BEFORE THE NATIONAL MARINE FISHERIES SERVICE

EMERGENCY PETITION FOR A RULEMAKING TO ESTABLISH A COOK INLET BELUGA PROTECTION ZONE
IN TUXEDNI BAY, ALASKA

Photo by Hollis Europe and Jacob Barbaro/NOAA Fisheries

Submitted By
CENTER FOR BIOLOGICAL DIVERSITY & COOK INLETKEEPER

July 18, 2024
NOTICE OF PETITION

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PETITIONED ACTION

Pursuant to the Endangered Species Act (ESA), 16 U.S.C. §§ 1536(a)(1), 1540(f); the Marine Mammal Protection Act (MMPA), 16 U.S.C. §§ 1382(a), 1361(2), 1361(5)(B), 1361(6), 1362(2); and the Administrative Procedure Act (APA), 5 U.S.C. § 553(e), the Center for Biological Diversity and Cook Inletkeeper (collectively, Petitioners) hereby petition the Secretary of Commerce, through the National Marine Fisheries Service (NMFS), to establish a Cook Inlet Beluga Protection Zone in the Tuxedni Bay area of Alaska, as described below, with supporting regulations to promote the conservation and recovery of the highly endangered Cook Inlet beluga whale (Delphinapterus leucas).

Cook Inlet belugas face significant and synergistic threats, the whales are not recovering, they are being “taken” regularly by noise and disturbance from industrial activities, including from vessel traffic and development, and these activities and development degrade vitally important Cook Inlet beluga habitat. Cook Inlet beluga whales are a NMFS “Species in the Spotlight,” one of ten endangered marine species nationwide that the agency has declared is “one whose extinction is almost certain in the immediate future” if threats are not reduced, and is a number one priority for recovery actions. Thus, both the whales and their designated critical habitat

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1 Providing that federal agencies must “give . . . interested person[s] the right to petition for the issuance, amendment, or repeal of a rule.” The APA requires agencies to respond to petitions for rulemaking “within a reasonable time.” 5 U.S.C. § 555(b). If the agency denies the petition, it must include “a brief statement of the grounds for denial.” 5 U.S.C. § 555(e).

warrant further protective action and NMFS has the authority to establish and implement protective measures that it is not using.

To fulfill its responsibilities, the agency should rapidly implement additional measures to aid the survival and full recovery of Cook Inlet belugas, including a Protection Zone in the Tuxedni Bay area. A recent study by Castellote et al (2024), building on an earlier Castellote et al. (2020) study, detailed the vital importance of the Tuxedni Bay area for Cook Inlet belugas as a unique refuge from incessant anthropogenic noise found nearly everywhere else in Cook Inlet, a relatively undeveloped and pristine area in the otherwise heavily developed Cook Inlet, and as a key foraging location, especially in the fall, winter, and spring. A Protection Zone in the Tuxedni Bay area is a commonsense response to the increasing prospect of major industrial development threats to the belugas in Tuxedni Bay that NMFS can swiftly implement. As a matter of fact, protection of the Tuxedni Bay area from industrialization may be one of the most critical actions NMFS can take to ensure the beluga’s continued survival and to facilitate its recovery.

The Protection Zone should include all marine waters of Cook Inlet within two nautical miles seaward of the mean high-water line between two miles south of the Johnson River delta to two miles north of the Crescent River delta, including the upper tidal reach of the Tuxedni River. This area shall be called the Cook Inlet Beluga Protection Zone. Within the Protection Zone, NMFS should prohibit industrial vessels, including but not limited to tug, cargo, barge, survey and tanker vessels, and the issuance of incidental take authorizations for any industrial development or activities. The Protection Zone prohibitions should be in place year-around.

The best available science, evident in NMFS’s own documents and research, clearly demonstrates that a Protection Zone in the Tuxedni Bay area is necessary for the conservation and recovery of Cook Inlet beluga whales. Given the extensive and imminent threats facing the belugas and the importance of the Tuxedni Bay habitat, Petitioners urge NMFS to take emergency action expediting the granting of this petition and immediately implementing the proposed regulations. In the absence of stronger protections for the most essential habitat of the belugas, they will fail to recover. The whales need and deserve refuge from the incessant industrial development and disturbance in Cook Inlet that plagues them. The continued existence of this iconic species likely depends on it.

