



NOAA
FISHERIES

SPECIES *in the* **SPOTLIGHT**

Priority Actions: 2016-2020

Cook Inlet Beluga Whale

Delphinapterus leucas



SPECIES SPOTLIGHT BACKGROUND

The 5-year action plan is part of a strategy to marshal resources on species listed under the Endangered Species Act of 1973 (ESA) for which immediate, targeted efforts are vital for stabilizing their populations and preventing their extinction. Eight species were identified by the National Marine Fisheries Service (NMFS) as among the most at-risk of extinction:

- Atlantic Salmon Gulf of Maine Distinct Population Segment (DPS)
- Central California Coast Coho Evolutionarily Significant Unit (ESU)
- Cook Inlet Beluga Whale DPS
- Hawaiian Monk Seal
- Pacific Leatherback Sea Turtle
- Sacramento River Winter-run Chinook ESU
- Southern Resident Killer Whale DPS
- White Abalone

These species were identified as among the most at-risk of extinction based on three criteria (1) endangered listing, (2) declining populations, and (3) are considered a recovery priority #1¹. We know the threats facing these species and understand the management actions we can take that will have a high probability of success. The 5-year action plan builds upon existing recovery or conservation plans and details the focused efforts needed over the next 5 years to reduce threats and stabilize population declines. We will engage our partners in the public and private sectors in actions they can take to support this important effort. We will report on our progress through the Biennial Report to Congress and post updates on our website: <http://www.nmfs.noaa.gov/pr/>.

This strategy will guide agency actions where we have the discretion to make critical investments to safeguard these most endangered species. The strategy will not divert resources away from the important and continued efforts to support all ESA-listed species under our authority. Many of our species have long-standing conservation programs supported by multiple partners. We remain committed to those programs. This action plan is designed to highlight the actions that can be taken by us, other federal and state resource agencies, environmental organizations, Native American Tribes and other partners to turn the trend around for this species from a declining trajectory to a trajectory towards recovery.

¹ Priority #1 is defined as a species whose extinction is almost certain in the immediate future because of a rapid population decline or habitat destruction, whose limiting factors and threats are well understood and the needed management actions are known and have a high probability of success, and is a species that is in conflict with construction or other developmental projects or other forms of economic activity. NMFS Endangered and Threatened Listing Recovery Guidelines (55 FR 24296, June 15, 1990).

COOK INLET BELUGA WHALE STATUS

The endangered Cook Inlet beluga whale was chosen as one of the eight most at-risk species because this declining population of small whales shares Cook Inlet with Alaska's human population center, transportation hub, and largest concentration of industrial activity. The population has declined by nearly 75% since 1979, from about 1,300 whales to an estimated 340 whales in 2014. The rapid decline and dire status of the Cook Inlet beluga whale population makes it a priority for NMFS and our partners to prevent extinction and promote recovery of this iconic species.

COOK INLET BELUGA WHALE KEY CONSERVATION EFFORTS/CHALLENGES

Cook Inlet belugas have long been a valuable part of the regional Alaska Native subsistence diet, but unregulated subsistence hunting during the mid-1990s occurred at a level that the population could not sustain. During this time period, the beluga population in Cook Inlet declined nearly 50%. Hunting was severely curtailed in 1999, and the last hunt in 2005 resulted in only two whales taken. Unfortunately, regulation of subsistence hunting has not had the expected effect of increasing the number of beluga whales.

Hunting is not the only threat that belugas face, however. NMFS works continuously with regulatory agencies and project proponents to minimize the degree to which important development and other human activities may harm Cook Inlet belugas or damage habitats essential to their survival. Reducing in-water noise is an especially important focal effort due to the importance of hearing to the Cook Inlet belugas' survival in the extraordinarily turbid waters of Cook Inlet. NMFS regularly reviews and comments on proposed actions and recommends steps to minimize the likelihood of in-water noise having adverse impacts on these whales and to minimize the possibility of injury or abandonment of critical habitats.

