Dolphin Intervention Plan: A framework for potential marine mammal interventions related to the Mid-Barataria Sediment Diversion Project

(CPRA Project Number BA-O153)

This Dolphin Intervention Plan for the Mid-Barataria Sediment Diversion (MBSD) Project (the Project) provides a strategy and best practices for marine mammal interventions. This Plan is by nature a living document and never "final". This Plan will be "draft" at least until if, and if so when, the US Army Corps of Engineers (USACE) New Orleans District issues the permits and authorizations required for the Project and the Louisiana Trustee Implementation Group (LA TIG) decides to fund the Project. The State of Louisiana Coastal Protection and Restoration Authority (CPRA), at that point, will then work with the National Oceanic and Atmospheric Administration (NOAA) to add any Compliance Monitoring requirements contained in those permits related to marine mammal interventions to this Plan and make any decisions on implementation of any of the aspects of this framework.

1. Purpose and Goals

The purpose of the Dolphin Intervention Plan is to outline a framework for potential intervention activities and the process for decision making that may be used to respond to free-swimming, live dolphins that are ill; behaving abnormally; injured; in poor condition/health; or are at risk for injury, illness, or death due to adverse environmental changes in the Barataria Basin, Louisiana. Models project that the Project will result in substantial morbidity and mortality of dolphins in the Barataria Bay Estuarine System stock, including 585 dolphin mortalities (95 percent confidence interval [CI]: 131 to 1459) in the first year of operations alone and loss of 96% of the entire population (95 percent CI: 80% to 100%) by the end of the Project (Thomas et al. 2021). Obviously, no set of dolphin mitigation/intervention activities could entirely offset such an impact, however, the resources available (including trained and qualified personnel, equipment and supplies, budget, and time) need to be deployed in a strategic manner in order to be as effective as possible. The goals of this intervention framework for dolphins in the Barataria Basin are to reduce illness, pain, and suffering, as well as collect scientific information that may inform operational mitigation actions and adaptive management of the monitoring and response activities.

This Dolphin Intervention Plan for the Project will follow the Small Cetacean Intervention Best Practices (and other associated appendices) developed as part of the 2022 Marine Mammal Health and Stranding Response Program (MMHSRP) Programmatic Environmental Impact Statement (PEIS) to the best extent practicable, but may include modifications to meet the specific needs for MBSD interventions. This intervention framework includes activities above and beyond normal emergency response activities, either due to the scale or nature of the activities (such as rescues of dolphins in their usual habitat but when the conditions within that habitat are affected by the low salinities from the Project; remote treatment of free-swimming

dolphins that are not entangled or victims of a boat strike; or broader-scale hazing or translocations). Interventions may require no additional action beyond those in the MAM plan, or include such activities as remote sample collection, assessment, and/or treatment; capture and release, rehabilitation, and/or translocation of free-swimming individual(s); and/or capture and euthanasia of sick or injured, free-swimming animals.

1.1. Background

In 1992, the MMHSRP, under the National Marine Fisheries Service (NMFS), was established by Congress under Title IV of the Marine Mammal Protection Act (MMPA). The goals of the program are to: collect and disseminate health and health trend data for marine mammals in the wild; correlate the health and health trends of marine mammals in the wild with biological, chemical, and physical environmental data; and to coordinate effective responses to marine mammal unusual mortality events (UMEs). As part of the work of the MMHSRP, the program develops best practices and guidance; maintains MMPA, Endangered Species Act (ESA), Convention on International Trade in Endangered Species (CITES) permits, and NOAA Institutional Animal Care and Use Committee (IACUC) authorizations; and maintains a PEIS that addresses responses and research activities nationally (NOAA 2021). Through these permits, the program authorizes qualified individuals to conduct interventions on small cetaceans (such as the bottlenose dolphins living in and near the Barataria Basin) as either response activities for animals with health concerns or as scientific studies on health conditions in order to reduce injuries or risks. The MMHSRP published best practice guidelines for free-swimming, distressed small cetacean interventions prior to onsite release, translocation, or admission to rehabilitation (NOAA 2021).

