

Standards for Release of Marine Mammals Following Rehabilitation

Executive Summary

Rescue, rehabilitation, and release of wild marine mammals is allowed for authorized individuals under listed conditions by the Marine Mammal Protection Act (MMPA) [16 U.S.C. 1379 § 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 USC 1421 §402(a)]. This document fulfills the statutory mandate and is not intended to replace marine mammal laws or regulations.

Historically, these Release Standards were developed by the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS), in consultation with marine mammal experts, and were included in the 2009 Final Policies and Best Practices Marine Mammal Stranding Response, Rehabilitation and Release, Standards for Release that were part of the 2009 NMFS Marine Mammal Health and Stranding Response Program Programmatic Environmental Impact Statement process. This current document encompasses revisions and updates to the 2009 Standards for Release published in the 2009 Programmatic Environmental Impact Statement.

These Standards provide an evaluative process to help determine if 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 Non-Releasable (Manatees only),” and “Non-Releasable.” 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. Situational Assessment and Clearance
2. Developmental and Life History Assessment and Clearance
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 USFWS can evaluate and support the professional discretion of the attending veterinarian and their assessment team (*i.e.*, biologists, veterinarians, animal care supervisors, and other team members of the marine mammal stranding networks). Based on these Release Categories, NMFS and USFWS 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 standards 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 and will allow for on-going improvement of such protocols. These Standards are based on the best available science and thus will be revised periodically.

Table of Contents

APPENDIX V	1
1 Introduction	4
1.1 Acknowledgements	4
1.2 Background.....	4
1.3 Review of Key Legislation Pertinent to Marine Mammal Rehabilitation and Release to the Wild	5
1.4 Structure of the Document	5
1.5 Funding.....	6
2 General Procedures	7
2.1 Stranding Agreements, MMPA 109(h) Authority, and Permits for Stranding Response for ESA species	7
2.2 Parties Responsible for Release Determinations and Overview of Agency Approval	7
2.3 Documentation for Rehabilitation and Release of Marine Mammals.....	9
2.4 Assessment Process for a Release Determination	11
2.5 Emergency or Special Situations	15
3 Guidelines for Release of Rehabilitated Cetaceans	17
3.1 Introduction.....	17
3.2 Overview of “Release Categories” for Cetaceans.....	17
3.3 Situational Assessment of Cetaceans.....	18
3.4 Developmental Assessment of Cetaceans.....	19
3.5 Behavioral Assessment of Cetaceans.....	19
3.6 Medical and Rehabilitation Assessment of Cetaceans.....	21
3.7 Release Planning for Cetaceans.....	22
3.8 Marking for Individual Identification of Cetaceans Prior to Release.....	22
3.9 Post-Release Monitoring of Cetaceans	23
3.10 Decision Tree – Cetacean Release Categories.....	23
4 Guidelines for Release of Rehabilitated Pinnipeds.....	27
4.1 Introduction.....	27
4.2 Overview of Release Categories for Pinnipeds.....	27
4.3 Situational Assessment of Pinnipeds.....	28
4.4 Developmental Assessment of Pinnipeds	29
4.5 Behavioral Assessment of Pinnipeds.....	29
4.6 Medical Assessment of Pinnipeds	31
4.7 Release Site Selection for Pinnipeds.....	32
4.8 Identification of Rehabilitated Pinnipeds Prior to Release.....	33
4.9 Post-Release Monitoring of Pinnipeds	33
4.10 Decision Tree – Pinniped Release Categories.....	33
5 Guidelines for Release of Rehabilitated Manatees	37
5.1 Introduction.....	37
5.2 Overview of Release Categories for Manatees	38
5.3 Situational Historical Assessment of Manatees	39
5.4 Developmental Assessment of Manatees	39
5.5 Behavioral Assessment of Manatees.....	39
5.6 Medical Assessment of Manatees.....	40
5.7 Release Categories for Manatees.....	40
5.8 Pre-release Requirements for Manatees	44
5.9 Release and Post-release Logistics for Manatees	45
5.10 Manatee Rescue, Rehabilitation, and Rescue Program Reporting/Requesting Requirements	46
6 Guidelines for Release of Rehabilitated Sea Otters.....	47

6.1	Introduction.....	47
6.2	Developmental Assessment of Sea Otter Pups	47
6.3	Behavioral Assessment of Sea Otters.....	47
6.4	Medical Assessment of Sea Otters	47
6.5	Release Categories for Sea Otters	48
6.6	Identification of Sea Otters Prior to Release	48
6.7	Release Site Selection for Sea Otters	48
6.8	Post-Release Monitoring of Sea Otters	49
7	Policies Regarding Release of Rehabilitated Polar Bears	50
8	Literature Cited.....	51
9	Appendices.....	52
9.1	Appendix A -“Recommended” Standard Checklists to Determine Release Category of All Rehabilitated Cetaceans.....	1
9.2	Appendix B -“Recommended” Standard Checklists to Determine Release Category of All Rehabilitated Pinnipeds (except for walrus).....	1
9.3	Appendix C – NMFS Release Plan Template.....	1
9.4	Appendix D - Manatee Rescue, Rehabilitation, and Release Report Fields	1
9.5	Appendix E – U.S. Fish and Wildlife Service Contacts.....	1
9.6	Appendix F - Cetacean-Species Specific Developmental Stages (Age- Length) and Social Dynamics	1
9.7	Appendix G - Pinniped-Species Specific Developmental Stages (Age- Length) and Social Dynamics	1

1 Introduction

1.1 Acknowledgements

These Standards for Release have been revised from 2009 Standards originally written by Drs. Janet Whaley and Rose Borkowski. We want to thank Drs. Whaley and Borkowski for their contributions to the Release Standards. We would also like to thank the many people who contributed information and review of these revised Standards especially the staff of the USFWS who provided substantive revisions for their trust species.

1.2 Background

Prior to the early 1990s, release decisions for marine mammal species under the jurisdiction of the National Marine Fisheries Service (NMFS) were made by individual rehabilitation facilities without much direction or input from NMFS. Decisions were inconsistent and invoked 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. 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 Marine Mammal Protection Act (MMPA) was amended to include Title IV, Section 402(a) which states 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.”*

Historically, in accordance with the MMPA, these Standards were initially developed by the National Oceanic and Atmospheric Administration’s (NOAA) NMFS and the U.S. Fish and Wildlife Service (USFWS) in consultation with marine mammal experts through review and public comment on the 1997 draft NOAA Technical Memorandum, “Release of Stranded Marine Mammals to the Wild: Background, Preparation, and Release Criteria.” Subsequently, these Standards were further developed and included in the 2009 Final Policies and Best Practices Marine Mammal Stranding Response, Rehabilitation and Release, Standards for Release that were part of the 2009 Marine Mammal Health and Stranding Response Program (MMHSRP) Programmatic Environmental Impact Statement (PEIS) process. Comments from the public review process and other outstanding issues were compiled by NMFS and USFWS. This current document encompasses revisions and updates to the 2009 Standards for Release published in the 2009 PEIS.

The purposes of this document are as follows:

- To provide guidance for determining release of rehabilitated marine mammals to the wild including marine mammal species under the jurisdiction of the NMFS (Department of Commerce) and those under the jurisdiction of the USFWS (Department of the Interior);
- To state the NMFS and USFWS legal requirements and provide recommendations for medical, behavioral, and developmental assessment of rehabilitated marine mammals prior to release;
- To identify the persons and agencies responsible for completing an assessment of a rehabilitated marine mammal for a release determination and to describe the communication requirements and process with NMFS or USFWS;
- To state the NMFS and USFWS requirements and recommendations for identification of “Releasable” rehabilitated marine mammal, selection of a release site (including appropriate communication and coordination with authorities), and post-release monitoring; and
- This document does not include guidance for the following situations:
 - Immediate release following health assessment and/or emergency triage typically associated with mass stranding events, out of habitat rescues, and entangled response

- efforts; and
- Release following relocation of healthy marine mammals.

1.3 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 (*Odobenus rosmarus*), are the responsibility of NMFS (i.e., NMFS species). Walruses, polar bears (*Ursus maritimus*), manatees (*Trichechus manatus*), and sea otters (*Enhydra lutris*) are the responsibility of USFWS (i.e., USFWS species). NMFS and USFWS responsibilities for these species are regulated under 50 Code of Federal Regulations (CFR).

Rehabilitation and release of wild marine mammals is authorized by key statements within the MMPA (16 U.S.C. 1379 §109(h)) entitled “Taking of Marine Mammals as Part of Official Duties.” This section allows for the humane taking of a marine mammal, by a federal, state, or local government official or employee or a person designated under section 112(c) of the MMPA, 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 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 than 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 MMPA section 112(c) Stranding Agreements (SAs) are formally established between the NMFS Regions and Stranding Network Participants. 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.

1.4 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); and Appendices (Section 9).

The approach developed in this document primarily involves a complete assessment of an animal’s health and behavior and release logistics. The assessment is completed by the attending veterinarian and their 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.

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) for 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. The appendices provide access to release checklists and a release plan template.

1.5 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 USFWS 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 USFWS coordinator. For NMFS species, the John H. Prescott Marine Mammal Rescue Assistance 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 website: <https://www.fisheries.noaa.gov/grant/john-h-prescott-marine-mammal-rescue-assistance-grant-program>

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 SA with a person or organization for stranding response and rehabilitation. The NMFS SA states that the Stranding Network Participant will obey laws, regulations, and guidelines governing marine mammal stranding response and rehabilitation. This includes requirements for communications with NMFS, humane care, husbandry and veterinary care of rehabilitated marine mammals, and documentation of each stranding response and rehabilitation activity. The SA 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 No.18786, as amended, and requires authorization and direction from the NMFS Regional Stranding Coordinator (RSC) or Marine Mammal Health and Stranding Response Headquarters staff in the event of a stranding involving a threatened or endangered marine mammal (for contacts see: <https://www.fisheries.noaa.gov/contact-directory/marine-mammal-stranding-network-coordinators>).

2.1.2 USFWS Policies

Rescue, rehabilitation, and release of non ESA-listed marine mammal species under USFWS responsibility is typically authorized with a Letter of Authorization (LOA) issued by the USFWS; a permit issued under section 104c of the MMPA is another option. Rescue, rehabilitation, and release of ESA-listed species, is authorized under a permit issued by the USFWS. The USFWS 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 their Assessment Team (*i.e.*, veterinarians, lead animal care supervisor, and/or consulting biologist with knowledge of species behavior and life history) representing the Stranding Network Participant, Designee, LOA holder, or 109(h) Stranding Participant will assess the animal and make a written recommendation for release or non-release. For NMFS species, the recommendations are sent to the NMFS Regional Administrator via the RSC. For USFWS species, the recommendations are sent to the USFWS Field Office and any recommendations for non-release are coordinated with the USFWS.

In general, for NMFS species that are deemed “Releasable,” a 15-day advance written notification is necessary. The release determination recommendation includes a signed statement from the attending veterinarian, in consultation with their 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 includes a written release plan and timeline. The Regional Administrator via the RSC 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 (letter of concurrence from the Regional Administrator) (50 CFR 216.27). For general release guidance for NMFS species, see Appendices A and B for a Recommended Standard Checklist for Release Determination. A NMFS release plan template is also available in Appendix C. NMFS may also require a concurrence signature from the “Authorized Representative” or Signatory of the SA.

In certain cases, 50 CFR 216.27 (a)(2)(i)(A) allows for waiving this 15-day advance notification for release in writing by the Regional Administrator via the RSC. Generally, these waiver cases are anticipated and can be appropriately planned (*e.g.*, the typical species and time of year, presenting with known etiologies, and with routine diagnosis and treatment). For such release 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 via the RSC on a schedule as prescribed in the SA.

For more challenging 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. In addition, 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 for resolution and planning.

By regulation (50 CFR 216.27 (a)(3)), 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. Expanded release and contingency plans are required for the release of ESA species.

Generally for non-listed animals deemed “Non-Releasable” and with the concurrence from the NMFS Regional Administrator via the RSC, the animal can be permanently placed in a permanent care facility via NMFS’ implementing regulations at 50 CFR 216.27 or euthanized. For MMPA-depleted and/or ESA-listed species, these animals are placed via a Section 104 permit or 112(c) authorization and an ESA 10(a)(1)(A) permit, as applicable. If the animal is to be placed in permanent captivity, the receiving facility must be registered or hold a license from the U.S. Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) [7 U.S.C. 2131 *et seq.*] and comply with MMPA (16 U.S.C. 1374 §104(c)(7)), or have Department of Defense (DOD) authorization.

Facilities wishing to obtain Non-Releasable animals (*i.e.*, the rehabilitation facility or another authorized facility) are required to send a Letter of Intent to the Office of Protected Resources, Permits, Conservation and Education Division (NMFS PR1) to permanently retain or acquire the animal (more information available at <https://www.fisheries.noaa.gov/national/marine-mammal-protection/non-releasable-marine-mammals>). This letter should include a signature of the “Responsible Party of Record.” As part of the placement decision making process, NMFS will consult with The United States Department of Agriculture’s (USDA) Animal and Plant Health Inspection Service (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’ Permits and Conservation Division (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 USFWS species, LOA and permit holders provide recommendations to the USFWS Field Offices for decisions regarding releasability of rehabilitated marine mammals (see Appendices D and E). The USFWS retains the authority to make the final determination on the disposition of these animals. If

USFWS 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)(3) 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, USFWS will evaluate and determine the suitability of the release site and release conditions (see taxa specific sections for further guidance).

For cases involving declared UMEs, 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 (NOAA Tech. Mem. NMFS-OPR-9). 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 SA between the Stranding Network Participant and appropriate NMFS Regional Office that allows a stranding organization to respond to and/or rehabilitate marine mammals, the Stranding Network Participant 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 MMPA section 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
NMFS Forms may be found here: <https://www.fisheries.noaa.gov/national/marine-life-distress/level-data-collection-marine-mammal-stranding-events>

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 the appropriate NMFS Regional Office or uploaded into the National Database within the time stated in the SA.

Marine Mammal Rehabilitation Disposition Report, NOAA Form 89-878, OMB No. 0648-0178
This report is mandatory for all rehabilitation cases (*i.e.*, long-term and short-term 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 or uploaded into the National Database no later than 30 days following the final disposition (*e.g.*, released or non-released) of the marine mammal or as prescribed in the SA. NMFS compiles these data annually to monitor rehabilitation and identify where changes and enhancements should be made.

Release Determination Recommendation 50 CFR 216.27 (a)(2)

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 required notification (release determination

recommendation) should provide information sufficient for determining the appropriateness of the release plan, including a description of the marine mammal (*i.e.*, 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 Animal Welfare Act). NMFS may also require a concurrence signature from the “Authorized Representative” or Signatory of the Stranding Agreement. The pre-notification requirement may be waived in writing for certain circumstances ((*e.g.*, the typical species and time of year, presenting with known etiologies, and with routine diagnosis and treatment)) by the NMFS Regional Administrator via the RSC in accordance with specific requirements as stated in the SA.

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 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)). Expanded release and contingency plans are required for the release of ESA species. For guidance, see Appendices A and B for a Recommended Standard Checklist for Release Determination. A NMFS release plan template is also available in Appendix C.

Notification of Non-release/Transfer of Custody

For animals deemed “Non-Releasable,” and with the concurrence from the NMFS Regional Administrator, the animal can be permanently placed in a permanent care facility or be euthanized. If the animal is to be placed in permanent captivity, the receiving facility must be registered or hold a license from APHIS [7 U.S.C. 2131 et seq.] and comply with MMPA (16 U.S.C. 1374 §104(c)(7)); or, have DOD authorization. For MMPA-depleted and/or ESA-listed species, these animals are placed via a Section 104 permit or 112(c) authorization and an ESA 10(a)(1)(A) permit, as applicable. Facilities wishing to obtain Non-Releasable animals should send a Letter of Intent to 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 (*e.g.*, 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 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. More information can be found here: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/non-releasable-marine-mammals>.

