brownstein, and P.A. Conrad. 2004. An unusual genotype of *Toxoplasma gondii* is common in California sea otters (*Enhydra lutris nereis*) and is a cause of mortality. International Journal for Parasitology 34:275-284.

Miller, M. A. 2006. Tissue Cyst-Forming Coccidia of Marine Mammals. In: *Zoo and Wildlife Medicine*. M. Fowler and E. Miller, Eds: In press.

Mos, L., P.S. Ross, D. McIntosh, and S. Raverty. 2003. Canine distemper virus in rivers otters in British Columbia as an emergent risk for coastal pinnipeds. Veterinary Record 152:237-239.

APPENDIX H

Contact Information for NMFS and FWS National and Regional Stranding Support Staff

National Marine Fisheries Service

National Stranding Coordinator:
National Marine Fisheries Service
Office of Protected Resources
Marine Mammal Health and Stranding Response Program
1315 East-West Highway
Silver Spring, MD 20910
Phone: (301) 713-2322
Fax: (301) 427-2522

Southeast Region:
National Marine Fisheries Service
Administrator, Southeast Region
263 13th Ave. South
St. Petersburg, FL 33701
Phone: (727) 824-5301
Fax: (727) 824-5320

Northeast Region:
National Marine Fisheries Service
Administrator, Northeast Region
One Blackburn Drive
Gloucester, MA 01930-2298
Phone: (978) 281-9250
Fax: (978) 281-9207

Southwest Region:
National Marine Fisheries Service
Administrator, Southwest Region
501 West Ocean Blvd. Suite 4200
Long Beach, CA 90802-4213
Phone: (562) 980-4001
Fax: (562) 980-4018

Northwest Region:
National Marine Fisheries Service
Administrator, Northwest Region
7600 Sand Point Way, NE
Bin C 15700, Bldg. 1
Seattle, WA 98115-0070
Phone: (206) 526-6150

Fax: (206) 526-6426

Alaska Region:
National Marine Fisheries Service
Administrator, Alaska Region
P.O. Box 21668
Juneau, AK 99802-1668
Phone: (907) 586-7221
Fax: (907) 586-7249

Pacific Islands Region
National Marine Fisheries Service
Administrator, Pacific Islands Region
1601 Kapiolani Blvd., Suite 1110
Honolulu, HI 96814
Phone: (808) 944-2280
Fax: (808) 973-2941

Fish and Wildlife

Manatees:
U.S. Fish and Wildlife Service
Jacksonville Field Office
6620 Southpoint Drive South, Suite 310
Jacksonville, FL 32216
Phone: 904/232-2580
Fax: 904/232-2404

Southern Sea Otters in California:
U.S. Fish and Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93004
Phone: 805/644-1766
Fax: 805/644-3958

Northern Sea Otters in Washington:
U.S. Fish and Wildlife Service
Washington Field Office
510 Desmond Drive SE, Suite 102
Lacey, WA
Phone: 360/753-9440
Fax: 360/753-9518

Polar Bears, Pacific Walrus, and Northern Sea Otters in Alaska:

U.S. Fish and Wildlife Service
Marine Mammals Management Office
1011 E. Tudor Road
Anchorage, AK 99503
Phone: 907/786-3800
Fax: 907/786-3816

LOAs and Permits:
U.S. Fish and Wildlife Service
Division of Management Authority
4401 N. Fairfax Drive, Room 700
Arlington, VA 22203
Phone: 703/358-2104
Fax: 703/358-2281

National Coordinator:
U.S. Fish and Wildlife Service
Division of Habitat and Resource Conservation
4401 N. Fairfax Drive, Room 400
Arlington, VA 22203
Phone: 703/358-2161
Fax: 703/258-1869

APPENDIX I

Cetacean – Species Specific Developmental Stages (Age-Length) and Social Dynamics