1.2. Legislation Pertinent to Non-ESA Small Cetaceans

Marine Mammal Protection Act (MMPA): The MMPA, signed into law in 1972, prohibits the "take" of marine mammals, which includes harassing or disturbing these animals, as well as harming or killing, unless such take is specifically exempted in the statute or authorized. The MMPA divides responsibility for marine mammal species between the Secretary of Commerce, who oversees NMFS, and the Secretary of the Interior, who oversees the U.S. Fish and Wildlife Service (USFWS). NMFS has jurisdiction over cetacean (including the dolphins living in and near the Barataria Basin) and pinniped species (with the exception of walrus), and USFWS has jurisdiction over walrus, polar bear, sea otters, and manatees. The 1992 amendments to the MMPA included Title IV of the MMPA, which established the MMHSRP under NMFS to collect and disseminate information about the health trends in marine mammal populations through the collection of data from strandings, bycatch, subsistence harvest, and research. The PEIS best practices support these efforts and focus on data collection from small cetacean interventions using the Network or other authorized personnel.

On February 9, 2018, Congress passed the Bipartisan Budget Act of 2018 (Budget Act), Public Law 115-123, which included a requirement that the Secretary of Commerce, as delegated to the Assistant Administrator of the National Marine Fisheries Service (NMFS), issue a waiver of the Marine Mammal Protection Act (MMPA or Act) moratorium and prohibitions for three specific

Louisiana wetland restoration projects, including the MBSD. Specifically, Section 20201 in title II of the Budget Act directs the Secretary of Commerce to issue a waiver pursuant to section 20201 and section 101(a)(3) of the MMPA for three projects included in the 2017 Louisiana Comprehensive Master Plan for a Sustainable Coast. Specifically, in Congress' recognition of their consistency with the findings and policy declarations in section 2(6) of the MMPA, the Budget Act directs the Secretary to issue a waiver for the Mid-Barataria Sediment Diversion, the Mid-Breton Sound Sediment Diversion, and the Calcasieu Ship Channel Salinity Control Measures projects from the requirements of sections 101(a) and 102(a) of the MMPA for the duration of the construction, operation, and maintenance of the projects. NMFS issued the waiver on March 15, 2018. Section 20201 of the Budget Act further indicates that, upon the issuance of the waiver, the State of Louisiana (State) shall, in consultation with the Secretary of Commerce: (1) To the extent practicable and consistent with the purposes of the projects, minimize impacts on marine mammal species and population stocks, and (2) Monitor and evaluate the impacts of the projects on such species and population stocks.

1.3. Intended Uses of Best Practices

NMFS and the Marine Mammal Stranding Network (the Network) have developed protocols and procedures for responding to live marine mammals stranded or otherwise in distress to ensure the health, welfare, and safety of human responders, animals, and the public (NOAA 2021). These protocols balance the need for standardized procedures while allowing flexibility to address the specific needs of different situations for diverse species and habitats, as well as unforeseen circumstances. In particular, this Intervention Framework will rely on the recommendations in (but not limited to) Appendix XII to the PEIS (Small Cetacean Intervention), Appendix X (Cetacean and Pinniped Transport), Appendix XIII (Euthanasia), Appendix XV (Mass Strandings), and Appendix XXI (Small Cetacean Entanglement). For more information on general stranded marine mammal rescue and rehabilitation, the reader should consult references such as *Marine Mammals Ashore* (Geraci *et al.* 2005) and the *CRC Handbook of Marine Mammal Medicine* (Gulland *et al.* 2018). Human and animal safety are the top priorities for NMFS and the Network, and these two entities evaluate many factors before making a decision to intervene. Each event is unique and requires the consideration of multiple aspects, some predictable (which are addressed below) and some unpredictable.

However, it is important to emphasize that MBSD interventions may require specific needs and modifications to the best practices. Operations of interventions will be handled based on the Incident Command System (ICS) standardized by the National Incident Management System (NIMS) and adjusted (with additional guidelines) for marine mammals and oil spill response by Ziccardi et al. (2015), with the Dolphin Resource Team working closely with the MMHSRP and the NOAA Southeast Stranding Program (Southeast Regional Office/Southeast Fisheries Science Center). Although these guidelines were developed specifically for oil spill response, the general structures and guidelines are applicable to the management of other marine mammal-related emergency situations (such as UME response and the responses to the projected freshwater impacts from the Project).