2.3.2 USFWS

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

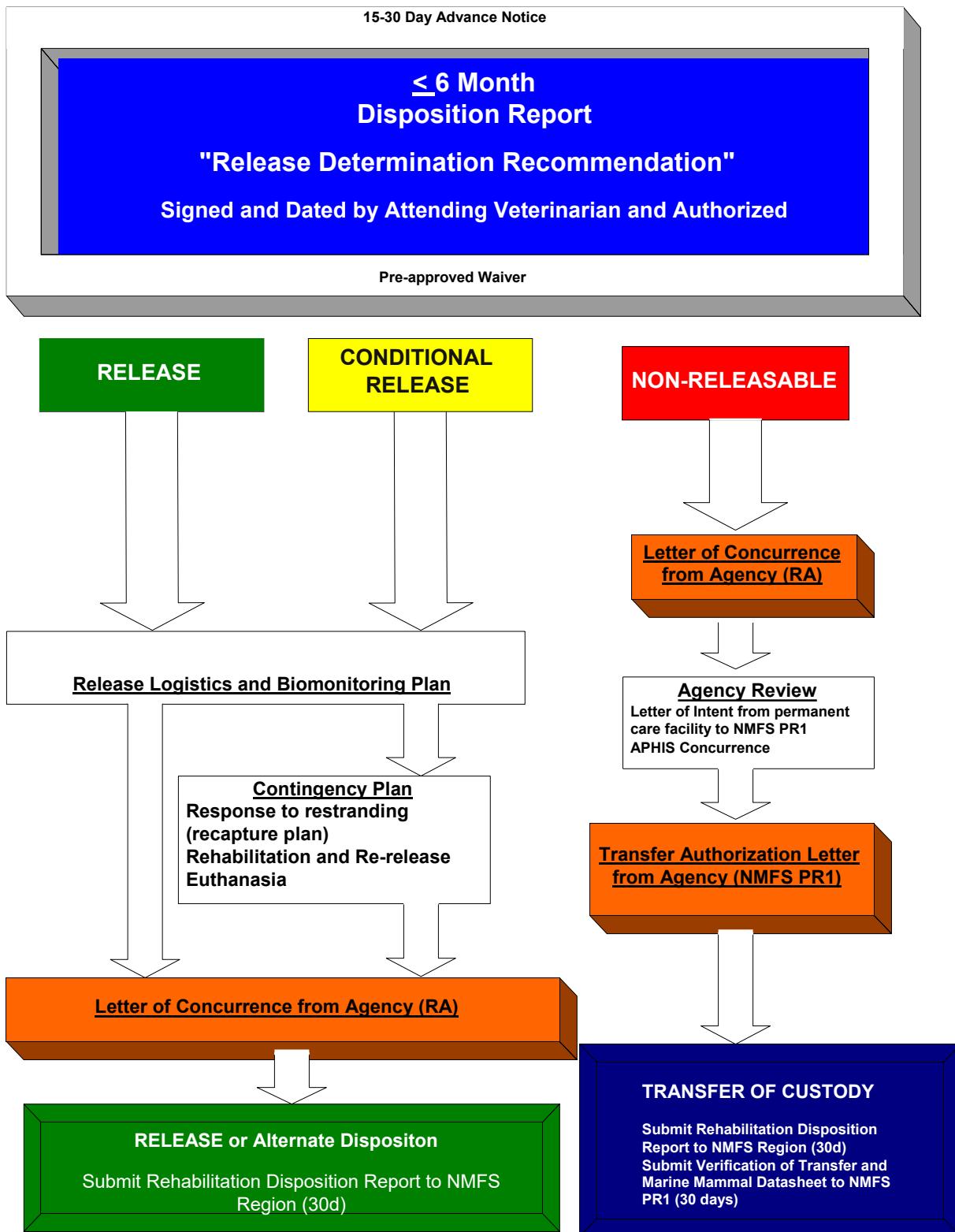


Figure 2.1 Documentation and Procedures Following Submission of the Written “Release Determination Recommendation.”

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 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 “Non-Releasable.” “Conditionally Non-Releasable” is only a category for manatees because the USFWS has had success releasing manatees that have been in captivity in excess of 20 years. NMFS species are deemed “Non-Releasable” if they have been in captivity for over 2 years (see 50 CFR 216.27(a)(1)(iii)) and therefore a “Conditionally Non-releasable” category is not necessary. Based on the findings from the Assessment Team, the attending veterinarian provides a recommendation on releasability to NMFS or USFWS. The Agencies will review and consider this information as a part of the release determination review process.

In most release cases, NMFS requires the release of marine mammals within 6 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 non-release 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):

- 1. Situational Assessment.** The Assessment Team should complete a situational evaluation that includes information gathered from the time of stranding through the duration of rehabilitation. Such information can impact the management of the case and determination of release. Circumstances such as an ongoing epidemic among other wild marine mammals, presence of environmental events such as a harmful algal bloom (HAB) or hazardous waste spill, acoustic insult; and special weather conditions (e.g., El Niño, hurricane, extreme cold, extreme heat, changes in oceanographic parameters, etc.) should be documented. It should also be noted if the animal had previously stranded and been released or was part of an official UME. 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. 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 received at 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. 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, seasonally appropriate 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 conspecifics? 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, 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 evaluation 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 USFWS. Outstanding concerns regarding the behavioral suitability of the marine mammal for release are to be discussed with NMFS or USFWS. 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 comm. Wells 2005). It goes beyond the assessment of the current condition of the animal in an artificial environment 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 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 a behavioral ecologist with knowledge of the specific species (or closely related species) solutions to ecological challenges in the wild. The behavioral ecologist would be familiar with the species 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 health trend and diagnostic testing, treatment, and response to treatment. The attending veterinarian should perform a hands-on physical examination upon or near 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 USFWS), and medical and husbandry records including whether the animal had been exposed to other wild or domestic animals just prior to and/or during rehabilitation or had attacked and/or bitten a human while being handled. 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. The goal of required testing requested by NMFS or USFWS is to safeguard the health of wild marine mammal populations and this is achieved by testing for diseases that pose a significant morbidity or mortality risk to wild populations.

Other 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 may be required if the animal was part of an official UME. Specific testing requirements (*i.e.*, pre-release health screen) will come from the NMFS MMHSRP through the RSC, National Stranding Coordinator, or National Veterinary Medical Officer and follows the term and responsibilities stated in the NMFS SA (for contacts see: <https://www.fisheries.noaa.gov/contact-directory/marine-mammal-stranding-network-coordinators>). For USFWS species, contact the appropriate Field Office for guidance (Appendix E).

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. 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.

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 assessments are also available. A number of imaging techniques including various radiology modalities, 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 (Gulland *et al.* 2018).

Except as otherwise noted, acquisition of blood for a complete blood count (CBC) and chemistry profile will be required by NMFS and USFWS upon admission of a marine mammal to a rehabilitation facility. Such blood work should generally be repeated by the original laboratory, to avoid problems with inter-laboratory variability, prior to release of the marine mammal. Microbial culture and isolation (*i.e.*, aerobic and anaerobic bacterial, viral, fungal) may 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. Because the number of pinnipeds entering a rehabilitation facility annually may be quite high and presenting with similar diagnosis, particularly in El Niño years, NMFS may waive additional clinical evaluation as mentioned above for each pinniped but instead require that a percentage of these animals entering a facility have a thorough 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, UMEs, etc.). For walrus and polar bears, testing requirements will be on a case-by-case basis. The NMFS or USFWS stranding coordinators 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, behavior, and other relevant or situational factors. Circumstances surrounding the stranding, recent environmental events, and known health issues of resident wild marine mammals are 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.*, pen/pool mates) 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 (Gulland *et al.* 2018).

Release Considerations.

- a. Required Identification Prior to Release.** Marine mammals must be marked prior to release for individual identification in the wild, unless they have natural markings that are distinctive for photo identification (*e.g.*, distinct dorsal fin notches) and ideally an ongoing photo identification program for that population (see 50 CFR Sec. 216.27(a)(5) for species under NMFS jurisdiction). Examples of identification systems include bleach or dye marking or fin notching, head tags, flipper or fin roto tags, passive integrated transponder tags (PIT tags), radio tags, satellite tags, life-history tags, and freeze or hot branding (Geraci and Lounsbury 2005). Invasive surgical tag procedures (*e.g.*, life-history tags) should be done under the direct supervision of the attending veterinarian, will need prior approval from NMFS and USFWS, and may require a monitoring period following the procedure. Proper photo identification for some species should also be considered part of the 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 coordinators for additional information.

As described, roto tags or flipper/fin tags (basic tags) for cetaceans and pinnipeds (except walrus) are to be obtained from or coordinated through the NMFS RSC. For USFWS species, tags for polar bears are obtained from USFWS. Tags for manatees and sea otters are obtained by each individual LOA or permit holder. For walruses, contact the appropriate USFWS staff for guidance (see Appendix E).

Depending on the species, if the animal re-strands or the tag is found, this information should be reported to the appropriate NMFS or USFWS and/or United States Geological Survey (USGS) Stranding Coordinator. The NMFS National Marine Mammal Stranding Database centrally archives tag data for NMFS species. The USFWS and/or USGS track these data for walruses, northern sea otters, and polar bears. The California Department of Fish and Wildlife maintains the stranding base for southern sea otter. For manatees, the State agencies maintain the PIT tag data, and satellite tag data is maintained by the individual LOA or permit holder.

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 of release should maximize foraging success and ease of social acceptance with conspecifics, and minimize additional energetic and social demands. 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 216.27(a)(2). Key factors in determining a release site include specific habitat, geographic and environmental factors such as weather and oceanographic states, past successful releases, public use, potential for predators, availability of prey, and 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, more details for each taxonomic group are provided in the appropriate section of this document. Additionally, consultation and communication with local authorities, land management agencies, or those with jurisdiction over proposed release sites, should be conducted prior to conducting release activities to minimize potential impacts associated with the release to other species.

5. 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. 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, 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 USFWS. NMFS may require the submission of follow-up monitoring summaries at specified intervals post- release (e.g., weekly, monthly), 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 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 is highly recommended and may be required by NMFS. Formal study of post-release 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 USFWS are responsible for monitoring and protecting the health of wild marine mammal populations. To fulfill this responsibility, and as stated in the NMFS SA 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 widespread environmental events such as algal blooms, hazardous waste spills, outbreaks of disease, UMEs, etc. An increased incidence of illness or injury to marine mammals may prompt NMFS or USFWS to require specific diagnostic testing as part of a surveillance program and additional communication regarding case outcomes. NMFS and USFWS 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 may provide services for rehabilitation facilities free of charge under certain circumstances.

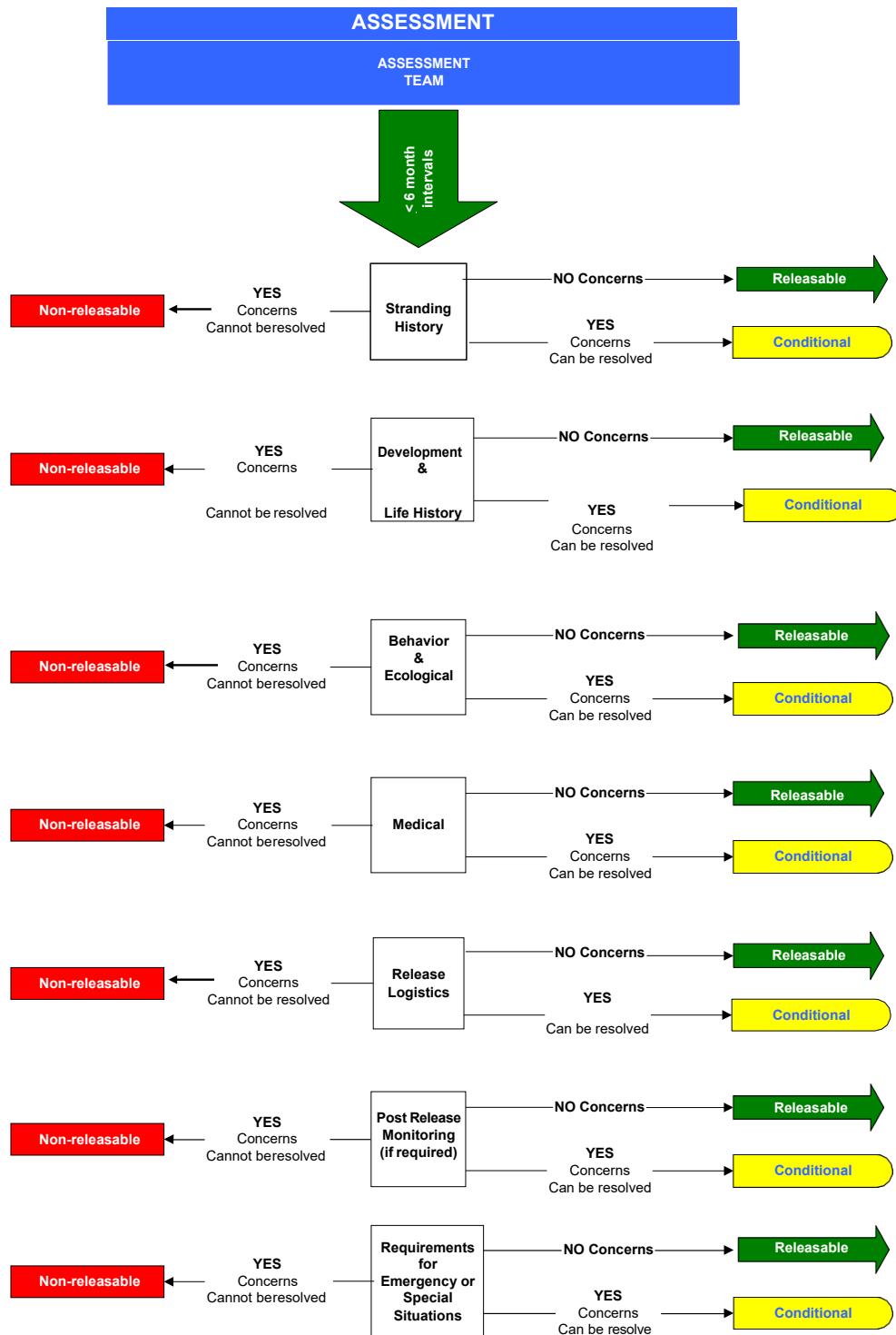


Figure 2.2 Steps and General Parameters for Animal Release Assessment

3 Guidelines for Release of Rehabilitated Cetaceans

3.1 Introduction

Nationally, few species of cetaceans (*i.e.*, primarily bottlenose dolphins, *Tursiops truncatus*, rough-toothed dolphins, *Steno bredanensis*, Risso's dolphins, *Grampus griseus*, and harbor porpoise, *Phocoena phocoena*) are rehabilitated in the United States each year. Although the natural history of cetaceans differs among the various species, the general release criteria set forth in this document are applicable to all cetaceans in the United States. Prior to the release of any cetacean, NMFS requires that a thorough evaluation of the situational, developmental, behavioral, and medical records and animal 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 via the RSC at least 15 days (typically 30 days) 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 their 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. See Appendix A - Recommended Standard Checklist for Cetacean Release Determination. The release 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 behavioral and ecological criteria for release in accordance with the release criteria. NMFS may recommend or require additional testing beyond these guidelines for infectious or emerging 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. A release plan template is also available in Appendix C. NMFS may require a 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

Cetaceans evaluated at rehabilitation facilities can be grouped into one of three “Release Categories” based on situational, developmental, behavioral, and medical criteria set forth in a standardized checklist. It is recommended that the standardized checklist (see Appendix A) be used to assess and document the release candidacy of rehabilitated cetaceans. The checklist includes a health statement (*i.e.*, health certificate) to be signed by the attending veterinarian and authorized representative, which verifies that a cetacean meets appropriate Standards for Release. This checklist could be used to determine and document releasability (*i.e.*, as part of the required documentation sent to NMFS – refer to Figure 2.1) and as a final check just prior to release.