Submitted this 18 day of July 2024,

/s/ Cooper Freeman  
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/s/ Loren Barrett  
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I. Introduction

Down from a population of roughly 1,300 to a mere 300 whales, the unique Cook Inlet beluga whale is struggling to survive and failing to recover. Two vitally important requirements to facilitate the beluga’s survival and recovery is refuge from harmful anthropogenic noise and areas with high prey availability. The Tuxedni Bay area (Tuk’ezitnu – “fish stranded in tide river” in Dena’ina⁵) may be the only place in the entire Cook Inlet that still supports both essential needs. The Tuxedni Bay area is vitally important because it is one of the quietest areas in all of Cook Inlet, has numerous salmon and eulachon-bearing streams and rivers as well as a diverse array of other beluga prey available, and is relatively undeveloped and undisturbed. Quiet areas are particularly essential for beluga whales because they are among the most adept users of sound of all marine mammals, using sound rather than sight for many important functions, especially in the highly turbid waters of upper Cook Inlet. Yet, the Tuxedni Bay area is under acute threat of significant industrial development that would turn this area from one of the last remaining refuges for belugas to a degraded, noisy, and polluted industrial zone. This transformation would be devastating for the belugas and could impede their very survival. To avoid this future, NMFS must urgently create a Protection Zone in the Tuxedni Bay area that secures this essential habitat from industrial development and vessel traffic and a brighter future for the Cook Inlet beluga whale. Indeed, a NMFS Alaska biologist recently acknowledged that preserving the Tuxedni Bay area habitat could help put belugas on the road to recovery at long last.⁶

II. Legal Framework

A. Endangered Species Act

Congress enacted the Endangered Species Act (ESA)⁷ in 1973 to ensure the protection and recovery of imperiled species and the ecosystems upon which they depend.⁸ The U.S. Supreme Court has held that Congress’s “plain intent” in enacting the ESA “was to halt and reverse the trend toward species extinction, whatever the cost” and “to give endangered species priority over the ‘primary missions’ of federal agencies.”⁹

One of the ways it achieves these goals is by imposing a general prohibition on the “take” of listed species by any person.¹⁰ “The term ‘take’ means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.”¹¹ The ESA

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⁸ Id. § 1531(b), (c).
¹¹ Id. § 1532(19).
also requires the designation of critical habitat for listed species, including the areas with the
“physical or biological features . . . essential to the conservation of the species and . . . which
may require special management considerations or protection.”\footnote{12} Legislative history shows that,
in enacting the ESA, Congress saw designating and protecting critical habitat as a vitally
important element of the ESA: “[C]lassifying a species as endangered or threatened is only the
first step in insuring its survival. \textit{Of equal or more importance is the determination of the habitat
necessary for the species’ continued existence.”}\footnote{13} In other words, critical habitat is “a central
component of the legal scheme developed by Congress to prevent the permanent loss of
species.”\footnote{14}

In addition, the ESA also imposes a series of substantive and procedural obligations for federal
agencies to conserve species, using “all methods and procedures which are necessary to bring
any endangered species or threatened species to the point at which the measures provided
pursuant to this chapter are no longer necessary,”\footnote{15} as well as conserving their designated critical
habitat.\footnote{16}

These include the following:

\textbf{Prepare and implement recovery plans.} Section 4 of the ESA requires NMFS “to
develop and implement . . . recovery plans” for listed species under its jurisdiction.\footnote{17} Consistent
with the intent that recovery plans actually be implemented, Congress required that recovery
plans “incorporate . . . a description of such site-specific management actions as may be
necessary to achieve the plan’s goal for the conservation and survival of the species.”\footnote{18}