2. Planning Strategy for Interventions

2.1. Authorization and Training

Dolphin interventions in and around the Barataria Basin will be conducted under the MMHSRP's MMPA/ESA permit, a Stranding Agreement (for live strandings or out-of-habitat animals), or the MMPA 109(h) authority for local, state, and federal officials. The permit and Stranding Agreement activities fall under the MMHSRP's PEIS. Even though the specific Barataria Basin intervention activities will most likely be conducted under the MMHSRP's MMPA/ESA permit due to their complexity and risks, any dolphin intervention in the Barataria Basin should follow the ICS structure, including being discussed with the State Stranding Coordinator, Southeast Regional Stranding Coordinator(s) (RSC), and MMHSRP headquarters (HQ) staff in the planning and implementation phases as appropriate. Additionally, the Network, Dolphin Resource Team, and associated staff who have been authorized by NMFS to conduct monitoring, response, and interventions must have the training, experience, equipment, and necessary support to safely and humanely conduct those specific dolphin activities. In some cases, particularly if interventions include more than one animal, the Network and Dolphin Resource Team may also rely on partners such as local, state, and federal employees (including law enforcement, police, fire department, USFWS, and the U.S. Coast Guard), aquaria, non-governmental organizations, academic, and other appropriately trained and capable individuals/groups to assist.

To maintain safety and increase the capacity to conduct interventions, authorized Dolphin Resource Team and Network personnel will provide opportunities for apprenticeships or assistant roles to develop additional personnel with the necessary hands-on expertise, as well as conduct community outreach for more general assistance. Specific training issues or requirements may also exist for certain activities (e.g., in-water dolphin research or response captures outside of the Barataria Basin).

2.2. Strategy for Development of Intervention Activities

The initial intervention planning will occur in phases, either in parallel or sequentially. However, some activities to benefit planning can begin as soon as possible. Consistent data collection and diagnostic analyses will occur (according to veterinary discretion) in live animal interventions for out-of-habitat dolphins, entanglement response, and live strandings as a part of ongoing MMHSRP-led response efforts. These data will be synthesized for discussions in Phase 1 planning efforts.

Phase 1: In the first 18-24 months of the pre-operational period, planning activities will consist of a series of workshops with a wide variety of subject matter experts (SMEs) in dolphin health, research, low salinity exposure, hydrology, dolphin welfare, population and abundance, and biology. These SMEs will evaluate a suite of potential intervention activities ranging from remote monitoring to hands-on capture, rehabilitation, release/translocation, and/or euthanasia. The assessments would consider such issues as health risks; human safety; animal welfare; likelihood of success in reducing illness, pain, and suffering; risk to the individual and

population(s) affected by these intervention activities; likelihood of increasing scientific understanding and improving future interventions/assessments; feasibility; benefits to individual and population; and enhancement of survival and/or resilience. The SMEs will also develop recommendations for how to triage cases when the number of animals in need of intervention is greater than the available personnel/resources can reasonably manage (see, for example, Figure 1). In addition, the workshop participants may also discuss data gaps that might improve our interventions and/or inform operational mitigation evaluations. Finally, Phase 1 may identify possible studies, including pilot studies, that might address those data gaps.

Phase 2: During the pre-operational period and/or in the first year/years of the post-construction period, pilot projects or studies may be initiated to investigate dolphins in the Barataria Basin that are exposed to low salinity waters for various periods of time using recommendations from Phase 1. The pilot studies will be developed based on the discussions and recommendations of the SME workshops and further evaluated with input from SMEs.

Phase 3: In the post-construction period (with particular emphasis on the first years of operations, and in areas likely to have the lowest salinities and the longest exposures), interventions will be implemented as informed by the monitoring and stranding programs, using intervention funds and personnel as needed.