Scientific Name	Common Name	Approx Length at Birth (cm)	Approx "NEONATE" length (cm)	Approx Length at 1 Year of Age (cm)	ApproxLength at 2 Years of Age (cm)	Approx. Age at Weaning (yrs)	Approx Length at Weaning (cm)	Aprox. Adult Length (cm)	Typical Group Size	Freq. of Occur. Single Individuals
Delphinapterus leucas	White Whale	160	130-160	216	250	2	250	300-400 F 400-450 M	up to hundreds	uncommon
Delphinus capensis	Long-beaked Saddleback Dolphin	< 100							up to thousands	uncommon
Delphinus delphis	Common Dolphin	80-90	80-100				110-120	230-250	up to thousands	uncommon
Feresa attenuata	Pygmy Killer Whale	80						240-270	1-70	occasional
Globicephala macrorhynchus	Short-finned Pilot Whale	140-185	150			2-3		400-500 F 500-600 M	up to several hundred	rare
Globicephala melas	Long-finned Pilot Whale	177	160-200			2-3	240	450-500 F 450-600 M	up to several hundred	rare
Grampus griseus	Risso's Dolphin	110-150	120-160					300-400	single to several hundred	occasional
Kogia breviceps	Pygmy Sperm Whale	120	100-120			1		300 - 370	1-6	not uncommon
Kogia sima	Dwarf Sperm Whale	95	100			1		210-270	1-10	not uncommon
Lagenodelphis hosei	Fraser's Dolphins	100	100					240	100-1000	uncommon
Lagenorhynchus acutus	Atlantic White-sided Dolphin	108-122	100-130	142-156	176-190	1.5	180	240-270	2-500	uncommon
Lagenorhynchus albirostris	White Beaked Dolphin	110-120	110-130					300-320	1-100 (to 1500)	occasional
Lagenorhynhchus obliquidens	Pacific White-sided Dolphin	92	80-100					220-230	tens to thousands	uncommon
Lissodelphis borealis	Northern Right Whale Dolphin	80-100	80-100					220-230 F 260-300 M	100-200	occasional
Mesoplodon densirostris	Blainville's Beaked Whale	200						450-470	1-7	occasional
Mesoplodon europaeus	Gervais' Beaked Whale	210	210					450-520	small groups	uncommon
Orcinus orca	Killer Whale	183-228	210-250			1.5-2.0	400	700-800 F 800-950 M	2-100	infrequent - adult males
Peponocephala electra	Melon-Headed Whale	100						270	150-1500	uncommon
Phocoena phocoena	Harbor Porpoise	70	70-90	110-135	115-155	0.3 - 1.0	100 - 110	140-170	small groups	not uncommon
Phocoenoides dalli	Dall's Porpoise	100	100			0.3-2.0		180-220	2-12	uncommon
Scientific Name	Common Name	Approx Length at Birth (cm)	Approx "NEONATE" length (cm)	Approx Length at 1 Year of Age (cm)	ApproxLength at 2 Years of Age (cm)	Approx. Age at Weaning (yrs)	Approx Length at Weaning (cm)	Aprox. Adult Length (cm)	Typical Group Size	Freq. of Occur. Single Individuals

Physeter macrocephalus	Sperm Whale	400	350-500		670	2+	670	1100-1300 F 1500-1800 M	20-40 (50)	adult males
Pseudorca crassidens	False Killer Whale	160	170-200			1.5-2.0		500 F 550-600 M	10-20+	rare
Stenella attenuata	Pantropical Spotted Dolphin	85	80-100	129-142		1-2	140	120	<100 to thousands	uncommon
Stenella clymene	Clymene Dolphin							180-200	1-50	occasional
Stenella coeruleoalba	Striped Dolphin	93-100	100	166	180		170	220-260	10-100s	uncommon
Stenella frontalis	Atlantic Spotted Dolphin	100	80-120				140	200-230	1-15	uncommon
Stenella longirostris	Spinner Dolphin	76-77	70-80	133-137		1-2		180-220	up to thousands	uncommon
Steno bredanensis	Rough-toothed Dolphin	100						240-270	10-20	uncommon
Tursiops truncatus	Bottlenose Dolphin	117	100-130	170-200	170-225	1.5-2.0	225	220-300 (coastal) 250-650 (offshore)	2-15	occasional
Ziphius cavirostris	Cuvier's Beaked Whale	270	200-300					670 - 700	1-7	not uncommon

Information sources:

Handbook of Marine Mammals Volume 4
River dolphins and the larger toothed whales. Edited by Sam H. Ridgway and Richard Harrison.
Academic Press, London,New York, 1989.
ISBN: 0125885040

Handbook of Marine Mammals Volume 5
The first book of dolphins. Edited by Sam H. Ridgway and Richard Harrison.
Academic Press,London, New York, 1994.
ISBN: 0125885059

Handbook of Marine Mammals Volume 6
The Second book of dolphins and the porpoises. Edited by Sam H. Ridgway and Richard Harrison.
Academic Press, San Diego, 1999.
ISBN: 0125885067

Marine Mammals Ashore: A Field Guide for Strandings second edition, J.R. Geraci & V.J. Lounsbury, ©National Aquarium in Baltimore, 2005.

Marine Mammals Ashore : A field guide for strandings Joseph R. Geraci and Valerie J. Lounsbury. ©Sea Grant College Program, Texas A & M University, 1993. ISBN: 1883550017

DRAFT
NATIONAL MARINE FISHERIES SERVICE (NMFS) CRITERIA
FOR DISENTANGLEMENT ROLES AND TRAINING LEVELS
January 11, 2006

Levels of Participation in the Disentanglement Network – Definitions

Roles	Levels
First Responder	1-5
Primary First Responders	3-5
Primary Disentanglers	4-5

First Responder is a general term that is used to describe anyone in the Network with any level of training who may respond to an entanglement report under Network protocols and authorization. At a minimum they will voluntarily attempt to standby with an entangled whale and, depending on training, experience, authorization and equipment available, may also assess and perhaps tag the whale. Individuals with higher Network ratings (Levels 3-5) may act as **Primary First Responders** in local areas. Primary First Responders direct efforts locally and, under certain conditions and authorization, may attempt disentanglements during first response. These individuals have rapid access to vessels and specialized equipment. Additionally, Primary First Responders are on call full-time or at least during those times when there is a high likelihood of an entanglement report in their area of responsibility.

A First Responder's anticipated range of tasks is generally dependent on their classification in the Network. Classifications to various levels are determined on an individual basis and are based on a number of factors including, but not limited to the following:

- Preexisting experience and skills
- Willingness and commitment to build experience and improve skills
- Training
- Opportunity and available resources
- Location
- Commitment to being “on-call”
- Commitment to respond as needed

Primary Disentanglers are individuals who can perform all of the responsibilities of a first responder, but who also meet the criteria used by NMFS for selecting individuals who may undertake the very dangerous activity of disentangling (i.e. attaching to, stopping and cutting a whale free). Primary Disentanglers must have the experience, training, support and proper equipment at the time of the event to conduct a full disentanglement with a high likelihood of success. Primary Disentanglers are those rated at Level 4-5 in the Disentanglement Network. A summary of the various levels of certification follows.

DISENTANGLEMENT NETWORK CERTIFICATION

LEVEL 1

Targeted Individuals: Professional mariners (*i.e.* fishermen, naturalists, Marine Patrol Officers) Boating experience and/or experience around whales is highly suggested (*i.e.* professional fishing, field biology, marine law enforcement, whale watching, etc.)

Responsibilities

Level 1 activities: report, standby, and assess (within experience)

- Rapidly alert Disentanglement Network of first-hand and/or second-hand knowledge of local entanglements
- Depending on experience, stand by an entangled whale until backup arrives, and/or
- Communicate with crew on the vessel that is directly standing by the entangled whale and offer to replace the stand by vessel until additional backup or the response team arrives (if needed and within experience)

Criteria for certification

- Completed Level 1 classroom training, or
- Viewed Provincetown Center for Coastal Studies (PCCS) Training Video and demonstrated equivalent knowledge and experience (submit resume)

LEVEL 2

Targeted Individuals: Professional mariners (*i.e.* fishermen, naturalists, Marine Patrol Officers). There is a higher expectation of commitment and participation from Level 2 responders.