Cook Inlet belugas are unique among marine mammals in Alaska given that their core habitat and range is in close proximity to a large proportion of Alaska's human population. Humans use the waters and shores of Cook Inlet for fishing, hunting, timber harvest, mining, shipping, dredging, renewable energy production, wastewater discharge, military activities, oil and gas development, transportation, and residential and industrial development. Many of these same regions of Cook Inlet are important to beluga whales for foraging, reproduction and calving, predator avoidance, and, perhaps ironically, as refuge from human activities. The Draft Recovery Plan for the Cook Inlet Beluga Whale (draft recovery plan; NMFS 2015) identifies ten potential threats experts believe are obstacles to the recovery of this species, and identifies the most important actions we can take to address those potential threats.

Despite living in close proximity to humans, we do not have the same level of understanding of these whales as we do for some other coastal marine species because the turbid waters of Cook Inlet pose a challenge to our abilities to study these animals. In most of Cook Inlet, especially the upper regions, there is so much glacial silt in the water that we can often only see a couple of inches beneath the water's surface. This challenging habitat limits our ability to observe and document behaviors and activities of the beluga whales beneath the surface. As a result, many visual observation methods successful for studying other marine species are not viable in Cook Inlet for studying belugas.



PHOTO CREDIT: LGL Alaska Research Associates, MMPA/ESA Research Permit #14210

KEY ACTIONS NEEDED 2016-2020

The key actions that follow represent a small subset of the recovery actions identified in the May 2015 draft recovery plan, and represent actions NMFS and partners can take in the next five years to promote recovery of the species. The partners identified below have indicated their interest in helping achieve the action, but are not committed to a specific activity or commitment of resources. This list is not comprehensive of all potential partners, and we welcome partnering with others not identified within this plan.

Reduce the Threat of Anthropogenic Noise in Cook Inlet Beluga Whale Habitat

Description and Background: Cook Inlet beluga whales are vulnerable to harassment and injury from human-caused sources of noise. Using available information about the hearing sensitivity, movements, distribution, and habitat use of Cook Inlet beluga whales, NMFS works with other agencies and stakeholders to minimize the likelihood of noise having adverse impacts on these whales and to minimize the possibility of injury or abandonment of critical habitats. NMFS will expand these efforts with partners as part of this action. Effective management also includes working with partners to understand and mitigate acoustic threats. A first step involves year-round monitoring of background noise in present-day and historical key areas for Cook Inlet belugas (e.g., Susitna River Delta and the Kenai River) to identify areas where the acoustic environment may no longer be suitable for belugas, either seasonally or year-round. Long-term monitoring allows for establishment of present-day baseline levels of background noise, which are required to identify potential changes in the acoustic environment caused by future anthropogenic activities in Cook Inlet. As a second step, we encourage the resource development community in Cook Inlet to collaboratively compile data to share for consultation, permitting, project planning, and mitigation processes. Several development projects in Cook Inlet have independently conducted similar acoustic studies in Cook Inlet to define baseline conditions or for project planning purposes, but some of the study results remain proprietary. The E&P Sound and Marine Life Joint Industry Programme (JIP) is used elsewhere by the oil and gas industry to direct research that will help industry and managers identify effective and efficient mitigation measures for oil and gas development, and may be a useful model for all development projects (not just oil and gas) in Cook Inlet. Such a coalition would allow participants to pool resources and focus their efforts on environmentally responsible development and effective mitigation that will benefit the recovery of the Cook Inlet beluga whales. Anthropogenic activities in Cook Inlet are not likely to decrease in the near future, thus a third step is the development, testing, and routine incorporation of sound-reducing technologies, especially for major noise-producing activities.

Expected Benefits to the Species: Improved understanding of the acoustic environment where Cook Inlet belugas live will improve the assessments and mitigation of effects to Cook Inlet beluga whales from noise-producing activities. Incorporation of mitigation measures into project planning and approvals will minimize incidental taking of beluga whales from noise-producing activities. Better coordination of acoustic information collected by Cook Inlet resource users and the development and implementation of noise-reducing technologies will also improve the ability to effectively manage the Cook Inlet beluga whales. Ultimately, these steps will promote recovery by reducing the threat of anthropogenic noise to Cook Inlet beluga whales.