The case should fit into one of three “**RELEASE CATEGORIES**”:

- **“RELEASABLE”:** This category indicates that there are no significant concerns related to the likelihood of survival in the wild and/or risk of introducing disease into the wild population. In addition, the animal meets basic situational, developmental, behavioral, and medical release criteria. The release plan has been approved in writing by NMFS Regional Administrator via the RSC by a letter of concurrence to the applicant. For the cetacean 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.
- **“CONDITIONALLY RELEASABLE”:** One or more items on the standardized checklist have been marked “No” for cetaceans in this category. This category indicates that there are concerns about the situational, developmental, behavioral, 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 or in certain cases where requirements may never be met. 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, including any cetacean rehabilitated for less than 96 hours (short-term rehabilitation) on a case-by-case basis. For some cases, NMFS may consult with individual experts to seek additional advice. The experts may include scientists and veterinarians with expertise in cetacean biology and medicine (*i.e.*, particularly experts with species-specific knowledge). These discussions may reveal that additional medical testing or rehabilitative therapy may be required to release a “Conditionally Releasable” cetacean; or animals may be released, knowing that there are concerns about potential survival. Additional requirements may be placed upon the release plan, and enhanced post-release monitoring is usually required for a “Conditionally Releasable” cetacean.

- **“NON-RELEASABLE”:** This category indicates that there are significant situational, developmental, behavioral, and/or medical concerns regarding a cetacean’s release to the wild. The cetacean 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 “Non-Releasable,” and with the concurrence from the NMFS Regional Administrator via the RSC, 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 U.S.C. 2131 *et seq.*] and comply with MMPA (16 U.S.C. 1374 §104(c)(7)). Facilities wishing to obtain Non-Releasable animals should send a Letter of Intent to 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 (procedural directive) 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 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. More information can be found here: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/non-releasable-marine-mammals>

3.3 Situational Assessment of Cetaceans

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

- **A record of previous stranding** – Stranded cetaceans that have previously stranded and been released, and subsequently strand again, are deemed “Conditionally Releasable” for further release attempts 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.
- **Environmental and logistical considerations** – Release planning ideally should occur within the species/stock range of the cetacean. Conditions around the original stranding as well as the existing environmental conditions should be taken into consideration when planning for the release. Examples for when a species can be released outside of its species/stock range include UMEs, HABs, and other logistical constraints (*e.g.*, oceanic species cannot be taken offshore due to

logistical constraints).

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. Sub-adult and adult cetaceans are both nutritionally and socially independent, and these developmental considerations will not impact release determinations. The cetacean calf grows from a state of total nutritional dependence through nursing to partial maternal dependence as it learns to forage for prey. Eventually the young cetacean achieves total nutritional independence and forages completely on its own. Social learning is an important component of calf development, and includes things such as social interactions, learning how to forage, predator avoidance, navigation, etc. Social independence may take longer, depending on species. A calf's social independence needs to be evaluated prior to release. Factors including individual and species variations, rehabilitation practices, health status, plus environmental factors influences the rate at which such social development occurs (see Appendix F for Developmental Stages by Cetacean Species).

- Sub-adult and adult cetaceans are considered socially and nutritionally independent and should be considered to meet the developmental criteria for releasability.
- Very young nursing calves, that strand alone or whose mothers die, are considered nutritionally and socially dependent. Nutritionally and socially dependent (neonatal and very young nursing) calves will be deemed "Non-Releasable" (case-by-case review for ESA species may be conducted). Cases involving older calves and juveniles that may have some foraging skills may be considered nutritionally independent, but may still be socially dependent. These age classes will be considered "Conditionally Releasable" or "Non-Releasable" on a case-by-case basis. If "Conditionally Releasable," a thorough assessment, optimum release planning, and subsequent post-release monitoring is required.

Reproductive status in and of itself does not impact release candidacy unless a female strands with its calf or gives birth during rehabilitation. 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.

Considerations for cow/calf cetacean pairs - All mother-calf cetacean pairs are deemed "Conditionally Releasable" and must be fully discussed with NMFS. 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 both individuals, if warranted. In situations where a nursing, dependent calf strands with its mother and both animals achieve medical and behavioral clearance, the calf should be released with its mother, assuming it meets all of the other criteria for release. A stranding of a mother/calf pair may be the result of illness or injury to either the mother, calf, or both. If the calf dies or is euthanized, the mother could be considered for release following a thorough and appropriate assessment. If the mother dies or is euthanized, the calf (if nutritionally and socially dependent) will be considered "Non-Releasable" or be euthanized.

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 assess the behavior of the rehabilitated cetacean. These assessments should involve closely evaluating and documenting behavior throughout rehabilitation (*i.e.*, ethogram), and 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. A cetacean should swim and dive effectively without evidence

of aberrant behavior or 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.

3.5.1 Breathing, Swimming, and Diving

The Assessment Team should evaluate respiration at the pre-release exam 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 than 50 feet 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 Releasable” or “Non-Releasable” and must be discussed with NMFS.

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 “Non-Releasable” and thus are to be discussed with NMFS.

3.5.3 Auditory Acuity

The behavioral and ecological clearance of the cetacean should include evaluation of auditory 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. Reduced auditory abilities can compromise the ecological functionality and social abilities of some species, thus reducing the probability of survival in the wild. It is important to evaluate hearing; especially if there are signs of compromised auditory function. Diagnostic testing such as auditory evoked potential (AEP) is strongly encouraged to further evaluate the animal. Such testing requires approval and coordination with NMFS. Cetaceans with less than perfect hearing may be considered “Conditionally Releasable” or “Non-Releasable” and thus are to be discussed with NMFS.

3.5.4 Visual Acuity

The behavioral and ecological clearance of the cetacean should include evaluation of visual acuity. Visual dysfunction may be a reflection of active disease, permanent injury, or degenerative changes associated with aging. Cetaceans having discoloration, swelling, abnormal shape, position, or appearance of the eye or eyelids may have visual dysfunction and require discussion with NMFS. Animals suspected of having visual dysfunction should have a complete eye exam and/or consultation with an ophthalmologist. Cetaceans with some visual loss may be considered “Conditionally Releasable” or “Non-Releasable” and thus are to be discussed with NMFS.

3.5.5 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. Normal consumption of solid food should also be part of the medical assessment. This demonstrates the ability to swallow and that there is no pharyngeal and/or gastrointestinal abnormalities. This evaluation is especially important for young and geriatric animals. 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 with compromised prey capture abilities may be considered "Conditionally Releasable" or "Non-Releasable" and thus are to be discussed with NMFS. 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. In addition, 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).

3.6 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, diagnostic testing, medical, and husbandry records. 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.*, infectious diseases). Those that are zoonotic or a public health and safety concern require immediate NMFS notification to assure proper protocols are put into place. Additional testing may be required if the animal was part of an official UME or suspected anthropogenic exposure (*e.g.*, acoustic insult, hazardous waste spill, etc.). NMFS may request testing for other emerging diseases 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 RSC through the MMHSRP.

A complete health screen should be completed upon admission and just prior to release including basic blood collection for a CBC and chemistry profile, and may also include serology, microbial and fungal culture (*i.e.*, blow hole, ocular, oral rectal, and lesions), cytology, urinalysis, and fecal exam. If the animal is female and at reproductive age, it is advisable that pregnancy be determined (*e.g.*, ultrasound, hormones) as soon as possible to avoid potentially fetal toxic medication. Serum is encouraged to 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 animal is no longer dependent on the medication. When this recommendation cannot be met, seek advice from NMFS, and the animal may be deemed "Conditionally Releasable." The attending veterinarian should provide written notification to the NMFS RSC that a health screen and assessment of the cetacean has been performed. The notification must also include the final release plan and a plan for hands-on evaluation by the veterinary or husbandry staff within 72 hours of its release. The required documentation and signed release determination will be part of the administrative record along with the signed (by the NMFS Regional Administrator) letter of concurrence approval for release. If there are any deviations from the medical release criteria, please consult with NMFS to determine if the cetacean is "Conditionally Releasable" or "Non-Releasable."

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 stress the animal increasing its susceptibility to disease. If not properly managed, rehabilitation facilities provide an environment where mutated or novel pathogens not typically encountered in the wild can easily be transmitted from animal to

animal. This scenario can become problematic if an animal is exposed during rehabilitation and may carry a pathogen to a naïve wild population upon release. During rehabilitation, infectious agents may become altered (*i.e.*, change in virulence and infectivity) as they pass through new hosts or mix with other microbes and potentially result in a multi-antibiotic resistance strain.

The attending veterinarian is urged to utilize the full spectrum of diagnostic modalities available for health assessment of the cetacean. In addition to the complete health screen analyses, advanced techniques for pathogen detection such as PCR and toxicology analyses are available. A number of diagnostic imaging techniques including various radiology modalities 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 (Gulland *et al.* 2018).

3.7 Release Planning for Cetaceans

Ideally, the rehabilitated cetacean is released into its species/stock range. For species such as coastal resident bottlenose dolphins, returning the animal to its exact home range if known, may be extremely important. For widely ranging species such as the pilot whale, specificity of the release site may be less critical. 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. Cetaceans that 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. Consideration should also be given to the time of year, since the range of the animal may change based on season and where conspecifics are located 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 ideally are to be released offshore into a habitat occupied by conspecifics at that time of year. Animals that mass strand, depending on the life history, should be released together as a group, when possible. Because much of cetacean behavior is learned, mass stranded juveniles should be released with adults, or in the presence of conspecifics, when feasible.

Other factors to be considered in release site selection are availability of resources and condition of the habitat. NMFS and the Stranding Network Participant should 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 identify alternative release sites or schedules if there are insufficient resources or habitat quality such as massive fish kills, significant declines in commercial and/or recreational fish landings, HABs, or high concentrations of environmental contaminants at the preferred release site. Additionally, consultation and communication with local authorities, land management agencies, or those with jurisdiction over proposed release sites, should be conducted prior to conducting release activities to minimize potential impacts associated with the release to other species. NMFS may approve release of animals outside of their species/stock range or at an alternative release site, but those cetaceans will be deemed "Conditionally Releasable." Released cetaceans should never be fed post-release.

3.8 Marking for Individual Identification of Cetaceans Prior to Release

Three forms of identification have routinely been used for cetaceans including photo-identification (documenting individual identifying physical characteristics such as scars, color pattern, dorsal fin shape, etc.), freeze branding, and dorsal fin tags. NMFS recommends the use of all three forms of identification for all releases when feasible. For delphinids, photo-identification should include body, face, dorsal fin, flukes, and pectoral flippers. Numerical freeze brands should be at least 2" high and may be placed on

both sides of the dorsal fin and/or 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 can 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 wants to place on a cetacean besides those mentioned above. NMFS authorization is required prior to placement of very high frequency (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 require VHF or satellite tagging in addition to photo-identification, and freeze branding.

3.9 Post-Release Monitoring of Cetaceans

Few data are currently available regarding the long-term fates of released cetaceans (Wells *et al.* 2013). Post-release monitoring provides essential information to develop and refine marine mammal rehabilitation and release practices. “Conditionally Releasable” cetaceans should be monitored as frequently as possible for at least six weeks 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. In a few instances, NMFS has provided resources such as financial support, personnel, and equipment for post-release monitoring but it is not standard practice. Therefore, the rehabilitation facility is encouraged to seek funding to enhance their post-release monitoring program.

The first month after release 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 that can be re-sighted using boat surveys it is recommended that monitoring continue on a regular basis for as long as possible. Funding resources, such as the Prescott Grant Program, may be able to 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 discussion of contingency plans 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 re-strands. 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 via the RSC concurs in writing. This means that the requirements for the health and behavior assessment, marking/tagging, and release plan 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.

Situational Clearance

Cetacean has no situational information requiring consultation with NMFS such as previous stranding, or will be released outside of species/stock range due to environmental factors such as an oil spill, HAB or UME.

Developmental Stage/Life History

- a) Cetacean is a sub-adult/adult and is nutritionally and socially independent.
- b) Cetacean is a calf that is nutritionally independent and forages completely on its own.
- c) Cetacean is a calf that is socially independent (stock/species-specific).

Behavioral Clearance

- a) Cetacean demonstrates acceptable breathing, swimming and diving.
- b) Cetacean does not exhibit aberrant behavior (regurgitation, head pressing, postural abnormalities, and decreased range of motion).
- c) Cetacean exhibits full auditory function.
- d) Cetacean exhibits full visual function.
- e) Cetacean demonstrates foraging behavior or the ability to hunt and capture live prey.

Medical Clearance

- a) Attending veterinarian has reviewed the cetacean's situation and medical records and has deemed it appropriate for release.
- b) Attending veterinarian has examined the cetacean within two weeks of release.
- c) Required health screen and assessments were conducted (following conclusion of medical treatment) with appropriate results for the age and species of the animal.
- d) Veterinary or husbandry staff performed a hands-on exam within 72 hours of release to assess for any medical or condition changes.
- e) Cetacean has no known congenital defects.
- f) Cetacean's appendages are functional.
- g) Cetacean is sufficiently robust, having adequate reserves to survive readjustments in the wild.
- h) Cetacean has no active infection from exposure to domestic/terrestrial animals (e.g., dog, fox, coyote, etc.)
- i) Cetacean has not inflicted a bite on a human(s) during rehabilitation; or a bite has occurred that broke the skin but the animal has passed the quarantine period.
- j) CBC results are generally within normal ranges for the age and species of the animal (within two weeks of release).
- k) Chemistry profile results are generally within normal ranges for the age and species of the animal (within two weeks of release).
- l) Additional testing requested by NMFS has been reviewed and is not concerning.
- m) Medications have not been administered in the two weeks prior to release.
- n) Attending veterinarian signed health statement.

Release Logistics

- a) Release site selection rationale is appropriate, including return to appropriate stock and geographical site under favorable environmental conditions and social species will be released into areas with conspecifics.
- b) Consultation and communication with local authorities, land management agencies, or those with jurisdiction over proposed release sites, should be conducted prior to conducting release activities to minimize potential impacts associated with the release to other species.
- c) Research and/or monitoring plan is appropriate, including tracking for a minimum of six weeks post-release coordinated with NMFS (including providing NMFS with regular tracking updates). A report will be provided to NMFS at the end of the tracking period.
- d) Contingency plan is appropriate, including monitoring stress during transport; recapture if necessary for relocation, placement or euthanasia.

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. This may involve discussion with outside experts in consultation with NMFS. After discussion with experts and NMFS, the animal may be deemed “Conditionally Releasable” even if one or more criteria cannot be resolved but the animal has a reasonable chance (>50%) of surviving in the wild. Contingency plans for recapture, treatment, permanent care, and euthanasia should be required if release is unsuccessful and the animal re-strands. The following may be true for one or more assessment points.

Situational Clearance

- a) Cetacean has previously stranded.
- b) Cetacean release is planned to occur outside of species/stock range due to factors such as environmental and logistical concerns (e.g., oil spill, HAB, UME, etc.)

Developmental Stage

- a) Cetacean is nutritionally independent and forages completely on its own, but is a younger, socially dependent calf (requires expert consultation based upon specific stock/species).
- b) Cetacean is a calf that was stranded, rehabilitated, and released with its mother.

Behavioral Assessment

- a) Cetacean exhibits deficiency in breathing, swimming, and diving (requires expert consultation).
- b) Cetacean demonstrates aberrant behavior (regurgitation, head pressing, postural abnormalities, decreased range of motion, etc.) including excessive interest in interaction with humans or husbandry behaviors that were conditioned during rehabilitation. These behaviors could be counter-conditioned or have modified release plan.
- c) Cetacean exhibits some hearing impairment.
- d) Cetacean exhibits some vision loss.
- e) Cetacean demonstrates deficiency in foraging behavior or the ability to hunt and capture live prey (requires expert consultation).

Medical Assessment - The attending veterinarian determines that the health status of the cetacean is uncertain regarding suitability for release, and the review of uncertain health status requires an expert consultation.