Responsibilities

Level 2 activities: report, stand by, and assess at a higher level (within experience)

- Provide a thorough assessment of the nature of the entanglement and the species, condition and behavior of the whale
- Provide local knowledge, transportation, and assistance to Primary First Responders, as needed, on a voluntary basis
- Be on call, as available, to assist in planned disentanglement operations on telemetry tagged whales

Criteria for certification

Level 1 certification in addition to the following:

- Completed Level 2 on-water training, or
- Viewed PCCS Training Video and demonstrated equivalent knowledge and experience (submit resume)

LEVEL 3

Targeted Individuals: Whale researchers and naturalists, fishermen, natural resource agency personnel, Marine Patrol Officers.

Responsibilities

Level 3 activities- report, stand by, assess, document and attach a telemetry buoy. Other activities may include:

- Be on call 24 hours and should respond if conditions allow
- Initiate and maintain preparedness with local fishing industry, Coast Guard, and other resources
- Prepare local disentanglement action plan
- Provide entanglement assessment, documentation and recommendations to Primary
- Disentanglers during events
- Attach telemetry equipment to entangling gear if needed and authorized
- May be asked (depending on experience) to disentangle a minor entanglement with potential to adversely affect any whale other than right whales under the supervision/authorization of

Level 4 or 5 network members. Authorization and supervision may be given over the phone or radio depending on the circumstances and level of experience.

Criteria for certification

Level 1 and 2 certification and experience in the following elements:

- Large whale species identification and behavior, and the ability to safely follow a free swimming, entangled whale
- Boat handling and safety including basic seamanship, driving, and close approaches to whales
- Line handling and safety including knowledge of knots, handling lines under pressure, and an understanding of how working lines behave
- Follows instructions and response plans

Note: Each candidate will be evaluated for each element and any deficiencies must be supplemented with adequate training and/or experience.

Additionally, all Level 3 responders must have:

- Basic Level 3 training, or
- Advanced Level 3 training - an apprenticeship with PCCS

LEVEL 4

Targeted Individuals: Whale researchers and naturalists, fishermen, natural resource agency personnel, Marine Patrol Officers.

Responsibilities

Level 4 activities-

- Report, stand by, assess, document, attach a telemetry buoy, consult on an action plan and disentangle all large whales except right whales
- Report, stand by, assess, document and attach a telemetry buoy to right whales
- On a case by case basis and after consultation (see commitment to consult under Level 5 below), certain cuts on known entangled right whales may be permitted at level 4 ***if the proposed action is first approved by level 5 disentanglers and NMFS***

Please Note: Entangled whale behavior varies considerably by species. However, Level 4 Disentanglers should routinely be able to attempt disentanglement of all large whales other than right whales.

Criteria for certification

Basic or Advanced Level 3 Certification and:

- Direct experience in a supervised (by PCCS/Network coordinators or NMFS) large whale disentanglement, documentation of that experience, and a positive evaluation from NMFS using information provided by PCCS/Network Coordinators and any hard documentation (*i.e.* video)
- When possible, commitment to consultation as detailed in Level 5 below

LEVEL 5

Targeted Individuals: Level 4 Responders

Responsibilities

Level 5 activities - report, stand by, assess, document, attach a telemetry buoy, consult on an action plan and disentangle all large whales including right whales.

Please Note: Right whales are aggressive and therefore generally the most difficult whales to disentangle. North Atlantic right whales are among the most critically endangered large whales in the world. Certification at this level is highly selective and specialized.

Criteria for certification

Level 4 certification and:

- Experience w/ right whale behavior and/or includes a person on the team directly involved in the whale disentanglement (in the boat with the whale) that is experienced in right whale behavior
- Documented participation in a right whale disentanglement and/or NMFS/PCCS review of video of participation in a right whale disentanglement that followed NMFS protocol
- Commitment to Consultation to include:

- Immediate Consultation: when possible, use satellite/cell phones to bring in additional ideas/experience from other level 5s and level 4s (and vets and behaviorists if appropriate) while on scene with an entangled right whale
- Action Plan Development: For a tagged right whale, consultation required with NMFS, level 5s and 4s, veterinarians, behaviorists, etc.

Rationale for consultation: First assessments and strategies almost invariably change with more discussion or information. Consultation will likely help to increase human safety and critical choices regarding risks to whale health must be made with the best available information.