Source: Draft Recovery Plan for the Cook Inlet Beluga Whale:

- recovery criteria V.C.2.b.D.2 (pg. 113)
- recovery actions VI.A.19b, VI.A.19c, VI.A.19d, and VI.A.31e (pg. 131 and 149)

Location: Noise-producing projects occur throughout the range of the Cook Inlet beluga whales; long-term acoustic monitoring should be conducted in high-use areas of Cook Inlet beluga whale habitat; noise reduction technologies should be considered throughout Cook Inlet beluga whale habitat.

NMFS Point of Contact: Mandy Migura, Alaska Region, mandy.migura@noaa.gov, 907-271-1332

Lead Partner: To be determined

Partners: U.S. Department of Defense – Joint Base Elmendorf Richardson; NMFS National Marine Mammal Laboratory; Alaska Department of Fish and Game; National Fish and Wildlife Foundation; Port of Anchorage; Bureau of Ocean and Energy Management

Proposed Start Date: Limited year-round acoustic monitoring is planned to start spring 2016. Limited testing of noise-reducing technologies is planned for 2016. Project reviews and incorporation of mitigation measures occur year-round.

Expected Completion Date: Due to funding constraints, the long-term collection of acoustic data is currently limited to the Susitna River Delta and will cease 12 months after initiation. A collaborative effort to share acoustic data and improve noise-quieting technologies should continue at a minimum until the species is delisted. ESA implementation will continue until the species is delisted; MMPA implementation will continue indefinitely.

Current Status: Collection of 12 consecutive months of acoustic data in the Susitna River Delta will begin spring 2016. No progress has been made towards additional acoustic data collection sites or towards organizing the resource user groups to develop a unified data sharing coalition. The Port of Anchorage is investigating the use of noise-quieting technologies for pile driving for future Port of Anchorage improvement projects. NMFS routinely reviews proposed actions which may result in take under the ESA and Marine Mammal Protection Act (MMPA) and recommends measures to mitigate the effects of noise.

Updates: Updated annually end of each fiscal year

Resources:

Funding:

Effective implementation of this action requires a comprehensive understanding of the Cook Inlet beluga whales' acoustic environment and practical ways for reducing the threats caused by noise. Although NMFS Alaska Region has allocated \$84,000 for collection of acoustic data from the Susitna River Delta, funding is currently not available for the assessment of the collected data, nor for collection of acoustic data in other areas of Cook Inlet. Completion dates for data assessment for the Susitna River Delta effort, as well as data collection and assessment for other areas of Cook Inlet, are unknown and dependent upon future funding. Per the draft recovery plan, a comprehensive Cook Inlet-wide acoustic data collection effort may cost \$450,000 annually for five years. To set up

a resource user group data sharing program may initially cost up to \$30,000, and once initiated it may cost approximately \$20,000 annually to maintain.

Opportunities for Partners:

- We encourage the U.S. Department of Defense – Joint Base Elmendorf Richardson, Alaska Department of Fish and Game, National Fish and Wildlife Foundation, Port of Anchorage, Bureau of Ocean and Energy Management, NMFS National Marine Mammal Laboratory and other groups collecting acoustic data in Cook Inlet to partner with NMFS Alaska Region to organize a resource user group coalition to share data, project planning, and mitigation processes regarding potential changes in the acoustic environment caused by anthropogenic activities in Cook Inlet.
- We encourage cooperation of numerous entities across governmental agencies and the private sector to develop alternative technologies, which are quieter than the sources of noise used in Cook Inlet in the past. Costs associated with developing or implementing noise-reducing technologies are unknown. While these actions do not all need to be initiated or led by NMFS, they should be developed in collaboration with a Cook Inlet beluga whale recovery coordinator.

**Protect Habitats that Support Foraging or Reproduction of Cook Inlet
Beluga Whales**

Description and Background: Certain habitats within Cook Inlet appear to be especially important for beluga feeding or reproduction, factors crucial to attaining recovery. To date, NMFS has not formalized any management measures to protect such habitats for belugas. Habitat protection measures for belugas have arisen primarily through mitigation measures negotiated via ESA section 7 consultations and MMPA incidental take authorizations. These mitigation measures have focused on providing seasonal, localized protection of belugas from certain types of anthropogenic noise, but have not extended beyond temporarily reducing a particular threat. A more systematic attempt to consider and potentially adopt specific habitat protection measures for vulnerable areas during sensitive times of year for feeding or reproduction could benefit belugas while providing greater predictability for human users of these areas. To be effective, such an effort must include input from a variety of stakeholders.