- a) The veterinarian arrives at a determination of “Conditionally Releasable” through performance and interpretation of physical examinations (e.g., partial damage to appendages, low release weight)
- b) Interpretations of tests such as CBC, chemistry profile, cultures, and other tests required by NMFS, plus any other diagnostic tests deemed necessary to fully evaluate the animal, may have abnormalities that make the cetacean “Conditionally Releasable.”
- c) Response of the cetacean to therapy and the clinical judgment of the veterinarian may also contribute to a determination of “Conditionally Releasable.”
- d) Further tests may be required including ultrasound or radiographs to clarify medical issues.
- e) Animals may also be considered “Conditionally releasable” if they received medications within two weeks of release.

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 six weeks duration, likely longer. Monitoring is likely to include advanced tracking techniques, such as photographic identification surveys, or radio or satellite tagging if the animal is likely to move outside of the range of monitoring.
- b) Plan for recapture - NMFS may request a contingency plan for recapture if feasible for a “Conditionally Releasable” cetacean prior to its release should the animal appear to be unable to readjust to the wild. 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 via the RSC. 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.

Situational Clearance

- a) Cetacean has previously stranded and is determined to not be a good candidate for release due to the reasons for re-stranding (includes assessment of previous strandings).
- b) Release is planned to occur outside of species/stock range due to factors such as environmental and logistical concerns (e.g., oil spill, HAB, UME, etc.). After expert consultation, the cetacean needs to be held until the above factors remedy, if this takes longer than two years the cetacean may be declared “Non-Releasable.”

Developmental Stage

- a) Cetacean is nutritionally and socially dependent (neonate and young nursing calf without foraging skills).

Behavioral Clearance

- a) Cetacean does not demonstrate acceptable breathing, swimming, and diving behavior.
- b) Cetacean demonstrates aberrant behavior (regurgitation, head pressing, postural abnormalities, and decreased range of motion, etc.) including excessive interest in interaction with humans that cannot be de-conditioned.
- c) Cetacean exhibits significant auditory dysfunction that would compromise survival in the wild or is completely deaf.
- d) Cetacean exhibits significant visual dysfunction that would compromise survival in the wild or is fully blind.
- e) Cetacean demonstrates inability to forage or the inability to hunt and capture live prey.

Medical Clearance - The attending veterinarian determines that the health of the cetacean precludes release.

- a) 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 and is therefore, “Non-Releasable.”
- b) The veterinarian supports the determination of “Non-Releasable” status with significant abnormalities present in the required physical examinations and tests such as CBC, chemistry profile, cultures, and those required by NMFS, plus any other tests deemed necessary to fully evaluate the animal.
- c) Further tests may be required including ultrasound or radiographs, to clarify medical issues.
- d) The veterinarian presents their findings to the NMFS RSC and recommends that the cetacean is “Non-Releasable” and be maintained in captivity or be euthanized.

4 Guidelines for Release of Rehabilitated Pinnipeds

4.1 Introduction

Each year in the U.S., 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 USFWS, these guidelines should be generally applied but there are a few exceptions. Close consultation with USFWS is required with each walrus case.

Except as otherwise noted, each pinniped is required to have a complete situational, 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 the 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 USFWS may require additional testing for infectious diseases in light of new findings regarding various disease and health issues and this information should be included in the release request. See Appendix B - Recommended Standard Checklist for Pinniped Release Determination. 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., restraints). A release plan template is also available in Appendix C. NMFS or USFWS 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 USFWS prior to this activity. NMFS or USFWS 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 216.27(a)(2)(i)(A). Typically, these cases are anticipated and can be appropriately planned (e.g., the typical species and time of year, presenting with known etiologies, and with routine diagnosis and treatment). 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 via the RSC on a schedule as prescribed in the SA. 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 situational, developmental, behavioral, and medical criteria set forth in a standardized checklist. It is recommended that the standardized checklist (see Appendix B) 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 and authorized representative, which verifies that a pinniped meets appropriate Standards for Release. This checklist could be used to determine and document releasability (*i.e.*, as part of the required documentation sent to NMFS) and as a final check just prior to release.

The majority of walrus typically strand as calves and are not good release candidates due to the extended period of maternal dependency. USFWS generally considers walrus calves to be “Non-Releasable” and considers all stranded walrus on a case-by-case basis for permanent placement. If the walrus is placed in permanent captivity, the receiving facility must hold an Exhibitor’s License from APHIS [7 U.S.C. 2131 *et seq.*] and comply with MMPA (16 U.S.C. 1374 §104(c)(7)). Questions regarding disposition of stranded walrus should be directed to the USFWS contacts.

The case should fit into one of three “**RELEASE CATEGORIES:**”

- **"RELEASABLE"**: There are no significant concerns and the animal meets basic situational, developmental, behavioral, 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.
- **"CONDITIONALLY RELEASABLE"**: One or more items on the standardized checklist have been marked "No" for pinnipeds in this category. This may pertain to situational, developmental, behavioral, and/or medical status concerns regarding the potential ability of the animal 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 USFWS. NMFS or USFWS 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.

- **"NON-RELEASABLE"**: One or more items on the standardized checklist have been marked "No" for pinnipeds in this category. This may pertain to situational, developmental, behavioral, and/or medical status concerns that preclude release to the wild. The pinniped 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 USFWS Marine Mammals Management Office for concurrence on this finding and eventual disposition of the animal. If USFWS 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 "Non-Releasable" 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 Non-Releasable animals should send a Letter of Intent to 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 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. More information can be found here: <https://www.fisheries.noaa.gov/national/marine-mammal-protection/non-releasable-marine-mammals>.

4.3 Situational Assessment of Pinnipeds

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

- **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 USFWS. Such animals should be reassessed 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.
- **Environmental and logistical considerations** – Release planning ideally should occur within the species/stock range of the pinniped. Conditions around the original stranding as well as the existing environmental conditions should be taken into consideration when planning for the release. Examples for when a species can be released outside of its species/stock range include UMEs, HABs, and other logistical constraints (e.g., oceanic species cannot be taken offshore due to logistical constraints). 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 could be deemed “Conditionally Releasable.”

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, some social species of Otariid pinnipeds (e.g., California sea lion, *Zalophus californianus*; Steller sea lion, *Eumetopias jubatus*) may require prolonged maternal care and social learning to successfully forage in the wild (Davis 2014, Harris 2016). For these species of pinnipeds, pups admitted prior to weaning (<6 months of age) may be considered “Conditionally Releasable” or “Non-Releasable” and require consultation with NMFS. Because 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 the 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 (see Appendix G, for species-specific developmental stages and pupping information). The risk of altered behavior can be related to both the length of treatment and the age of the animal at the time of stranding. Pups stranded as maternally dependent neonates and animals spending an extended time in rehabilitation being at highest risk. Special care should be taken with these more socially dependent species, especially if rehabilitating very young pups and should be considered “Conditionally Releasable.”

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. The birth of a pup in rehabilitation requires immediate notification to NMFS of the birth. Such females and their offspring are “Conditionally Releasable” and must be discussed with NMFS or USFWS. 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 “Conditionally Releasable” with its mother, but not alone. Additionally, a pup born in rehabilitation that cannot be released with its mother (*i.e.*, mother dies) may be considered “Conditionally Releasable” or “Non-Releasable” and requires immediate consultation with NMFS on the death of its mother. Additionally, premature parturition from domoic acid intoxication is a common finding for California sea lions along the west coast and can result in pups that may have underlying neurological deficiencies that could impact their ability to be released (Brodie *et al.* 2006, Goldstein *et al.* 2008, Simeone *et al.* 2019). 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 then may be considered “Conditionally Releasable” due to health concerns and are to be discussed with NMFS or USFWS.

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 not display aberrant behavior or auditory or visual dysfunction that may compromise its survival in the wild or suggest an underlying disease of concern to wild marine mammals. Behavioral clearance also includes confirmation that the animal can respond to, and is able to capture and consume, live prey when feasible.

4.5.1 Breathing, Swimming, Diving, and 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 an 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. Other examples include attraction to or desensitization to the presence of humans such as in the case of pups imprinting on humans. 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 hunt and capture live prey prior to their release, when feasible. 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. However, many pinnipeds often will not consume non-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 "Non-Releasable." If logistical issues preclude

evaluation of prey capture and consumption or there is a question about the quality of live prey, NMFS or USFWS should be consulted.

Rehabilitated pinnipeds that have been in captivity longer than one year, ESA species pinnipeds, 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 or near admission and prior to the release determination. The attending veterinarian should review the animal's complete history including all stranding information, diagnostic testing, medical, and husbandry records (including food consumption and weight and length progression). The primary goal of testing required by NMFS or USFWS 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.*, certain infectious diseases). Those diseases that are zoonotic or of public health and safety concern require immediate NMFS notification to assure proper protocols are put into place. Additional testing may be required if the animal was part of an official UME. 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 any specific pre-release health screening will come from the NMFS RSC through the MMHSRP.

A complete health screen should be completed upon or near admission and just prior to release including basic blood collection for a CBC, chemistry profile, and may include serology, microbial and fungal culture (*i.e.*, nasal, ocular, oral, rectal, and lesions), cytology, urinalysis, and fecal exam. If the animal is female and at reproductive age, it is advisable that pregnancy is ruled out (via ultrasound or hormones) prior to prescribing potentially fetal toxic medication. Serum is encouraged to 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 animal is no longer dependent on the medication.

When this recommendation cannot be met, seek advice from NMFS, and the animal may be deemed "Conditionally Releasable." The attending veterinarian should provide written notification to the NMFS RSC that a health screen and assessment of the pinniped has been performed. The notification must also include the final release plan and a plan for hands-on evaluation by the veterinary or husbandry staff within 72 hours of its release. The required documentation and signed release determination will be part of the administrative record along with the signed letter (by the NMFS Regional Administrator) of concurrence approval for release. 50 CFR 216.27 (a)(2)(i)(A) allows for waiving this advance release notification in writing by the Regional Administrator via the RSC. Generally, these waiver cases are anticipated and can be appropriately planned (*e.g.*, the typical species and time of year, presenting with known etiologies, and with routine diagnosis and treatment). 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 via the RSC on a schedule as prescribed in the SA. If there are any deviations from the medical release criteria, please consult with NMFS to determine if the pinniped is "Conditionally Releasable" or "Non-Releasable."

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. Infectious agents may become more pathogenic as they pass through new individuals and naïve species or genetically altered from indiscriminate 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 modalities 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 (Gulland *et al.* 2018).

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 may be required if the animal was part of an official UME. Specific testing requirements (*i.e.*, pre-release health screen) will come from the NMFS RSC through the MMHSRP and follows the term and responsibilities stated in the NMFS SA.

4.7 Release Site Selection for Pinnipeds

The release of a rehabilitated pinniped should be planned to maximize its chances for survival in the wild. 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 and other environmental factors impacting the habitat and food availability should also be evaluated.

The rehabilitated pinniped is to be released into its species/stock range whenever possible. Return of the animal to its species range is preferable, as the acclimating 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 wide ranging species, the release site selection is considered on a case-by-case basis. Consultation with NMFS is required for these cases. If the range of conspecifics is 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 animals 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 before 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. 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 an infectious disease cannot be released near their original stranding site. Another important consideration is

the location of the rehabilitation facility to the normal habitat range for the species, *e.g.*, the rehabilitation of an ice seal in the Caribbean. The decision to release in the normal habitat range would need to be thoroughly discussed with NMFS.

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. Additionally, consultation and communication with local authorities, land management agencies, or those with jurisdiction over proposed release sites, should be conducted prior to conducting release activities to minimize potential impacts associated with the release to other species.

4.8 Identification of Rehabilitated Pinnipeds Prior to Release

NMFS and USFWS 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 USFWS and/or USGS (for walrus) as appropriate for the pinniped species. Although re-sightings 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 or hot branding, glue tags, etc. may be used in addition to flipper tags to increase resights (Geraci and Lounsbury 2005).

4.9 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 or hot branded pinnipeds from land, sea, or air, as well as radio, acoustic, or satellite-linked monitoring. Radio and satellite-linked tag monitoring programs are highly desirable as they provide a wealth of information regarding the activities and fates of released animals. NMFS or USFWS may require and coordinate post-release monitoring plans for “Conditionally Releasable” or ESA 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 USFWS 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, acoustic, or satellite-linked tag monitoring for the duration of the tag. Funding resources such as the Prescott Grant Program may 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 contingency plans for recovering the released pinniped, should monitoring indicate its failure to thrive and especially if it re-strands, including options for treatment, permanent care, or euthanasia. In addition, NMFS will request such contingency plans for “Conditionally Releasable” and ESA pinnipeds, depending on the circumstances.

4.10 Decision Tree – Pinniped Release Categories

4.10.1 Releasable

The pinniped is cleared for release by the attending veterinarian (including the Assessment Team) and the NMFS Regional Administrator via the RSC concurs in writing, unless a waiver is in place. This means that the requirements for the health and behavior assessment, marking/tagging, and release plan 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.

Situational Clearance

- a) Pinniped has no situational information requiring consultation with NMFS such as previous stranding or will be released outside of species/stock range due to environmental factors such as an oil spill, HAB or UME.

Developmental Stage/Life History

- a) Pinniped is a sub-adult/adult and is nutritionally and socially independent.
- b) Pinniped is a pup that is nutritionally independent and forages completely on its own.
- c) Pinniped is a pup that is socially independent (stock/species-specific).

Behavioral Clearance

- a) Pinniped demonstrates acceptable breathing, swimming, diving and locomotion on land.
- b) Pinniped does not exhibit aberrant behavior (regurgitation, head pressing, postural abnormalities, and decreased range of motion).
- c) Pinniped exhibits full auditory function.
- d) Pinniped exhibits full visual function.
- e) Pinniped demonstrates foraging behavior or the ability to hunt and capture live prey.

Medical Clearance

- a) Attending veterinarian has reviewed the pinniped’s situation and medical records and has deemed it appropriate for release.
- b) Attending veterinarian has examined the pinniped within two weeks of release.
- c) Required health screen and assessments were conducted (following conclusion of medical treatment) with appropriate results for the age and species of the animal.
- d) Veterinary or husbandry staff performed a hands-on exam within 72 hours of release to assess for any medical or condition changes.
- e) Pinniped has no known congenital defects.
- f) Pinniped’s appendages are functional.
- g) Pinniped is sufficiently robust, having adequate reserves to survive readjustments in the wild.
- h) Pinniped has no active infection from exposure to domestic/terrestrial animals (e.g., dog, fox, coyote, etc.)
- i) Pinniped has not inflicted a bite on a human(s) during rehabilitation; or a bite has occurred that broke the skin but the animal has passed the quarantine period.
- j) CBC results are generally within normal ranges for the age and species of the animal (within two weeks of release).
- k) Chemistry profile results are generally within normal ranges for the age and species of the animal (within two weeks of release).
- l) Additional testing requested by NMFS has been reviewed and is not concerning.
- m) Medications have not been administered in the two weeks prior to release.
- n) Attending veterinarian signed health statement.

Release Logistics

- a) Release site selection rationale includes return to appropriate stock and geographical site under favorable environmental conditions, and for social species, released into areas with conspecifics, if feasible.
- b) Consultation and communication with local authorities, land management agencies, or those with jurisdiction over proposed release sites, should be conducted prior to conducting release activities to minimize potential impacts associated with the release to other species.

4.10.2 Conditionally Releasable

The pinniped 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. This will involve discussion with NMFS and possible consultation with outside experts. After discussion with NMFS and experts, the animal may be deemed “Conditionally Releasable” even if one or more criteria cannot be resolved but the animal has a reasonable chance (>50%) of surviving in the wild. Contingency plans for recapture, treatment, permanent care, and euthanasia may be required if release is unsuccessful and the animal re-strands. The following may be true for one or more assessment points.

Situational Clearance

- a) Pinniped has previously stranded.
- b) Pinniped release is planned to occur outside of species/stock range due to factors such as environmental and logistical concerns (e.g., oil spill, HAB, UME, etc.)