3. Potential Intervention Activities

3.1. Overview

There are many considerations that go into the decision of when and how to respond to free-swimming small cetaceans in distress. Based on past interventions with out-of-habitat dolphins, the following are a general progression of possible intervention actions, listed from least to most intensive/invasive. Combinations of these may be used for future out-of-habitat dolphins, including storm surge displaced animals, in the Barataria Basin as well as for MBSD-related interventions in which the animal is in adverse environmental conditions or exhibiting poor health. Intervention decisions and implementation will require rapid access to biological and environmental data and predictions/forecasts to identify intervention triggers, as well as for adaptive management of the dolphin monitoring program.

3.2. Behavioral Observations (Remote)

In each case/event, animals should be assessed through physical, behavioral, and environmental observations. The Dolphin Resource Team, as part of their monitoring effort, will undertake observations on groups and individuals throughout the year and throughout the basin. Based on specific environmental or animal triggers, additional observations may be needed for specific groups or individuals to identify any intervention actions needed. These targeted observations will enable better decision-making for the appropriate course of action for that particular individual or group of individuals (refer to Small Cetacean Intervention Best

Practices for individuals and the Mass Stranding Best Practices for information on groups of animals), but these observations will also provide important information for future cases. For these observations, a standardized remote health assessment form will be used. All data will be linked to the dolphin photo-id catalog number whenever possible, and the data entry and management will be integrated with the Dolphin Resource Team activities. In an emergency case (e.g., an animal in imminent danger of death, such as an anchored animal), immediate intervention (following approval from NMFS) may be necessary.

3.3. Sample Collection (Remote)

Remote samples may be collected to provide additional data on the health of an individual, to aid in intervention decision-making. Samples that may be remotely collected may include, but are not limited to:

- Remote collection of floating feces for parasite identification, hormones, etc.
- Remote collection of breath via pole or UAS for microbiology, hormones, etc.
- Remote collection of skin and blubber via biopsy dart for genetics, epigenetics, omics, sex, hormones, pathogen screening/microbiome, contaminants, etc.
- Remote collection of blood for a variety of analyses

3.4. Herding/hazing/deterrence

While more commonly used to prevent mass strandings of small cetaceans, herding or deterrence actions may be appropriate for single or small groups of dolphins for short distances and brief periods of time. Various methods of deterrence or hazing can be used by experienced individuals, including:

- Vessel action, close approaches, percussive slaps on the water, which can be attempted from non-motorized watercraft such as stand up paddleboards and kayaks, as well as motorized vessels (e.g., boats, jet ski)
- Pingers, playbacks, or other acoustic devices (e.g., diver recall sirens)
- Hukilau, Oikomi pipes, streamers, non-entangling nets, and bubble curtains

For a more in-depth discussion of various non-lethal deterrence options, see NMFS Marine Mammal Non-Lethal Deterrence Guidance.

4. Remote Treatments

The development of remote treatments will leverage the ongoing work to develop remote delivery protocols, tools, and techniques for sedation of free swimming small cetaceans. As part of a NOAA John H. Prescott Marine Mammal Rescue Assistance Grant Program grant, Mote Marine Laboratory's Stranding Investigations Program is developing a remote sedation protocol and delivery device for free-swimming small cetaceans. This is a response to the increasing number of cases where existing small cetacean intervention tools are inappropriate or not possible. These tools and protocols will make inaccessible free-swimming small cetaceans more accessible for safer interventions.

The Mote Marine Laboratory's Stranding Investigations Program team has initiated a multi-step process for developing remote sedation as a potential tool for small cetacean interventions, to ensure that it is safe and effective, culminating in standardized protocols accepted by the National Marine Fisheries Service (e.g., IACUC and NMFS permitting office protocols), modeled on the existing Pinniped Remote Sedation Entanglement Response Capture Protocol and similar protocols being finalized for large whales. The steps include the establishment of an international SME working group to assist in the design of the development and testing, initiate the testing, evaluation of delivery devices, development of pilot projects, and development of protocols and procedures including training for deployment of remote sedation. The delivery mechanism for sedation will also open the path for remote delivery of antibiotics and other drug administration to free swimming cetaceans. The MBSD intervention strategy may utilize these tools and protocols once they are developed.