Expected Benefits to the Species: Protection of habitats vital for foraging or reproduction may be crucial for allowing the population to grow and recover. Available information suggests that limiting anthropogenic disturbance in particular areas during vulnerable times of year could enhance successful beluga feeding and reproduction. Through project reviews and issuance of incidental take authorizations for recent development projects, NMFS has recommended a seasonal exclusion zone for certain noise-producing activities in the Susitna River Delta. This

specific habitat protection targets prime times when belugas congregate in large numbers for foraging and reproduction. Establishing such measures in a less ad-hoc and more transparent fashion would benefit belugas as well as human users of Cook Inlet. For example, guidelines could be developed which outline the threats posed by specific activities in vulnerable areas and identify ways to mitigate effects on belugas. Developing such protections through a public process will not only work to ensure the Cook Inlet belugas and their crucial foraging or reproductive habitats are better protected from these activities, but also will provide consistency and early notice for planning purposes for human activities in those areas. Protection or restoration of beluga prey habitats, especially those leading to areas where belugas concentrate to feed, may result in improved foraging opportunities, and ultimately improve individual whales' chances for successful reproduction. Protecting particularly valuable habitats during sensitive times of year will increase the opportunities for belugas to feed and reproduce successfully, directly benefitting their recovery.

Source: Draft Recovery Plan for the Cook Inlet Beluga Whale:

- recovery criteria V.C.1.b.A.5 and V.C.1.b.D.5 (pg. 111-112)
- recovery actions VI.A.21, VI.A.21c, , VI.A.22c, VI.A.22d, VI.A.22e, VI.A.25c (pg. 133, 135, 136, 137, 139)

Location: Habitats important for Cook Inlet beluga foraging or reproductive activities.

NMFS Points of Contact: Mandy Migura, Alaska Region, mandy.migura@noaa.gov, 907-271-1332

Lead Partner: To be determined

Partners: NMFS Alaska Region Habitat Conservation Division; NMFS Office of Habitat Conservation Restoration Center

Proposed Start Date: Through the ESA section 7 consultation and MMPA permitting processes, in 2012 NMFS began working in partnership with project proponents to implement seasonal protections for the Susitna River Delta associated with some large noise-making projects. These protections have not been formalized outside these specific project reviews. In 2017 NMFS will begin working with partners to consider a more systematic approach.

Expected Completion Date: Depending on the type and scope of habitat protection measures identified, such measures could be adopted within two to three years of beginning a dedicated effort to engage with stakeholders. Protections of crucial areas should continue at a minimum until the species has recovered.

Current Status: Currently protections are only implemented for the Susitna River Delta through permit conditions for select activities; no efforts have begun to assess areas in need of more or formalized protections.

Updates: Updated annually end of each fiscal year

Resources:

Funding:

Undetermined

Opportunities for Partners:

- We encourage the Federal Highway Administration, the U.S. Army Corps of Engineers, U.S. Department of Defense, and the U.S. Department of Agriculture to use their authorities, including 7(a)(1) of the ESA to carry out programs within their authority for the conservation of endangered Cook Inlet Beluga Whales.
- We encourage numerous entities across governmental agencies and the private sector to assess and develop effective habitat protection measures. The development of measures to protect habitats crucial for successful foraging and reproduction should consider habitats used directly by belugas as well as habitats that benefit belugas indirectly. For example, a particular salmon-rearing habitat up-river may be an important feature that, without protection, could be degraded or destroyed, resulting in detrimental impacts to belugas' foraging success. In such a case protection of these areas could benefit the recovery of belugas.