Developmental Stage

- a) Pinniped is nutritionally independent and forages completely on its own, but stranded as a younger, socially dependent unweaned Otariid pup (requires NMFS consultation based upon specific stock/species, e.g., California sea lion, Steller sea lion).
- b) Pinniped is a pup that was born in rehabilitation, was rehabilitated, and is being released with its mother (requires NMFS consultation).
- c) Pinniped is a pup that was born in rehabilitation and cannot be released with its mother (requires NMFS consultation).

Behavioral Assessment

- a) Pinniped exhibits deficiency in breathing, swimming, diving, and locomotion on land (e.g., loss of an appendage, requires NMFS consultation).
- b) Pinniped demonstrates aberrant behavior (regurgitation, head pressing, postural abnormalities, decreased range of motion, etc.) including excessive interest in interaction with humans or husbandry behaviors that were conditioned during rehabilitation. These behaviors could be counter-conditioned or have a modified release plan.
- c) Pinniped exhibits some hearing impairment.
- d) Pinniped exhibits some vision loss (e.g., non-visual or loss on one eye).
- e) Pinniped demonstrates deficiency in foraging behavior or the ability to hunt and capture live prey (requires NMFS consultation).

Medical Assessment - The attending veterinarian determines that the health status of the pinniped is uncertain regarding suitability for release; review of uncertain health status requires NMFS consultation.

- a) The veterinarian arrives at a determination of “Conditionally Releasable” through performance and interpretation of physical examinations (e.g., partial damage to appendages, low release weight, etc.)
- b) Interpretations of tests such as CBC, chemistry profile, cultures, and other tests required by NMFS, plus any other diagnostic tests deemed necessary to fully evaluate the animal, may have abnormalities that make the pinniped “Conditionally Releasable.”
- c) Response of the pinniped to therapy and the clinical judgment of the veterinarian may also contribute to a determination of “Conditionally Releasable.”
- d) Further tests may be required including ultrasound or radiographs to clarify medical issues.
- e) Animals may also be considered “Conditionally Releasable” if they received medications within two weeks of release.

Release Logistics

- a) Tagging, marking, post-release monitoring - Extensive post-release monitoring of pinnipeds deemed “Conditionally Releasable” is required when feasible and is to be approved and coordinated through NMFS. Post-release monitoring of such animals should be at least 6 weeks duration, likely longer. Monitoring is likely to include advanced tracking techniques, such as flipper tag surveys, or radio or satellite tagging if the animal is likely to move outside of the range of monitoring.
- c) Plan for recapture - NMFS may request a contingency plan for recapture if feasible for a “Conditionally Releasable” pinniped prior to its release should the animal appear to be unable to

readjust to the wild. This should include plans for follow up treatment, permanent care, and/or euthanasia.

4.10.3 Non-Releasable

The pinniped is determined to be unsuitable for release by the attending veterinarian and Assessment Team and the NMFS Regional Administrator via the RSC 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.

Situational Clearance

- a) Pinniped has previously stranded and is determined to not be a candidate for release due to reasons for re-stranding (includes assessment of previous strandings).
- b) Release is planned to occur outside of species/stock range due to factors such as environmental and logistical concerns (e.g., oil spill, HAB, UME, etc.). After expert consultation, the pinniped needs to be held until the above factors remedy, if this takes longer than two years the pinniped may be declared “Non-Releasable.”

Developmental Stage

- a) Pinniped is nutritionally independent and forages completely on its own, but stranded as a younger, socially dependent unweaned Otariid pup (requires NMFS consultation based upon specific stock/species, e.g., California sea lion, Steller sea lion).
- b) Pinniped is a pup that was born in rehabilitation and cannot be released with its mother (requires NMFS consultation).

Behavioral Clearance

- a) Pinniped does not demonstrate acceptable breathing, swimming, diving, or locomotion on land.
- b) Pinniped demonstrates aberrant behavior (regurgitation, head pressing, postural abnormalities, and decreased range of motion, etc.) including excessive interest in interaction with humans that cannot be de-conditioned.
- c) Pinniped exhibits significant auditory dysfunction that would compromise survival in the wild or is completely deaf.
- d) Pinniped exhibits significant visual dysfunction that would compromise survival in the wild or is fully blind.
- e) Pinniped demonstrates inability to forage or the inability to hunt and capture live prey.

Medical Clearance - The attending veterinarian determines that the health of the pinniped precludes release.

- a) 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.
- b) 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 deemed necessary to fully evaluate the animal.
- c) Further tests may be required including ultrasound or radiographs, to clarify medical issues.
- d) The veterinarian presents their findings to the NMFS RSC and recommends that the pinniped is “Non-Releasable” and be maintained in captivity or be euthanized.

5 Guidelines for Release of Rehabilitated Manatees

5.1 Introduction

West Indian manatees inhabit areas throughout the Caribbean basin and consist of two subspecies: the Florida manatee (*Trichechus manatus latirostris*) and the Antillean manatee (*Trichechus manatus manatus*). In the United States, the Florida subspecies can be found in southeastern coastal waters and the Gulf of Mexico, with Florida at the core of its range. The Antillean subspecies is found outside of Florida throughout the Caribbean basin (including Puerto Rico).

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 or brevetoxins, mother/calf separation, seasonal disorientation, intentional beaching, etc.

The USFWS is the management authority for the threatened West Indian manatee. The North Florida Ecological Services Field Office (NFESFO) has the recovery lead and coordinates the daily management for the Florida subspecies. Numerous efforts are underway to assist with the manatee recovery, including the implementation of the Manatee Rescue, Rehabilitation and Release Program (Rehab Program). Since its inception in 1973, this program has conducted rescue and release activities to promote the conservation of wild manatee populations. The Rehab Program consists of various partners from oceanaria, Federal, State and local agencies, non-governmental organizations (NGO) and academia. The goal of the Rehab Program is to rescue and rehabilitate injured and distressed manatees and release them back into the wild when medically feasible. The NFESFO conducts this program according to provisions of the ESA and MMPA; authorization is given through the issuance of a Marine Mammal Enhancement Permit from the Service's 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 current version of the Florida Manatee Recovery Plan (2001), developed pursuant to the ESA. The NFESFO coordinates a network of individuals, facilities, and agencies through Letters of Authorization for Cooperators (LOAFC) to rescue, rehabilitate, and release manatees.

For Antillean manatees, all rescue-related communications and the day-to-day decision making process in the field are generally handled by the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Marine Mammal Program in conjunction with reports from the public utilizing their PRDNER Ranger's main line (787) 724-5700 or through the Puerto Rico Manatee Conservation Center (PRMCC) contacts. If in the U.S. Virgin Islands (rare cases), efforts can be coordinated with the Virgin Islands Department of Planning and Natural Resources, the National Park Service, and the PRMCC. In Puerto Rico, all activities related to the verification of a report of a manatee in trouble, subsequent rescue, and transport to rehabilitation facilities are communicated through the PRDNER, the USFWS, and the PRMCC, according to established protocols. The USFWS's Caribbean Ecological Services Field Office (CESFO) coordinates a manatee rescue, rehabilitation, and release program to assist these animals in Puerto Rico and U.S. Virgin Islands. The CESFO conducts this program according to the provisions of an ESA/MMPA marine mammal enhancement permit issued by the USFWS's DMA. The permit authorizes "take" activities for an unspecified number of manatees for the purpose of enhancing its survival and recovery, consistent with the USFWS's manatee recovery plan developed pursuant to the ESA. Rescue-related communications and efforts have also been coordinated with other Caribbean countries (e.g., Cuba and Turks & Caicos Islands) and would include coordination with USFWS's International Affairs for a permit issued under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The CESFO coordinates with the PRMCC as the only facility in Puerto Rico with an LOA issued under section 109(h) and section 112(c) of the MMPA [16 U.S.C. 1379(h) and 16 U.S.C. 1382(c)] to authorize activities related to the rescue (including temporary capture, possession, transport, and transfer), rehabilitation, and post-release monitoring of manatees.

Release guidelines were first developed by Rehab Program participants in 1991 and subsequently revised

in 2001 and again in 2009. The release guidelines are based on more than thirty 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.

These guidelines are to be used by all authorized Rehab Program participants to ensure the proper release of rehabilitated manatees and provide the greatest chance of survival and adaptation to the wild for these animals. In certain parts of this document, the term "must" has been replaced with "should" to reflect the flexibility, which has been incorporated into these guidelines to account for atypical circumstances where this guidance cannot be strictly followed.

5.2 Overview of Release Categories for Manatees

Manatees undergoing rehabilitation are evaluated by program participants and placed into one of three categories: "Releasable," "Conditionally Releasable," and "Conditionally Non-Releasable." The categories are as follows:

"RELEASABLE": Manatees that have been successfully treated, medically cleared, 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 individuals that are assisted and released in the wild usually include healthy, non-injured manatees: superficially entangled in fishing gear; isolated by high water or detained by structures such as water control structures, sheet pile walls, booms, and other barriers; or seasonally disoriented (*i.e.*, manatees that fail to migrate to appropriate winter habitats during the periods of cold weather and typically are relocated to warm water sites within their region of origin). "Releasable" manatees must be released to a suitable site at the earliest time possible.

"CONDITIONALLY RELEASABLE": Manatees currently with a condition and/or circumstance that present a question regarding their likely success after release or the inability to thrive in the wild, but will not likely pose a threat to wild populations, will be considered "Conditionally Releasable." Animals described as "Conditionally Releasable" may include individuals undergoing medical treatment, born in captivity, or held long-term (*i.e.*, >10 years). The status of animals considered to be "Conditionally Releasable" may change to "Releasable" if their condition or circumstance improves or to "Conditionally Non-Releasable" if their condition or circumstance does not resolve or deteriorates.

"CONDITIONALLY NON-RELEASABLE": Manatees that currently cannot be released because their condition and/or circumstance threaten the well-being of the animal and/or may pose a threat to the wild population, or those individuals where evidence has been found that precludes breeding and/or compromised reproductive fitness will be considered "Conditionally Non-Releasable." This category may include individuals that are medically characterized by a disease process, which proves to be a significant risk to the wild population, and/or by significant physical injuries (*e.g.*, the loss of a paddle, spinal trauma) precluding the ability of an animal to thrive in the wild. The status of animals considered to be "Conditionally Non-Releasable" may change to "Releasable" or "Conditionally Releasable" if their condition or circumstance improves over time. Should a Florida manatee be deemed "Conditionally Non-Releasable" by the USFWS, the receiving facility may continue to hold the animal under the NFESFO ESA

10(a)(1)(a) permit and the facility's MMPA LOAFC or apply for an addendum to its LOAFC to hold the animal up to five years; or apply for a scientific research permit or an enhancement permit pending the fulfillment of all necessary requirements under section 104(c) of the MMPA [16 U.S.C. 1374(c)], section 10(a) of the ESA [16 U.S.C. 1539(a)], and the USFWS's issuance criteria, as designated in 50 CFR 18.31 and 50 CFR 17.22. The facility must also be registered or hold a license from APHIS [7 U.S.C. 2131 *et seq.*]. For Antillean manatees deemed "Conditionally Non-Releasable" by the USFWS, contact the CESFO for instructions on obtaining the appropriate authorization to continue holding the animal.

Note: 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 captive endangered marine mammals. The USFWS does not have management authority over these individuals. The care and disposition of these “Pre-Act” animals are the responsibility of their respective owners; however, all progeny of “Pre-Act” animals fall under the jurisdiction of the USFWS. Currently all facilities comply with the USFWS’s Captive Breeding Policy, established by the USFWS in 1992, prohibiting the intentional breeding of captive manatees.

5.3 Situational Historical Assessment of Manatees

Efforts are made to maintain complete, detailed records that document rescued manatees from the time of initial rescue to their eventual disposition. These records generally include information describing the rescue event, circumstances surrounding the cause of rescue (*e.g.*, watercraft injury, cold weather exposure, entanglement), medical treatment(s) administered, rehabilitative care provided, and resolution of the case (*e.g.*, death, euthanasia, release). Records from previously known wild individuals can include documentation of behavioral and reproductive patterns, migratory habits, site fidelity, and in certain cases, post-release monitoring information. The information contained in individual manatee records guide the treatment of rescued manatees and provide an evaluative tool for program managers and Rehab Program participants to assess and improve guidelines and procedures to better ensure success.

5.4 Developmental Assessment of Manatees

The developmental assessment of manatees focuses on the ability of an animal to feed and grow to an appropriate size in order to have the highest chance of survival in the wild.

“Releasable” manatees should be nutritionally independent (weaned and off of supplemental nutritional support), greater than 200 centimeters (cm) in total length and weigh more than 600 pounds (lbs) (generally around two years of age) for Florida manatees, 450lbs in weight for Antillean manatees. Exceptions to this include dependent/nursing calves that are released with their mothers to ensure 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 persist and survive in the wild.

“Conditionally Releasable” manatees consist of individuals that may or may not demonstrate nutritional independence, and do not yet meet the minimum requirement for length and weight. Manatees that have spent lengthy periods of time in rehabilitation (>10 years) also fall into this category; concern has been expressed that these individuals may have a diminished ability to thrive in the wild. Long-term captive animals are considered on a case-by-case basis for release.

“Conditionally Non-Releasable” manatees may or may not demonstrate nutritional independence, and may or may not yet meet the minimum requirement for length and weight. Manatees in this category have a medical condition or physical injury, which precludes them from being released into the wild.

5.5 Behavioral Assessment of Manatees

The behavioral assessment of manatees focuses on the ability of a manatee to exhibit what has been determined as ‘normal wild manatee behaviors’. These include, but are not limited to, the ability to breathe, swim, forage, dive, surface, and avoid dehydration without assistance.

“Releasable” manatees must exhibit ‘normal behaviors’ while in rehabilitation and are, therefore, expected to be able to meet behavioral challenges when in the wild. Normal behaviors include, but are not limited to, the ability to breathe, swim, forage, dive, surface and avoid dehydration without assistance. Manatees must demonstrate the ability to adapt to the appropriate water environment types (*i.e.*, salt, brackish, or fresh water) without becoming dehydrated or emaciated. Manatees must also demonstrate an ability to feed on natural vegetation located at various levels in the water column.

“Conditionally Releasable” and “Conditionally Non-Releasable” manatees need assistance when conducting ‘normal behavior’ or simply do not exhibit ‘normal behavior’. Abnormal behaviors in manatees have not been defined; however, animals that exhibit atypical behaviors (as determined by the

USFWS and its advisors) while in rehabilitation will be considered for release on a case-by-case basis. Behaviors that may elicit concerns include stereotypic displays (e.g., swimming in circles), adaptability, or sensitivity to change (e.g., going off feed, physically shutting down), and perceived affinities for humans and human activities while in rehabilitation. These affinities should not be confused with the manatee's innate ability to explore their environment, including humans, especially in the absence of other engaging stimuli. Manatees that possess behaviors that can be conditioned or extinguished (depending on applicability) are placed into the "Conditionally Releasable" category. Those individuals with behaviors that cannot be modified or extinguished and pose a threat to themselves or to the wild population will be considered "Conditionally Non-Releasable."

5.6 Medical Assessment of Manatees

Medical assessments of manatees are conducted by veterinarians experienced in clinical manatee medicine to determine if an animal is "medically cleared." A "medically cleared" manatee will be free of medical problems, not limited in its ability to thrive in the wild, and not pose a threat to wild populations. Information reviewed for this assessment includes: medical history, current health status, blood work parameters, physical or sensory dysfunctions, breeding capability, and reproductive fitness.

"Releasable" manatees are those individuals that are medically cleared. The animal will have no current health issues, possess a 'normal' range for blood values, does not possess any physical or sensory dysfunctions and has no evidence of an inability to breed or compromised reproductive fitness.

"Conditionally Releasable" manatees are those individuals who have not been medically cleared and are currently receiving medical treatment or undergoing additional rehabilitation; it is believed that further treatment and rehabilitation will result in future medical clearance. These manatees may have a current health issue or injury that is unresolved (e.g., malnutrition, dehydration, active/infectious disease process), abnormal blood values, or possess a physical or sensory dysfunction (e.g., an injury that significantly affects mobility and/or range of motion).