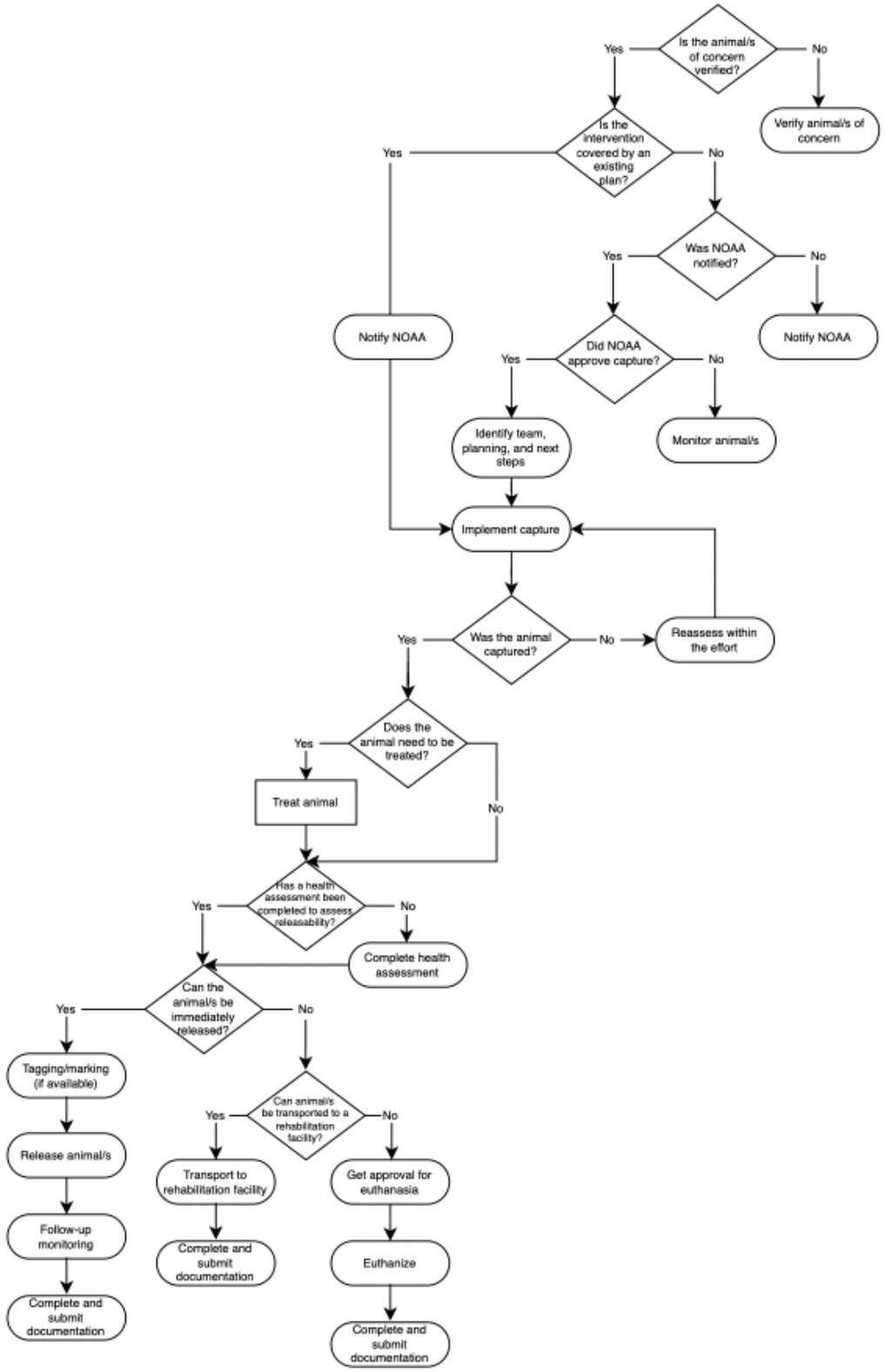

Figure 1: Potential Decision/Process Matrix for Dolphin Interventions. Diagram is provided as an example of what the SME working group will develop in Phase 1.