**Gain a Better Understanding of Population Characteristics of Cook Inlet
Beluga Whales to Ensure Effective Management Actions Result in
Recovery**

Description and Background: Population monitoring is vital to understanding the status of the species, the effects of threats, and the effectiveness of management and recovery actions. Comprehensive aerial surveys of Cook Inlet beluga whales began in 1993 and contribute to long-term data sets of population abundance to determine population trends over time. Photo-identification surveys of Cook Inlet belugas began in 2005 and provide information about individual animals' movements, social organization, and basic life history parameters which cannot be obtained via aerial surveys. Continuation of these long-term studies is necessary to understand several population characteristics, however, additional data are needed regarding body condition, contaminant loads, reproductive status, and stress levels of beluga whales to inform recovery actions. These individual characteristics can be monitored using skin and blubber biopsies. Biopsy sampling has been effective and benign on many marine mammal species. A new biopsy program must be closely integrated with the photo-identification study to link results from biopsied whales to existing data about individuals in this small population.

Expected Benefits to the Species: The aerial surveys allow us to track the population's abundance and distribution during the summer, when increased human use of the inlet is most likely to impact the whales. These data inform population and distribution models, which are critical to the management of the species. Abundance and distribution surveys are also critical

for determining whether some of the recovery criteria for the species have been met. Long-term photo-identification studies allow us to use non-invasive methods to track individual whales' life history characteristics (e.g., survival, calving rates, maternal investment to calves, movement patterns, health and injury status, social structure) and extrapolate those individual parameters to the population. These data improve population models, can provide insights regarding the population's abundance, social structure, and distribution, and have proved valuable for the management of the species. Regular biopsy surveys of Cook Inlet belugas can help us understand the population's sex ratio and how survival and reproductive success relate to environmental and anthropogenic factors. Biopsy data would also help to refine population models to project the effectiveness of recovery efforts.

Source: Draft Recovery Plan for the Cook Inlet Beluga Whale:

- recovery criteria V.C.1.a, V.C.1.b.A.4, and V.C.2.a (pg. 110-112)
- recovery actions VI.A.1, VI.A.4, VI.A.5, and VI.A.6 (pg. 117-119)

Location: Aerial surveys cover the majority of Cook Inlet, with emphasis in upper Cook Inlet and the coastlines. The existing photo-identification program focuses on areas where belugas are known to congregate, especially in upper Cook Inlet and near the Kenai River delta. Collection of biopsies will be most successful in areas of upper Cook Inlet where belugas are predictably present in larger numbers.

NMFS Points of Contact: Mandy Migura, Alaska Region, mandy.migura@noaa.gov, 907-271-1332; Rod Hobbs, NMFS National Marine Mammal Laboratory, rod.hobbs@noaa.gov, 206-526-6278

Lead Partner: Cook Inlet Beluga Whale Photo-Identification Project Group (via LGL Alaska Research Associates, Inc.)

Partners: National Fish and Wildlife Foundation; U.S. Department of Defense – Joint Base Elmendorf Richardson; Alaska Department of Fish and Game

Proposed Start Date: The next biennial aerial survey is scheduled for June 2016. Photo-identification surveys occur annually from May-October. A pilot biopsy study is being planned for 2016.

Expected Completion Date: Population monitoring surveys should continue until at least 5 years post-delisting.

Current Status: NMFS National Marine Mammal Laboratory began conducting annual aerial surveys of Cook Inlet beluga whales in 1993; since 2012, the aerial surveys are conducted biennially in even-numbered years. LGL Alaska Research Associates, Inc. began conducting Cook Inlet beluga whale photo-identification studies in 2005 and has maintained some level of effort (depending on funding) each year through 2015. NMFS Alaska Region has provided funding to continue this effort into 2016. NMFS National Marine Mammal Laboratory and NMFS Alaska Region are actively working with partners to develop and design a pilot biopsy study, which is expected to occur in 2016.

Updates: Updated annually end of each fiscal year

Resources:*Funding:*

NMFS now conducts aerial abundance surveys every other year at a cost of approximately \$300,000 per survey. A comprehensive photo-identification study is anticipated to cost at least \$200,000 per year. In 2015, NMFS Alaska Region contributed \$150,000 for photo-identification studies and the National Fish and Wildlife Foundation leveraged the NMFS funds to raise an additional \$50,000 (minus overhead), which allowed the study to continue in specific areas of upper Cook Inlet in 2015. NMFS Alaska Region has allocated \$150,000 for the 2016 field season. Biopsy costs are dependent upon the level of field effort, the number of samples collected, and the types of tests run on the samples. Preliminarily, it is expected that a biopsy program could cost around \$300,000 annually. NMFS Alaska Region has allocated \$175,000 to the pilot biopsy study in 2016, which includes costs associated with the collection and analyses of up to 30 biopsy samples, and photo-identification of biopsied animals.