"Conditionally Non-Releasable" manatees are not medically cleared and it is believed their current health condition will not change with further treatment and rehabilitation. These individuals possess what is believed to be a permanent incurable medical condition or physical or sensory dysfunctions (e.g., the loss of a paddle, failure to adapt appropriate buoyancy control), which may preclude survival in the wild or may pose a threat to the wild population, and/or evidence has been found that precludes breeding capability and/or exhibits compromised reproductive fitness.

5.7 Release Categories for Manatees

The following is background information, a list of criteria and discussion points used to help determine the release status of manatees following medical intervention, treatment, and rehabilitation. Release status of an animal may change as various criteria are met. Specific criteria for each release category are represented in italicized text.

5.7.1 Releasable

1. Background Information

- i. Manatee name(s) and identification number(s)
- ii. Rescue History
 - a) Date of rescue
 - b) Reason for rescue
 - c) Location of rescue-county, city and waterway
 - d) Size/age class at time of rescue: *Florida manatees must have a minimum length of 200cm and weighs more than 600lbs (unless being released with dam). Antillean manatees must have a minimum length of 200cm and weighs more than 450lbs (unless being released with dam).*
 - e) Prior information on MIPS sightings of this individual while in the wild, if any.

iii. Rehabilitation History

- a) Length of time in rehabilitation
- b) Current facility and length of time at present location
- c) Other holding facilities and length of time in each
- d) Method of rearing: *The animal does not have an affinity for humans or this behavior has been extinguished.*

iv. Reproductive status: *No evidence of inability to breed and does not exhibit compromised reproductive fitness.*

2. Evaluation Criteria

i. Medical Information

- a) Current medical status/evaluation: *No concerns and the animal is medically cleared.*
- b) Does this animal pose a current threat to the wild population? *No concerns that the animal poses a threat to wild population.*
- c) Are blood values compatible with good health standards? *The blood values are within normal ranges and compatible with good health standards*
- d) Summary of medical history and treatment plans: *No concerns with medical history precluding animal from surviving in wild or posing a threat to wild population; medical treatment is complete.*
- e) Any notable significant physical or sensory dysfunctions that could threaten survival in the wild? *No significant physical or sensory dysfunctions that could threaten survival in the wild.*
- f) Are there known animals in the wild with similar conditions? *If applicable, yes there are animals in the wild with similar conditions.*
- g) Does the animal possess limitations that would preclude it from breeding in the wild? *There are no limitations, which preclude animal from breeding in wild.*
- h) Has genetic analysis indicated any concerns with reproductive fitness? *There is no genetic evidence regarding concerns with reproductive fitness.*

ii. Behavioral Assessment:

- a) Can the animal surface and breath without impediments? *There are no concerns regarding the animals' ability to surface and breathe.*
- b) Can the animal swim without impediments? *There are no concerns regarding the animals' ability to swim.*
- c) Can the animal dive without impediments? *There are no concerns regarding the animals' ability to dive.*
- d) Can the animal forage at various levels of the water column? *The animal can forage at various levels within the water column.*
- e) Does the animal exhibit 'normal manatee behavior'? *The animal exhibits 'normal manatee behavior', which do not preclude survival in the wild.*
- f) Does the animal have problems with water balance and dehydration? *The animal has successfully adapted to appropriate water type in which it will be released.*
- g) Is the animal nutritionally independent? *The animal is nutritionally independent and forages on natural vegetation (except with a dependent/nursing calf being released with mother).*

3. Information from the Attending Veterinarian

- i. In your professional opinion does the animal possess any physical or medical handicaps that will preclude it from survival in the wild? *The attending veterinarian does not have any concerns for survival in the wild.*
- ii. In your professional opinion would the release of this animal put the wild population at risk? *The attending veterinarian does not have any concerns with the animal being a risk to the wild population.*

iii. Statement from the attending veterinarian on recommended release status of the animal, including recommended care, treatment plan, and follow-up monitoring to bring the animal to “Releasable” status: *Recommended care and treatment plans are not applicable; monitoring may or may not be applicable.*

5.7.2 Conditionally Releasable

1. Background Information

- i. Manatee name and identification number
- ii. Rescue History
 - a) Date of rescue
 - b) Reason for rescue
 - c) Location of rescue-city and waterway
 - d) Size/age class at time of rescue: *For Florida manatees, has not yet met the minimum length of 200cm and does not weigh more than 600lbs (unless being released with dam). For Antillean manatees, has not yet met the minimum length of 200cm and does not weigh more than 450lbs (unless being released with dam).*
 - e) Prior information on MIPS sightings of this individual while in the wild, if any.
- iii. Rehabilitation History
 - a) Length of time in rehabilitation: *Animal has been in rehabilitation for >10 years and concerns exist regarding its ability to survive in the wild.*
 - b) Current facility and length of time at present location.
 - c) Other holding facilities and length of time in each.
 - d) Method of rearing: *The animal has a behavioral affinity for humans that is not yet extinguished.*
- iv. Reproductive status: *Evidence suggests the inability to breed or compromised reproductive fitness.*

2. Evaluation Criteria

- i. Medical Information
 - a) Current medical status/evaluation: *The animal is not medically cleared and is currently undergoing medical treatment or further rehabilitation.*
 - b) Does this animal pose a current threat to the wild population? *The current condition of the animal may pose a threat to wild population.*
 - c) Are blood values compatible with good health standards? *The current blood values are abnormal and not compatible with good health standards.*
 - d) Summary of medical history and treatment plans: *Concerns currently exist with medical history questioning survival in the wild or posing a threat to wild population; or the animal is still undergoing medical treatment.*
 - e) Any notable significant physical or sensory dysfunctions that could threaten survival in the wild? *The animal has a significant physical and/or sensory dysfunctions, which in its current state could threaten survival in the wild.*
 - f) Are there known animals in the wild with similar conditions? *If applicable, there may or may not be animals in the wild with similar conditions.*
 - g) Does the animal possess limitations that would preclude it from breeding in the wild? *There are temporary limitations, which preclude breeding in the wild; however, these limitations can be resolved with further medical treatment and rehabilitation.*
 - h) Has genetic analysis indicated any concerns with reproductive fitness? *Evidence suggests there may be concerns with reproductive fitness.*
- ii. Behavioral Assessment
 - a) Can the animal surface and breath without impediments? *There are concerns regarding the animals' ability to surface and breathe and these concerns can be resolved with further*

medical treatment and rehabilitation.

- b) Can the animal swim without impediments? *There are concerns regarding the animals' ability to swim and these concerns can be resolved with further medical treatment and rehabilitation.*
- c) Can the animal dive without impediments? *There are concerns regarding the animals' ability to dive and these concerns can be resolved with further medical treatment and rehabilitation.*
- d) Can the animal forage at various levels of the water column? *The animal cannot forage at various levels within the water column; however, it can be resolved with further medical treatment and rehabilitation.*
- e) Does the animal exhibit 'normal manatee behavior'? *The animal does exhibit abnormal manatee behavior which may preclude its ability to survive in the wild; however, further medical treatment and rehabilitation can extinguish this behavior.*
- f) Does the animal have problems with water balance and dehydration? *The animal has not yet successfully adapted to appropriate water type in which it will be released; however, it can be resolved with further medical treatment and rehabilitation.*
- g) Is the animal nutritionally independent? *The animal is not yet nutritionally independent and/or it does not forage on natural vegetation.*

3. Information from the Attending Veterinarian

- i. In your professional opinion does the animal possess any physical or medical handicaps that will preclude it from survival in the wild? *The attending veterinarian has concerns for survival in the wild in its current state.*
- ii. In your professional opinion would the release of this animal put the wild population at risk? *The attending veterinarian has concerns that the current state of the animal may put the wild population at risk.*
- iii. Statement from the attending veterinarian on recommended release status of the animal, including recommended care, treatment plan, and follow-up monitoring to bring the animal to "Releasable" status: *Recommended care and treatment plan is presented along with suggested monitoring if animal becomes releasable.*

5.7.3 Conditionally Non-Releaseable

1. Background Information

- i. Manatee name and identification number
- ii. Rescue History
 - a) Date of rescue
 - b) Reason for rescue
 - c) Location of rescue-city and waterway
 - d) Size/age class at time of rescue
 - e) Prior information on MIPS sightings of this individual while in the wild, if any.
- iii. Rehabilitation History
 - a) Length of time in rehabilitation: *Animal has been in rehabilitation for >10 years and concerns exist regarding its ability to survive in the wild.*
 - b) Current facility and length of time at present location.
 - c) Other holding facilities and length of time in each.
 - d) Method of rearing: *The animal has a behavioral affinity for humans which cannot be extinguished or conditioned and evidence suggests the behavior may preclude survival in the wild or/and pose a threat to the wild population.*
- iv. Reproductive status: *Scientific evidence exists supporting the inability to breed or compromised reproductive fitness.*

2. Evaluation Criteria

- i. Medical Information

- a) Current medical status/evaluation: *The animal is not medically cleared and is currently undergoing medical treatment or further rehabilitation; evidence suggests the current medical condition cannot be resolved and will preclude survival in the wild or/and pose a threat to the wild population.*
- b) Does this animal pose a current threat to the wild population? *Evidence suggests the animal poses a threat to wild population.*
- c) Are blood values compatible with good health standards? *The blood work values are abnormal and not compatible with good health standards.*
- d) Summary of medical history and medical treatment plans: *Evidence from medical history suggest animal may not survive in the wild or may pose a threat to wild population; or it is believed medical treatment for the animal is necessary for perpetuity.*
- e) Any notable significant physical or sensory dysfunctions that could threaten survival in the wild? *The animal has significant physical and/or sensory dysfunctions, which are believed to threaten survival in the wild.*
- f) Are there known animals in the wild with similar conditions? *It is believed no animals can exist in the wild with similar conditions.*
- g) Does the animal possess limitations that would preclude it from breeding in the wild? *The animal has limitations that preclude it from breeding in the wild.*
- h) Has genetic analysis indicated any concerns with reproductive fitness? *Scientific evidence supports compromised reproductive fitness.*

ii. Behavioral Assessment

- a) Can the animal surface and breathe without impediments? *Evidence supports the animal cannot surface and breathe without impediments, and further medical treatment and rehabilitation will not correct the condition.*
- b) Can the animal swim without impediments? *Evidence supports the animal cannot swim without impediments and further medical treatment and rehabilitation will not correct the condition.*
- c) Can the animal dive without impediments? *Evidence supports the animal cannot dive without impediments, and further medical treatment and rehabilitation will not correct the condition.*
- d) Can the animal forage at various levels of the water column? *The animal cannot forage at various levels within the water column and it is believed further medical treatment and rehabilitation will not resolve this issue.*
- e) Does the animal exhibit ‘normal manatee behavior’? *The animal does exhibit abnormal behavior, which is thought to preclude its ability to survive in the wild; it is believed further medical treatment and rehabilitation will not extinguish the abnormal behavior.*
- f) Does the animal have problems with water balance and dehydration? *The animal has not successfully adapted to appropriate water type in which it will be released and evidence supports this condition will not change.*
- g) Is the animal nutritionally independent? *The animal is not nutritionally independent and evidence supports this condition will not change.*

3. **Information from the Attending Veterinarian**

- i. In your professional opinion does the animal possess any physical or medical handicaps that will preclude it from survival in the wild? *The attending veterinarian has evidence supporting the animal may not survive in the wild.*
- ii. In your professional opinion would the release of this animal put the wild population at risk? *The attending veterinarian has evidence supporting the animal will put the wild population at risk.*
- iii. Statement from the attending veterinarian on recommended release status of the animal, including recommended care, treatment plan, and follow-up monitoring to bring the animal to “Releasable” status: *The attending veterinarian recommends this animal be “Conditionally Non-Releasable” and includes an ongoing treatment plan.*

5.8 Pre-release Requirements for Manatees

Naïve Manatee Releases:

Naïve manatees are considered those individuals born in captivity, rescued as young dependent calves, or in rehabilitation for long periods of time (>10 years). It is believed the lack (minimal) of wild experience or length of time in rehabilitation may compromise the ability of an animal to thrive in the wild. The Rehab Program has currently released over 723 rehabilitated manatees in the southeast continental U.S. (Manatee Database, U.S. Fish and Wildlife Service, unpublished data), resulting in the development of specific requirements believed to better prepare naïve animals for release and ensure the greatest chance of survival in the wild. These requirements are as follows:

Manatees should meet the minimum requirements of 200 cm total straight-line length and 600lbs total body weight for Florida manatees and 450lbs total body weight for Antillean manatees prior to release. Animals should be exposed to water salinity similar to what will be encountered at the release site. It is recommended an individual should be allotted 60 days to adapt to a saline environment to achieve the appropriate level of salinity for physiological adaption; however, the process may be quicker, depending on the individual. For those individuals in a saline environment, a source of fresh water should be available to the animal, either directly or through fresh water vegetation to avoid dehydration.

Offered vegetation should be the same type as what will be encountered at the release site and in the general release area. A variety of wild vegetation (*i.e.*, freshwater or saltwater) should be given to the animal as often as possible throughout its time in rehabilitation. In circumstances where wild vegetation has not been available on a regular basis, every effort should be made to offer wild vegetation at least 60 days prior to release and ensure feeding has occurred. Attempts also should be made to adjust tank temperatures to mirror those at the release site for at least two weeks prior to release (even if it means lowering the tank temperature only a couple of degrees).

Several months prior to release, exposure to humans, except for medical evaluations, should be minimized to reduce or eliminate any affinity the animal may possess or had developed toward humans and human activity. Trained/learned behaviors must be extinguished to the greatest extent possible prior to release. Those high risk individuals identified for post-release monitoring may be “clicker trained” (upon prior USFWS approval) to facilitate the ability to obtain information on overall body condition and conduct field health assessments in areas where water clarity is an issue or re-capture is problematic.

All Animal Releases:

Prior to release, all individuals must be examined by a veterinarian experienced in clinical manatee medicine. Examination requirements include: a review of the animal’s history; a hands-on physical examination; morphometrics including straight line length, weight, and peduncle girth for individuals proposed for radio tagging; minimum CBC panel; chemistry (serology/culture when necessary); fecal (direct/float); and cytology. Results of analyses should be consistent with known baseline values for manatees of similar age, size, and sex and consistent with historical values for that specific individual. Blood and/or tissue samples also must be taken prior to release for serum banking and genetics. When feasible, ultrasound measurement of standardized blubber thickness layers also should be taken to determine baseline body condition and the amount of subcutaneous fat. Additional information that can be collected includes: serum amyloid A (SAA) testing, protein electrophoresis, fibrinogen analysis, and fecal culture screen for enteric pathogens.

- All animals must be individually recognizable prior to release. Manatees without distinctive markings or scars from encounters with boat propellers may be freeze-branded with a unique number/letter combination (the selection of the sequential number/letter combination must be made beforehand in consultation with the USFWS). Freeze brands should be applied well in advance of release to ensure the brand is legible. Detailed photographs of all distinct features on each manatee must be taken and, for Florida manatees, these must be submitted into the Manatee Individual Photo-identification System (MIPS) catalog; when feasible, all markings also should be sketched and submitted. Trovan PIT tags (one on each side of the manatee, at shoulder level just cranial to each scapula) must be implanted for all manatees that are released into the wild.

5.9 Release and Post-release Logistics for Manatees

In the case of Florida manatees, every effort should be made to release manatees in close proximity to the rescue site. For naïve animals, release sites must be located at natural warm-water areas or known aggregation areas during the winter to encourage winter site fidelity, familiarity with local conditions and association with wild manatees. To maximize the amount of time naïve animals spend associating with wild manatees, and increase the possibility of naïve animals imprinting on a specific site, they should be released during the onset of cold fronts when wild manatees are moving into natural warm-water areas for thermal refuge. Naïve animals must also be released at a location where natural vegetation is in close proximity and the potential for human disturbance is minimal. Release sites should be free of HABs and other compromising factors.