4.1. In-Water Capture

If a distressed cetacean is determined to have a life-threatening condition or is not likely to survive in its current habitat, a live capture may be warranted. This activity will require the availability of trained personnel, necessary resources, and safety considerations for both responders and the animal. The decision on when, where, and how to intervene needs to be approved by the RSC and MMHSRP HQ staff (following ICS procedures, e.g., Figure 1), and if needed, will include an intervention plan and follow an established protocol for the triage of cases when more than one animal requires a response. There are four potential methods for capture of small cetaceans: soft-tail line, hoop net, encircling net, or hand-set nets. For details for these procedures refer to the PEIS best practices (e.g., Appendix XII or XXI).

After the animal is captured, a thorough examination will be performed by an experienced marine mammal veterinarian. The animal may also receive appropriate treatment, such as removal of entangling gear, administration of medications, and marking/tagging if release is imminent. Following the examination, the appropriate course of action should be determined by the attending veterinarian and capture lead, in consultation with other experienced personnel and NMFS. Options may include immediate release, release in an alternate location, keeping the animal for rehabilitation prior to future release, and euthanasia. Project-specific criteria for this triage process, including the timing and location of releases, will be developed by the Core team and the SME workshops. Special consideration will be given for the potential capture and translocation of social groups, based on pilot projects and evaluations by outside experts for feasibility, safety, and other considerations. If animals are released, plans should be considered for follow-up monitoring of the individual.

5. Animal Disposition Options

Once the animal(s) are in hand, there are four options for the animal disposition: 1) immediate release (*in situ* or after translocation to alternate release site; with or without treatment), 2) short term rehabilitation and release (with tag) into same area or translocated to areas with healthier habitat; 3) longer term rehabilitation (release at a later date), and 4) euthanasia.

5.1. Immediate *in situ* Release or Translocation and Release

Per the best practices in the PEIS, immediate release is an option if the following factors are met:

- The animal is healthy or medically stable, and able to function normally as determined by the NMFS, capture lead, and the Network veterinarian (on-site or via phone consultation). Certain situations (*e.g.*, hurricanes) may have time constraints which may not allow for consultation with veterinarians and the only option may be transport/immediate release;
- Social requirements can be met (*e.g.*, maternal care for young)
- It is highly recommended the animal be marked or tagged in some manner prior to release (only by trained individuals), using NMFS-approved methods such as:

- Marking – paint stick/crayon marking;
- Notching or freeze-branding of the dorsal fin; or
- Tagging - a roto tag or cattle ear tag or a single-pin radio or satellite tag (if available).

The animal may be released *in situ* if:

- Environmental conditions are favorable;
- The animal is unlikely to strand/re-strand; and
- The capture location is near the animal's natural habitat.

The animal may be translocated to a different site and released immediately if:

- A different release site is a more suitable site for release;
- The animal is manageable and adequate logistical support is available, including transport vehicles; and
- The new site is believed to improve the chances of a successful release for the captured cetacean, and reduce the likelihood of re-stranding.

5.2. Rehabilitation

Rehabilitation, per 50 CFR 216.3, is defined as "treatment of beached and stranded marine mammals taken under section 109(h)(1) or 112 (c) or imported under section 109(h)(2) of the MMPA, with the intent of restoring the marine mammal's health and, if necessary, behavioral patterns." An authorized animal care facility provides treatment with the goal of releasing the animal back to the wild. Short-term (i.e., <96 hours) rehabilitation in temporary pools may be an option, as well as longer term rehabilitation in more permanent, authorized rehabilitation facilities. Short- and long-term rehabilitation facilities are authorized by NMFS and require a Stranding Agreement.

5.3. Euthanasia

The decision to euthanize a small cetacean is made in consultation with the RSC and other individuals (following the ICS) and the procedure must be conducted by one of the following:

- a Network veterinarian;
- an experienced, trained, and authorized Network member;
- an appropriately trained local, state, tribal, or federal law enforcement, or wildlife/animal control agent; or
- a non-marine mammal veterinarian in consultation with an experienced Network or federal veterinarian.

Euthanasia is an option when:

- The veterinarian determines that euthanasia is the most humane course of action, given the animal's prognosis. For example:
  - The animal is deemed to be critically injured or ill with little chance of recovery;

    - The animal is suffering or unlikely to survive if released; and/or
    - It is necessary to end the suffering of an animal.
- No rehabilitation facilities are available and immediate release is deemed inhumane or unlikely to succeed.

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