Opportunities for Partners:

- We encourage additional partners to assist with expanding the extent of the population monitoring efforts to ensure a more comprehensive program. These efforts will require cooperation of numerous entities to be successful and do not need to be initiated or led by NMFS but should be developed in collaboration with a Cook Inlet beluga whale recovery coordinator.

Ensure Healthy and Plentiful Prey are Available
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Description and Background: A primary uncertainty in trying to understand the failure of the Cook Inlet beluga whale population to recover is whether the quantity or quality of available prey is limiting recovery through constraints to Cook Inlet beluga whale reproduction or survival. Because not all prey species contribute equally to Cook Inlet belugas' diet, and the nutritional characteristics of a given prey species vary seasonally, research is needed to understand the quantity, quality, and distribution of prey available in Cook Inlet beluga habitat, and how these characteristics vary spatially and seasonally. Although some information is available on the upstream spawning escapement of some beluga prey species in select Cook Inlet tributaries, this does not provide a clear understanding of the prey available in the marine/estuarine areas, particularly in upper Cook Inlet where belugas congregate. There is also a lack of information on prey available from late fall to early spring, and on the quality of Cook Inlet beluga prey resources (e.g., energy content, contaminants, stable isotopes, fatty acids). In addition to understanding prey availability, there must be an understanding of the energetic/metabolic requirements of Cook Inlet belugas, which likely vary by sex and life stage. The information regarding belugas' energetic requirements needs to be linked to what is known

about prey availability in order to ensure there are adequate numbers of healthy prey available to Cook Inlet beluga whales. Obtaining information about existing prey availability and quality will clarify whether new management actions are needed (and if so, what type) to ensure prey are sufficient to support recovery of Cook Inlet beluga whales.

Expected Benefits to the Species: Survival and recovery of Cook Inlet beluga whales depend on an adequate quantity, quality, and accessibility of prey resources. At this time, there is only limited information on the characteristics of potential prey in Cook Inlet beluga whale habitat, and available data are largely from the summer season. It is imperative that information on available prey resources throughout the year be collected and monitored to determine which, if any, prey resources may be limiting Cook Inlet beluga recovery and to clarify what types of mitigation measures have the greatest likelihood of facilitating recovery. It is critical that emphasis be placed on determining prey quality (e.g., energetic content, contaminants, stable isotopes, and fatty acids) because a large quantity of poor-quality prey may have little utility to Cook Inlet belugas relative to high-quality prey. Increased information allows a focus of mitigation efforts on aspects likely to promote Cook Inlet beluga recovery. To improve assessments of relationships between Cook Inlet belugas and their prey, standardized surveys are needed to determine the spatial and seasonal distribution of beluga prey, especially in upper Cook Inlet. Data on levels and types of fatty acids and stable isotopes among predator and prey organisms can be used to better understand seasonal trophic linkages (i.e., the relationship between potential predators and potential prey species at different times of the year). This information is an important component of the data needed to understand Cook Inlet beluga foraging patterns, and whether availability of quality prey is limiting their recovery.

Source: Draft Recovery Plan for the Cook Inlet Beluga Whale:

- recovery criteria V.C.1.b.A.1, V.C.1.b.A.2, V.C.1.b.D.1, V.C.2.b.A.1, and V.C.2.b.D.1 (pg. 110-113)
- recovery actions VI.A.12, VI.A.12a, VI.A.13, VI.A.13a, VI.A.13d, VI.A.13e, VI.A.13f, and VI.A.13g (pg. 121, 123-125)

Location: Examinations of prey are most necessary in areas where the Cook Inlet beluga whales are most often found throughout the year, namely the coastal areas and associated rivers, streams, and tributaries of mid and upper Cook Inlet.