In the case of Antillean manatees, animals should be released on the same coast where they were found, preferably near their point of origin if this is suitable manatee habitat. Antillean manatees should be released within the same haplotype population based on mDNA. Naive animals should be released in areas that harbor a high population of manatees. There is no best time of the year for Antillean manatees, except trying to avoid a release during the hurricane season.

When appropriate, radio tracking gear for post-release monitoring may be applied, pursuant to approval from the USFWS. Current tagging methodologies make it difficult to radio tag and belt manatees with a peduncle girth less than 100 cm. Post-release monitoring includes equipping manatees with transmitters (satellite, VHF, and/or sonic, as appropriate) for both remote and onsite monitoring. Biomedical assessments (*i.e.*, health assessments) are generally conducted on an as needed basis, based on the target animal's behavior observed from field biologists and in consultation with the attending veterinarian of record, the USFWS, and Rehab program partners. Biomedical monitoring includes an examination of overall body condition, morphometrics (including straight line length, weight and peduncle girth), blubber thickness, collection of blood and fecal material, urine, milk, semen and other tissues when possible.

Results of analyses should be consistent with known values for manatees of similar age, size, and sex and consistent with historical values for that specific individual. Maladaptive behavior, or a significant reduction in health status, may require an animal to be returned to a critical care facility for additional medical treatment and rehabilitation.

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

The USFWS uses an electronic database for Florida manatees that requires program participants to report rescue, release, birth, death, and transfer events within 24 hours of occurrence. Pre-Release and transfers requests require prior approval from the USFWS; requests should be submitted electronically two weeks prior to the proposed event. The Rescue Reporting Requirements are listed in Appendix D.

6 Guidelines for Release of Rehabilitated Sea Otters

6.1 Introduction

Sea otters are found in near shore waters of the North Pacific. Several subspecies and stocks have been identified in California, Washington, Alaska, Canada, and Russia. Sea otters may strand for a variety of reasons including trauma, disease, and the inability to forage. Guidelines for the 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 USFWS specialist (Appendix E).

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 6lbs), 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 20lbs 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 USFWS to determine the disposition of the animal.

Rehabilitated sea otter pups that are at least 6 months of age, weigh at least 20lbs, 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:

- 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;
- The rehabilitated sea otter must demonstrate basic survival skills and activities including active foraging, pelage management, diving, and resting;
- 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
- 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:

- 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;
- 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, 3rd Edition, Gulland *et al.* 2018);
- 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;
- 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
- 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 the 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 USFWS for concurrence on this finding and eventual disposition of the animal. Once USFWS 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. The facility must also be registered or hold a license from APHIS [7 U.S.C. 2131 *et seq.*].

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 USFWS, 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, or where other considerations support the release of rehabilitated sea otters in alternate locations, other release sites may be considered under existing federal permits, letters of authorization, or through consultation with personnel from the USFWS (as identified in Appendix E).

Rehabilitated sea otters must be released into the same stock or population from which they originated unless USFWS determines that an exception is warranted.

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 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 USFWS 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, USFWS does not consider adoption to be a viable alternative and generally considers polar bear cubs to be “Non-Releaseable” 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, and is registered or holds a license from APHIS [7 U.S.C. 2131 *et seq.*]. However, USFWS 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 appropriate USFWS contact (Appendix E).

8 Literature Cited

Brodie, E.C., Gulland, F.M.D., Greig, D.J., Hunter, M., Jaakola, J., St Leger, J., Leighfield, T.A., and Van Dolah, F.M. 2006. Domoic acid causes reproductive failure in California sea lions (*Zalophus californianus*). *Marine Mammal Science*, 22: 700–707.

Davis, B. 2014. Effects of weaning age on body composition and growth of ex situ California sea lion (*Zalophus californianus*) pups. University of Central Florida. Electronic Theses and Dissertations, 2004-2019. 1334. <https://stars.library.ucf.edu/etd/1334>

Goldstein, T., Mazet, J.A.K., Zabka, T.S., Langlois, G., Colegrove, K.M., Silver, M., Bargu, S., Van Dolah, F., Leighfield, T., Conrad, P.A., and Barakos, J. 2008. Novel symptomatology and changing epidemiology of domoic acid toxicosis in California sea lions (*Zalophus californianus*): an increasing risk to marine mammal health. *Proceedings of the Royal Society of London B: Biological Sciences*, 275: 267–276.

Gulland, F.M.D., L.A. Dierauf, and K.L. Whitman (Eds). 2018. CRC Handbook of Marine Mammal Medicine. 3rd Edition. CRC Press (Taylor & Francis), Boca Raton, Florida, USA. 2018. 1,124 pp.

Harris, J. D. 2016. Estimation of an unobservable transition: from dependence to weaning in the California sea lion (*Zalophus californianus*). 2016. University of Washington, Research Works Archive. <http://hdl.handle.net/1773/35587>

Simeone C. A., D. Fauquier, J. Skidmore, P.F. Cook, K. Colegrove, F.M.D. Gulland, S. Dennison, and T.K. Rowles. 2019. Clinical signs and mortality of non-released stranded California sea lions (*Zalophus californianus*) housed in display facilities: the suspected role of prior exposure to algal toxins. *Veterinary Record*, 185:304.

U.S. Fish and Wildlife Service. 2001. Florida Manatee Recovery Plan, (*Trichechus manatus latirostris*), Third Revision. U.S. Fish and Wildlife Service. Atlanta, Georgia. 144 pp. + appendices.

Wells, R.S., D.A. Fauquier, F.M.D. Gulland, F.I. Townsend and R.A. DiGiovanni. 2013. Evaluating post-intervention survival of free-ranging Odontocete cetaceans. *Marine Mammal Science*, 29(4):E463-483.

Wilkinson, Dean M. 1996. National contingency plan for response to unusual marine mammal mortality events. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR-9, 118 p.

9 Appendices

Appendix A - “Recommended” Standard Checklists to Determine Release Category of All Rehabilitated Cetaceans

Appendix B - “Recommended” Standard Checklists to Determine Release Category of All Rehabilitated Pinnipeds (except walrus)

Appendix C – NMFS Release Plan Template

Appendix D – Manatee Rescue, Rehabilitation, and Required Report Fields

Appendix E – U.S. Fish and Wildlife Service Contacts

Appendix F - Cetacean-Species Specific Developmental Stages (Age-Length) and Social Dynamics

Appendix G - Pinniped-Species Specific Developmental Stages (Age-Length) and Social Dynamics

9.1 Appendix A -“Recommended” Standard Checklists to Determine Release Category of All Rehabilitated Cetaceans

Recommended Standard Checklist to Determine Release Category of all Rehabilitated Cetaceans

CETACEANS: Release Determination Assessment (within 2 weeks of release)

Situational Clearance	Yes (Releasable)	No (*Conditionally Releasable or Non- Releasable)	Conditionally Releasable or Non-releasable Comments
1. The release candidate has NOT previously stranded.			If NO, either “Conditionally Releasable” or “Non-Releasable”
2. Release is NOT planned to occur outside of species/stock range due to factors such as environmental and logistical concerns (e.g., oil spill, HAB, UME, etc.).			If NO “Conditionally Releasable” or “Non-Releasable” (hold on longer)
Developmental Stage			
3. The cetacean is a sub-adult/adult and nutritionally and socially independent.			If NO, see below for calf
4. The calf is nutritionally independent, and forages completely on its own.			If NO, “Non-Releasable”* or “Conditionally Releasable” if stranded, rehabbed and released with its mother
5. The calf is socially independent (stock/species-specific).			If NO, “Conditionally Releasable” or “Non-Releasable” (NMFS and expert consultation)
Behavioral Clearance			
6. The release candidate demonstrates acceptable breathing, swimming, and, diving.			If NO, “Conditionally Releasable” or “Non-Releasable” (NMFS and expert consultation)
7. The release candidate demonstrates an absence of aberrant behavior (regurgitation, head pressing, postural abnormalities, and decreased range of motion,) including excessive interest in interaction with humans.			If NO, “Conditionally Releasable” or “Non-Releasable” (work to counter-condition; modify release plan to be offshore, etc.)
8. The release candidate exhibits full auditory function.			If NO, “Conditionally Releasable” (some hearing impairment) or “Non-Releasable” (significant hearing impairment across ranges of frequencies)
9. The release candidate exhibits full visual function.			If NO, “Conditionally Releasable” (some vision loss including loss of one eye) or “Non-Releasable” (fully blind)
10. The release candidate demonstrates foraging behavior or the ability to hunt and capture live prey.			If NO, “Conditionally Releasable” or “Non-Releasable” (NMFS and expert consultation)

Situational Clearance	Yes (Releasable)	No (*Conditionally Releasable or Non- Releasable)	Conditionally Releasable or Non-releasable Comments
Medical Clearance			
11. The attending veterinarian has reviewed the release candidate's history and medical records, including records from other facilities that have previously held the animal.			If NO, records need to be reviewed
12. The attending veterinarian has examined the release candidate within two weeks of release.			If NO, exam needs to take place
13. The required health screen and assessments (consider freshwater skin lesions) were conducted [following conclusion of medical treatment] with appropriate results for the age and species of the animal.			If NO, "Conditionally Releasable" or "Non-Releasable" (NMFS and expert consultation)
14. Hands-on exam to be performed by veterinary or husbandry staff within 72 hours of release to assess for any medical or condition changes.			If NO, schedule exam
15. No known congenital defects.			If NO, "Conditionally Releasable" or "Non-Releasable" (NMFS and expert consultation)
16. All appendages are functional.			If NO, "Conditionally Releasable" (partial function of fluke or fin) or "Non-Releasable" (NMFS and expert consultation)
17. The release candidate is sufficiently robust, having adequate reserves to survive readjustment in the wild.			If NO, increase mass (hold longer) or "Conditionally Releasable" (if behavioral reason for low release weight requires expert consultation) or "Non-Releasable" (medical condition)
18. No active infection from exposure to domestic/terrestrial animals (dog, fox, coyote, etc.).			If NO, continue treatment until infection is cleared
19. The release candidate is NOT known to have inflicted a bite on human(s) during rehabilitation; or a bite occurred that broke the skin but animal has passed the quarantine period (in the previous).			If NO, "Non-Releasable" (until quarantine period is completed)
20. CBC results are generally within normal ranges for the age and species of the animal (within 2 weeks of release).			If NO, continue treatment until CBC within normal range or "Conditionally Releasable" (NMFS consultation)

Situational Clearance	Yes (Releasable)	No (*Conditionally Releasable or Non- Releasable)	Conditionally Releasable or Non-releasable Comments
21. Chemistry profile results are generally within normal ranges for the age and species of the animal (within 2 weeks of release).			If NO, continue treatment until Chemistry profile within normal range or "Conditionally Releasable" (NMFS consultation)
22. Additional testing requested by NMFS has been reviewed and there are NO apparent concerns.			If NO, Conditionally Releasable" or "Non-Releasable" (NMFS and expert consultation)
23. Medications have not been administered for a minimum of 2 weeks prior to release (excluding sedatives for transport).			If NO, hold until two week mark or may be "Conditionally Releasable" (NMFS and expert consultation if behavioral or other reason for early release)
24. Veterinarian's signature on health statement.			If NO, acquire veterinarian signature
If All Yes Marks	Releasable		
If some No Marks		Conditional Releasable or Non- Releasable see comments for directions	

Health Statement

I have examined the cetacean (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

Signature of the Authorized Representative

Printed Name of the Authorized Representative

9.2 Appendix B -“Recommended” Standard Checklists to Determine Release Category of All Rehabilitated Pinnipeds (except for walrus)

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

PINNIPEDS: Release Determination Assessment (within 2 weeks of release)

Situational Clearance	Yes (Releasable)	No (*Conditionally Releasable or Non-Releasable)	Conditionally Releasable or Non-releasable Comments
1. The release candidate has NOT previously stranded.			If NO, either “Conditionally Releasable” or “Non-Releasable”
2. Release is NOT planned to occur outside of species/stock range due to factors such as environmental and logistical concerns (e.g., oil spill, HAB, UME, etc.).			If NO “Conditionally Releasable” or “Non-Releasable”
Developmental Stage			
3. The pinniped is a sub-adult/adult and nutritionally and socially independent.			If NO, see below for pups
4. The pinniped pup is nutritionally independent and has proven ability to forage on its own.			If NO, “Conditionally Releasable” or “Non-Releasable” (NMFS consultation)
5. The pinniped pup is socially independent (stock/species-specific).			If NO, “Conditionally Releasable” or “Non-Releasable” (e.g., California or Steller sea lion pup stranded at <6 months of age or pup born in rehabilitation; NMFS consultation)
Behavioral Clearance			
6. The pinniped demonstrates appropriate breathing, swimming, diving and locomotion on land.			If NO, “Conditionally Releasable” or “Non-Releasable” (NMFS consultation)
7. The pinniped demonstrates an absence of aberrant behavior (regurgitation, head pressing, postural abnormalities such as repetitive arching or tucking, head swaying, stereotypic or idiosyncratic pacing, decreased or unusual range of motion, etc.) including attraction to or desensitization to the presence of humans.			If NO, “Conditionally Releasable” or “Non-Releasable” (NMFS consultation)
8. The pinniped exhibits acceptable auditory function.			If NO, “Conditionally Releasable” (some hearing impairment) or “Non-Releasable” (significant hearing impairment)
9. The pinniped exhibits full visual function.			If NO, “Conditionally Releasable” (some vision loss including loss of one eye) or “Non-Releasable” (fully blind)

Situational Clearance	Yes (Releasable)	No (*Conditionally Releasable or Non-Releasable)	Conditionally Releasable or Non-releasable Comments
10. The pinniped demonstrates a capacity to hunt and capture live prey.			If NO, "Conditionally Releasable" or "Non-Releasable" (NMFS consultation)
Medical Clearance			
11. The attending veterinarian has reviewed the pinnipeds history and medical records, including records from other facilities that have previously held the animal.			If NO, records need to be reviewed
12. The attending veterinarian has examined the release candidate within two weeks of release.			If NO, exam needs to take place
13. The required health screen and assessments (consider molt stage) were conducted [following conclusion of medical treatment] with appropriate results for the age and species of the animal.			If NO, "Conditionally Releasable" or "Non-Releasable" (NMFS consultation)
14. Hands-on exam to be performed by veterinary or husbandry staff within 72 hours of release to assess for any medical or condition changes.			If NO, schedule exam
15. No known congenital defects.			If NO, "Conditionally Releasable" or "Non-Releasable" (NMFS consultation)
16. All appendages are functional.			If NO, "Conditionally Releasable" (missing or partial function of one flipper) or "Non-Releasable" (NMFS consultation)
17. The release candidate is sufficiently robust, having adequate reserves to survive readjustment in the wild.			If NO, increase mass (hold longer) or "Conditionally Releasable" (if behavioral reason for low release weight requires NMFS consultation) or "Non-Releasable" (medical condition)
18. No active infection from exposure to domestic/terrestrial animals (dog, fox, coyote, etc.).			If NO, continue treatment until infection is cleared
19. The release candidate is NOT known to have inflicted a bite on human(s) during rehabilitation; or a bite occurred that broke the skin but animal has passed the quarantine period (in the previous).			If NO, "Non-Releasable" (until quarantine period is completed)
20. CBC results are generally within normal ranges for the age and species of the animal (within 2 weeks of release).			If NO, continue treatment until CBC within normal range or "Conditionally Releasable" (NMFS consultation)

Situational Clearance	Yes (Releasable)	No (*Conditionally Releasable or Non-Releasable)	Conditionally Releasable or Non-releasable Comments
21. Chemistry profile results are generally within normal ranges for the age and species of the animal (within 2 weeks of release).			If NO, continue treatment until Chemistry profile within normal range or "Conditionally Releasable" (NMFS consultation)
22. Additional testing requested by NMFS has been reviewed and there are NO apparent concerns.			If NO, Conditionally Releasable" or "Non-Releasable" (NMFS consultation)
23. Medications have not been administered for a minimum of 2 weeks prior to release (excluding sedatives for transport).			If NO, hold until two week mark or may be "Conditionally Releasable" (NMFS consultation if behavioral or other reason for early release)
24. Veterinarian's signature on health statement.			If NO, acquire veterinarian signature
If All Yes Marks	Releasable		
If some No Marks		Conditional Releasable or Non-Releasable see comments for directions	

Health Statement

I have examined the cetacean (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

Signature of the Authorized Representative

Printed Name of the Authorized Representative

9.3 Appendix C – NMFS Release Plan Template

Proposed Release, Research, Monitoring and Contingency Plan for (Species, Animal ID, “Name”)

Contact(s):

Proposed Release Date and Time:

I. Release Logistics: (add short descriptions for the bulleted list)

Upon medical and permit clearance of Animal (ID):

- Transport logistics to release site
- Personnel for transport
- Release method/description from land and/or vessel

II. Release Site selection rationale: (add short descriptions for the bulleted list)

- Suitability of release site (accessibility, safety)
- Animal (ID) home range (if known) with seasonality considerations (if unknown, discuss with experts) and potential for occurrence of conspecifics
- Visual Monitoring availability (if applicable)
- Consultation and communication with local authorities, land management agencies, or those with jurisdiction over proposed release sites

III. Research and Monitoring Plan: (add short descriptions for the bulleted list)

- Objective
- Marking and Tagging, etc. (include training and expertise)
- Long-term (remote) monitoring (if possible) including visual or radio tracking capabilities
- Visual monitoring and assessment plan (if applicable)
- Follow-up response and/or recapture triggers

IV. Contingency Plan: (add short descriptions for the bulleted list)

Pre-release

Signs of stress during transport (intervention, abort transport, euthanasia)

Post-release

- Re-strand due to physical or behavioral distress
- Re-capture/relocation? (if possible)
- Placement?
- Euthanasia?