NMFS Point of Contact: Mandy Migura, Alaska Region, mandy.migura@noaa.gov, 907-271-1332

Lead Partners: To be determined

Partners: Alaska Department of Fish and Game; NMFS Alaska Fisheries Science Center; Cook Inlet Region Citizens Advisory Council (CIRCAC); Department of Defense – Joint Base Elmendorf Richardson; National Fish and Wildlife Foundation

Proposed Start Date: To be determined

Expected Completion Date: unknown

Current Status: These efforts have not been funded nor initiated.

Updates: Updated annually end of each fiscal year

Resources:

Funding:

A comprehensive effort to assess the availability of various beluga prey may cost approximately \$300,000 annually. The draft recovery plan recommends this effort be conducted yearly for five years, then once every five years until the Cook Inlet belugas recover. Determining the energetic/metabolic requirements of Cook Inlet beluga whales may involve studies of wild or captive belugas, and is projected to cost approximately \$300,000. These costs do not account for the efforts involved in linking the information about prey availability and quality to beluga energetic requirements. Currently, there are no resources or plans available to complete these assessments, although the Alaska Department of Fish and Game has submitted a proposal for funding by NFWF's Alaska Fish and Wildlife Fund to estimate eulachon biomass in the lower Susitna River.

Opportunities for Partners:

- We encourage additional partners to expand research on Cook Inlet beluga prey quantity and quality. Effective implementation of this action will require cooperation of numerous entities to assess and link the different components of this action in light of beluga recovery. While these actions do not need to be initiated or led by NMFS, they should be developed in collaboration with a Cook Inlet beluga whale recovery coordinator.

Improve Understanding of Why Cook Inlet Beluga Whales are not Recovering by Enhancing the Stranding Response Program

Description and Background: Obtaining biological samples from live and dead stranded animals is critical for assessing the health of Cook Inlet beluga whales and the impediments to recovery. Likewise, placing satellite tags on live stranded animals is an important way to obtain data on their movements to inform future recovery actions. Due to the challenging environmental conditions in Cook Inlet, responses to stranded beluga whales (both alive and dead) need to be well planned to optimize both human safety during a response and the effectiveness of a response. Improving Cook Inlet beluga whale stranding response should involve: 1) updating and revising the existing stranding response plan to include sample collection protocols; 2) training key stranding response personnel during regular drills and scenarios; 3) preparing stranding response kits in advance of a stranding; 4) improving communications and plans for faster response times; 5) accessing laboratory space sufficient to examine a dead beluga whale and having the means to transport carcasses to the laboratory; 6) incorporating new or improved technology into the response program; and 7) promoting the use of citizen science and encouraging reporting of strandings by the public.

Expected Benefits to the Species: Prompt identification of and effective responses to beluga strandings (live and dead) will result in improved knowledge of the whales by maximizing the quality and quantity of biological samples collected during responses. The development of improved methods to support live-stranded whales and better monitor their condition could help to reduce mortality as a result of live stranding and enhance recovery. Results from a thorough bio-sampling program of live-stranded animals could inform researchers about the causes of decline or impediments to recovery. Improvements to our ability to conduct timely and thorough necropsies of dead animals can improve our understanding of their cause of death, which is unknown for a significant number of previously necropsied whales, largely due to the delays associated with accessing the carcasses. Given the remoteness of the Cook Inlet beluga habitat, ongoing monitoring for strandings could be enhanced by expanding public participation at the local level. Signs posted in waterfront locations encourage the public to report stranded whales. However, many of these signs were developed prior to the listing of Cook Inlet beluga whales as an endangered species, and they should be evaluated for accuracy of information and updated if necessary. Annual reminders with the NMFS Alaska Region stranding hotline phone number should be sent directly to people who are most likely to encounter carcasses, and repeated annual public service announcements through a variety of avenues (radio, TV, the web, social media, and printed material for boaters, fisherman, and pilots via harbormasters, fishing license distributors, or flight control centers) will serve to remind the general public of the importance of promptly reporting strandings.