V. Media and Social Media Plan: (add short descriptions for the bulleted list)

- Social media pre-release notification/announcement
- Public Information or Outreach Personnel at release site
- Crowd control if applicable (Rope or tape off observation areas)
- Social media post-release notification/web story

9.4 Appendix D - Manatee Rescue, Rehabilitation, and Release Report Fields

<u>Rescue: Reporting Requirements</u>	<u>Release: Request Information</u>	<u>Transfer: Request Information</u>	<u>Death: Reporting Requirements</u>	<u>Captive Birth: Reporting Requirements</u>
<p>Name of Reporting Organization Date Report Filed Date Event Occurred Type of Rescue Identification</p> <ul style="list-style-type: none"> • 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) <p>Freeze Brand (yes/no)</p> <ul style="list-style-type: none"> • Number <p>Sex</p> <p>Weight (lbs/kg)</p> <ul style="list-style-type: none"> • Actual/estimated Length (cm/inches) • Actual/estimated Ultrasound (yes/no) <p>County</p> <p>Nearest Town/Community Waterbody</p> <p>Latitude/Longitude</p> <p>Probable Cause for Rescue</p> <ul style="list-style-type: none"> • (Drop down list includes various common causes; additional information is required for entangled animals) <p>Health Status at Time of Report</p> <p>Rehabilitation Facility (if any)</p> <p>Veterinarian Facility Supervisor Rescue Participants Name of Reporter Telephone Number</p>	<p>Name of Requesting Organization Date Request Filed Date Event Proposed Identification</p> <ul style="list-style-type: none"> • Name (if any) • Studbook Number • Identification Numbers (in the case of multiple numbers, all numbers should be entered) <p>PIT Tag</p> <ul style="list-style-type: none"> • Right (identifying number) • Left (identifying number) <p>Freeze Brand (yes/no)</p> <ul style="list-style-type: none"> • Number Other Tags <p>Name of Tracker/Affiliation</p> <p>Tracker Telephone Number</p> <p>Sex</p> <p>Weight (lbs/kg)</p> <ul style="list-style-type: none"> • Actual • Date Taken Length (cm/inches) • Actual • Date Taken Peduncle Girth (cm) • Date Taken Ultrasound (yes/no) <p>County Where Rescued</p> <p>Nearest Town/Community Waterbody</p> <p>Latitude/Longitude</p> <p>Date of Rescue</p> <p>Weight at Time of Rescue</p> <p>Length at Time of Rescue</p> <p>Proposed Date of Release</p> <p>Actual Date of Release</p> <p>County Where Released</p> <p>Nearest Town/Community Where Released</p> <p>Waterbody Where Released</p> <p>Veterinarian</p> <p>Facility Supervisor Release Participants Name of Reporter Telephone Number</p>	<p>Name of Requesting Organization Date Request Filed Date Event Proposed Identification</p> <ul style="list-style-type: none"> • Name (if any) • Studbook Number • Identification Numbers (in the case of multiple numbers, all numbers should be entered) <p>Sex</p> <p>Weight (lbs/kg)</p> <ul style="list-style-type: none"> • Actual • Date Taken Length (cm/inches) • Actual • Date Taken Date Brought Into Captivity <p>Date of Proposed Transfer</p> <p>Actual Date of Transfer</p> <p>Veterinarian</p> <p>Facility Supervisor</p> <p>Release Participants</p> <p>Name of Reporter Telephone Number</p>	<p>Name of Reporting Organization Date Report Filed Date Date Died Identification</p> <ul style="list-style-type: none"> • Name (if any) • Studbook Number • Identification Numbers (in the case of multiple numbers, all numbers should be entered) <p>Sex</p> <p>Date Rescued</p> <p>Probable Cause of Death (or Euthanized)</p> <p>Disposition of Carcass</p> <p>Veterinarian</p> <p>Facility Supervisor</p> <p>Name of Reporter Telephone Number</p>	<p>Name of Reporting Organization Date Report Filed Date Born Identification</p> <ul style="list-style-type: none"> • Name (if any) • Studbook Number • Identification Numbers (in the case of multiple numbers, all numbers should be entered) <p>Sex</p> <p>Weight (lbs/kg)</p> <ul style="list-style-type: none"> • Actual • Date Taken Length (cm/inches) • Actual • Date Taken Present Health Status <p>Origin of Dam</p> <p>Circumstances of Birth Dam Identification</p> <ul style="list-style-type: none"> • Name (if any) • Studbook Number (if any) • Identification Numbers (in the case of multiple numbers, all numbers should be entered) <p>Sire Identification</p> <ul style="list-style-type: none"> • Name (if any) • Studbook Number (if any) • Identification Numbers (in the case of multiple numbers, all numbers should be entered)

9.5 Appendix E – U.S. Fish and Wildlife Service Contacts

OFFICE	ADDRESS	PHONE
Headquarters	Ecological Services Division of Restoration and Recovery 5275 Leesburg Pike, MS: ES Falls Church, VA 22041	Phone: (703) 358-2171 Fax: (703) 358-1735
LOAs and Permits	International Affairs Division of Management Authority 5275 Leesburg Pike, MS: IA Falls Church, VA 22041	Phone: (703) 358-2104 Fax: (703) 358-2281
Florida Manatees	North Florida Ecological Services Field Office 7915 Baymeadows Way, Suite 200 Jacksonville, FL 32256	Phone: (904) 731-3336 Fax: (904) 731-3045
Antillean Manatees	Caribbean Ecological Services Field Office CARR 301, KM 5.1 P.O. Box 491 Boquerón, Puerto Rico 00622	Phone: (787) 851-7297 Fax: (787) 851-7440
Southern Sea Otters in California	Ventura Fish and Wildlife Office 2493 Portola Road, Suite B Ventura, CA 93003	Phone: (805) 644-1766 Fax: (805) 644-3958
Northern Sea Otters in Washington	Washington Fish and Wildlife Office 510 Desmond Drive SE, Suite 102 Lacey, WA 98503	Phone: (360) 753-9440 Fax: (360) 753-9405
Polar Bears, Pacific Walrus, and Northern Sea Otters in Alaska	Marine Mammals Management Office 1011 E. Tudor Road Anchorage, AK 99503	Phone: (907) 786-3800 Fax: (907) 786-3816

9.6 Appendix F - Cetacean-Species Specific Developmental Stages (Age- Length) and Social Dynamics

Scientific Name	Common Name	Length at Birth (cm)	Neonate length (cm)	Length at 1 Year of Age (cm)	Length at 2 Years of Age (cm)	Age at Weaning (yrs)	Length at Weaning (cm)	Adult Length (cm)	Typical Group Size	Freq. of Occurrence of Single Individuals
<i>Delphinapterus leucas</i>	Beluga Whale	160	130-160	216	250	2	250	F 300-400; M 400-450	up to 100s	uncommon
<i>Delphinus capensis</i>	Long-beaked Saddleback Dolphin	< 100	NA	NA	NA	NA	NA	NA	up to 1000s	uncommon
<i>Delphinus delphis</i>	Common Dolphin	80-90	80-100	NA	NA	NA	110-120	230-250	up to 1000s	uncommon
<i>Feresa attenuata</i>	Pygmy Killer Whale	80	NA	NA	NA	NA	NA	240-270	up to 10s	occasional
<i>Globicephala macrorhynchus</i>	Short-finned Pilot Whale	140-185	150	NA	NA	2-3	NA	F 400-500; M 500-600	up to 100s	rare
<i>Globicephala melas</i>	Long-finned Pilot Whale	177	160-200	NA	NA	2-3	240	F 450-500; M 450-600	up to 100s	rare
<i>Grampus griseus</i>	Risso's Dolphin	110-150	120-160	NA	NA	NA	NA	300-400	up to 100s	occasional
<i>Kogia breviceps</i>	Pygmy Sperm Whale	120	100-120	NA	NA	1	NA	300 – 370	up to 10s	not uncommon
<i>Kogia sima</i>	Dwarf Sperm Whale	95	100	NA	NA	1	NA	210-270	up to 10s	not uncommon
<i>Lagenodelphis hosei</i>	Fraser's Dolphins	100	100	NA	NA	NA	NA	240	100s to 1000s	uncommon
<i>Lagenorhynchus acutus</i>	Atlantic White- sided Dolphin	108-122	100-130	142-156	176-190	1.5	180	240-270	up to 100s	uncommon
<i>Lagenorhynchus albirostris</i>	White Beaked Dolphin	110-120	110-130	NA	NA	NA	NA	300-320	100s to 1000s	occasional
<i>Lagenorhynchus obliquidens</i>	Pacific White- sided Dolphin	92	80-100	NA	NA	NA	NA	220-230	10s to 1000s	uncommon
<i>Lissodelphis borealis</i>	Northern Right Whale Dolphin	80-100	80-100	NA	NA	NA	NA	F 220-230; M 260-300	up to 100s	occasional
<i>Mesoplodon densirostris</i>	Blainville's Beaked Whale	200	NA	NA	NA	NA	NA	450-470	up to 10s	occasional
<i>Mesoplodon europaeus</i>	Gervais' Beaked Whale	210	210	NA	NA	NA	NA	450-520	up to 10s	uncommon
<i>Orcinus orca</i>	Killer Whale	183-228	210-250	NA	NA	1.5-2	400	F 700-800; M 800-950	up to 100s	infrequent - adult males
<i>Peponocephala electra</i>	Melon- Headed Whale	100	NA	NA	NA	NA	NA	270	100s to 1000s	uncommon
<i>Phocoena phocoena</i>	Harbor Porpoise	70	70-90	110-135	115-155	0.3-1	100 - 110	140-170	up to 10s	not uncommon
<i>Phocoenoides dalli</i>	Dall's Porpoise	100	100	NA	NA	0.3-2	NA	180-220	up to 10s	uncommon
<i>Physeter macrocephalus</i>	Sperm Whale	400	350-500	NA	670	2+	670	F 1100-1300; M 1500-1800	up to 10s	adult males
<i>Pseudorca crassidens</i>	False Killer Whale	160	170-200	NA	NA	1.5-2	NA	F 500; M 550-600	up to 10s	rare
<i>Stenella attenuata</i>	Pantropical Spotted Dolphin	85	80-100	129-142	NA	1-2	140	120	100s to 1000s	uncommon
<i>Stenella clymene</i>	Clymene Dolphin	NA	NA	NA	NA	NA	NA	180-200	up to 10s	occasional

Scientific Name	Common Name	Length at Birth (cm)	Neonate length (cm)	Length at 1 Year of Age (cm)	Length at 2 Years of Age (cm)	Age at Weaning (yrs)	Length at Weaning (cm)	Adult Length (cm)	Typical Group Size	Freq. of Occurrence of Single Individuals
Scientific Name	Common Name	Length at Birth (cm)	Neonate length (cm)	Length at 1 Year of Age (cm)	Length at 2 Years of Age (cm)	Age at Weaning (yrs)	Length at Weaning (cm)	Adult Length (cm)	Typical Group Size	Freq. of Occurrence of Single Individuals
<i>Stenella coeruleoalba</i>	Striped Dolphin	93-100	100	166	180	NA	170	220-260	10s to 100s	uncommon
<i>Stenella frontalis</i>	Atlantic Spotted Dolphin	100	80-120	NA	NA	NA	140	200-230	up to 10s	uncommon
<i>Stenella longirostris</i>	Spinner Dolphin	75	70-80	133-137	NA	1-2	NA	180-220	up to 1000s	uncommon
<i>Steno bredanensis</i>	Rough-toothed Dolphin	100	NA	NA	NA	NA	NA	240-270	up to 10s	uncommon
<i>Tursiops truncates</i>	Bottlenose Dolphin	100-110	100-130	170-200	170-225	1.5-2	170-225	Coastal 220-300; Offshore 250-650	up to 10s	occasional
<i>Ziphius cavirostris</i>	Cuvier's Beaked Whale	270	200-300	NA	NA	NA	NA	670 – 700	up to 10s	not uncommon

9.7 Appendix G - Pinniped-Species Specific Developmental Stages (Age- Length) and Social Dynamics

Scientific Name	Common Name	Length at Birth (cm)	Neonate Length (cm)	Age at Weaning	Length at Weaning (cm)	Adult Length (cm)	Pups Born	Peak of Pupping
<i>Arctocephalus townsendi</i>	Guadalupe Fur Seal	60	60	9-11 mos	NA	F 140-170; M 180-240	June	June
<i>Callorhinus ursinus</i>	Northern Fur Seal	60-65	60	3-4 mos	NA	F 100-150; M 190-230	June-July	June-July
<i>Cystophora cristata</i>	Hooded Seal	90-100	90-110	4-12 days	NA	F 200-230; M 230-290	Late March	Late March
<i>Erignathus barbatus</i>	Bearded Seal	130	130	12-18 days	150	210-250	Mid-Oct to Mid-Nov	Mid-June
<i>Eumetopias jubatus</i>	Steller Sea Lion	100	100	~1 yr	180	F 220-290; M 240-330	Mid-May to Mid-June	Mid-June
<i>Halichoerus grypus</i>	Gray Seal	90-110	80-110	16-21 days	110	F 180-210; M 220-250	January-February	January
<i>Histriophoca fasciata</i>	Ribbon Seal	80-90	80-90	3-4 weeks	90-110	150-180	April-May	Early April
<i>Mirounga angustirostris</i>	Northern Elephant Seal	125	120-140	28 days	150	F 200-320; M 380-410	January	End of January
<i>Monachus schauinslandi</i>	Hawaiian Monk Seal	100	100	3-7 weeks	100	F 230-240; M 210-220	December-August	March- May
<i>Odobenus rosmarus</i>	Walrus	100-120	100-140	2+ years	200	F 230-260; M 270-320	April-June	May
<i>Pagophilus groenlandicus</i>	Harp Seal	85	80-110	12 days	100	160-190	February- March	March
<i>Phoca larga</i>	Spotted Seal	77-92	80-90	4-6 weeks	110	160-170	Early April- Early May	Early April
<i>Phoca vitulina</i>	Harbor Seal	70-100	70-90	3-6 weeks	90	150-190	May-June	May
<i>Pusa hispida</i>	Ringed Seal	60-65	60-70	6-8 weeks	80	120-150	Mid-March to Mid- April	Early April
<i>Zalophus californianus</i>	California Sea Lion	75	70	10-12 mos	NA	F 150-200; M 200-240	May-June	June