Source: Draft Recovery Plan for the Cook Inlet Beluga Whale:

- recovery criteria V.C.1.b.E.1 and V.C.2.b.E.2
- recovery actions VI.A.15b, VI.A.16c, VI.A.19f, VI.A.24b, VI.A.28d, VI.A.28e, and VI.A.29a (pg. 127-128, 132, 138, 142-145)

Location: Key areas along Cook Inlet, especially in areas where beluga whales are known to strand

NMFS Point of Contact: Mandy Migura, Alaska Region, mandy.migura@noaa.gov, 907-271-1332

Lead Partners: Alaska Marine Mammal Stranding Network

Partners: Department of Defense – Joint Base Elmendorf Richardson; Cook Inlet Beluga Whale Photo-Identification Project Group (via LGL Alaska Research Associates, Inc.); Alaska Department of Fish and Game; Alaska SeaLife Center; Alaska Veterinary Pathology Services; NMFS Alaska Fisheries Science Center; Defenders of Wildlife; National Fish and Wildlife Foundation [*Note: many of these partners are affiliated with the Alaska Marine Mammal Stranding Network*]

Proposed Start Date: The stranding response program is ongoing.

Expected Completion Date: Stranding response activities are ongoing. A draft version of the revised live stranding response protocols is expected to be completed in early 2016. Planning

has not yet begun to revise the dead stranding response protocols, which were last updated in 2008, but that component should be completed by December 2016. New outreach and education materials should be available by September 2016. Outreach will be ongoing until five years post-delisting.

Current Status: In January 2015, NMFS staff met with key members of the Alaska Marine Mammal Stranding Network for Cook Inlet beluga whale stranding response to discuss methods and protocols for improving our live stranding response. Follow-up conversations with these participants occurred throughout the year, and NMFS Alaska Region is actively working with the Alaska SeaLife Center on revising our live stranding response protocols. NMFS Alaska Region is also working with others to develop “ready-to-go” live stranding response kits. NMFS Alaska Region has invested in supplies and professional services for obtaining aerial imagery via unmanned aerial systems, and for collecting high resolution telemetry data in the weeks following a live stranding via minimally invasive satellite tags. Beginning May 2015, NMFS Alaska Region launched a series of public service announcements via select newspaper and radio media encouraging the prompt reporting of stranded Cook Inlet beluga whales and providing the stranding hotline number (877-925-7773). In July 2015, NMFS Alaska Region began working with the NMFS Alaska Fisheries Science Center to develop general outreach materials about Cook Inlet beluga whales.

Updates: Updated annually end of each fiscal year

Resources:

Funding:

In fiscal year 2015, NMFS Alaska Region committed \$66,000 to purchase new and improved technology for the Cook Inlet beluga whale stranding response program, however, that amount is insufficient for implementing all the recommended improvements to the program. For instance, although the Alaska Marine Mammal Stranding Network recently obtained an indoor laboratory space to conduct necropsies in Anchorage, the resources necessary to transport dead belugas to the laboratory are currently unavailable. Thus, most necropsies of Cook Inlet beluga whales are done in the field and generally are limited by access to the carcasses and the dangerous environmental conditions. Once fully upgraded, it may cost approximately \$15,000 per year for maintaining the Cook Inlet beluga whale stranding response program, with costs increasing to \$70,000 once every five years to accommodate training key response personnel. NMFS Alaska Region also allocated \$15,000 in fiscal year 2015 for the development of education and outreach materials about Cook Inlet beluga whales, but these are not specific to strandings and do not include reviewing or updating current public signage. Future outreach efforts may cost up to \$5000 annually.

Opportunities for Partners:

- We encourage additional partners to maintain and expand the Alaska Marine Mammal Stranding Network. These efforts will require cooperation of numerous

entities to be successful, and do not need to be initiated or led by NMFS, but should be developed in collaboration with a Cook Inlet beluga whale recovery coordinator.

- We encourage the public to immediately report stranded (alive or dead) Cook Inlet beluga whales to the NMFS Stranding Hotline ([877-925-7773](tel:877-925-7773)).

REFERENCES

NMFS 2015. Draft Recovery Plan for the Cook Inlet Beluga Whale (*Delphinapterus leucas*). National Marine Fisheries Service, Alaska Regional Office, Protected Resources Division, Juneau, AK. <https://alaskafisheries.noaa.gov/pr/cib-recovery-plan>



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