\textbf{Use authority to further the conservation of listed species.} Section 2(c) of the ESA
establishes that it is the “policy of Congress that all Federal departments and agencies shall seek
to conserve endangered species and threatened species and shall utilize their authorities in
furtherance of the purposes of [the ESA].”\footnote{19} Section 7(a)(1) of the ESA states that NMFS “shall
review other programs” it administers and “utilize such programs in furtherance of the purposes
of this Act.”\footnote{20}

\footnotetext[12]{Id. §§ 1533(b)(2), 1532(5)(A)(i); see also Alaska Oil and Gas Ass’n v. Jewell, 815 F.3d 544, 551 (9th Cir.
2016)1532(5)(A)(i); 50 C.F.R. § 424.02.}
at 3 (1976)).}
\footnotetext[14]{N. Spotted Owl v. Lujan, 758 F.Supp. 621, 629 (W.D. Wash. 1991); Gifford Pinchot Task Force v. U.S. Fish &
Wildlife Serv., 378 F.3d 1059, 1070 (9th Cir. 2004) (”[T]he purpose of establishing ‘critical habitat’ is for the
government to carve out territory that is not only necessary for the species’ survival but also essential for the species’
recovery.”), amended on other grounds, 387 F.3d 968 (9th Cir. 2004).}
\footnotetext[15]{16 U.S.C. § 1532(3); 16 U.S.C. § 1532(6) (Species including the Cook Inlet beluga are listed as “endangered”
because they are at risk of extinction throughout all or most of their natural range).}
\footnotetext[16]{16 U.S.C. § 1532(5)(A)(i) (Critical habitat is defined as “specific areas within the geographical area occupied by
the species” at the time of listing that contain the physical or biological features that are “essential to the
conservation of the species” and “may require special management considerations or protection.”)\footnote{17} 16 U.S.C. § 1533(f).}
\footnotetext[17]{Id.}
\footnotetext[18]{Id. § 1531(c)(1)}
\footnotetext[19]{Id. § 1536(a)(1).}
Ensure no jeopardy or adverse modification, including from cumulative effects. NMFS also has a duty to “insure that any action authorized, funded, or carried out” by it or another federal agency “is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat.”

The ESA also vests NMFS with the broad authority “to promulgate such regulations as may be appropriate to enforce [the ESA].”

B. Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) provides additional protections to marine mammals like the Cook Inlet beluga whale. Congress enacted the MMPA to address the concern that “certain species and population stocks of marine mammals are, or may be, in danger of extinction or depletion as a result of man’s activities,” and help protect and encourage marine mammals “to develop to the greatest extent feasible.” “The interest in maintaining healthy populations of marine mammals comes first” under the statute.

The MMPA directs that “measures should be immediately taken to replenish any species or population stock which has already diminished” below optimum sustainable population, and to make efforts to “protect essential habitats…from the adverse effect of man’s actions.” The MMPA states clearly that “the primary objective of [marine mammal] management should be to maintain the health and stability of the marine ecosystem.” The Act describes the importance of “the protection and conservation of marine mammals and their habitats” and acknowledges that marine mammals “affect the balance of marine ecosystems.” It also defines the terms “conservation” and “management” to mean “habitat acquisition and improvement.”

Marine mammals whose populations are critically low are listed as “depleted” if it is found that their population or stock falls below its “optimum sustainable population” or if they are listed under the Endangered Species Act. Cook Inlet belugas have been listed as depleted under the MMPA since 2000.

To accomplish these objectives, the MMPA establishes a blanket moratorium on the “taking” of marine mammals on the high seas or “in waters or on lands under the jurisdiction of the United States.” Prohibited takes include actions that harass, capture, or kill marine mammals, “for any

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22 Id. § 1540(f).
23 Id. §§ 1361–1432h.
24 Id. § 1361(1), (6).
25 Kokechik Fishermen’s Ass’n v. Sec’y of Comm., 839 F.2d 795, 800, 802 (D.C. Cir. 1988).
27 Id. § 1361(6).
28 Id. § 1361(5)(B).
29 Id. § 1362(2).
30 Id. § 1362(1)(A).
32 16 U.S.C. §§ 1371(a), 1372(a); see id. § 1362(8).
person to use any port, harbor, or other place under the jurisdiction of the [U.S.] to take [] marine mammals [],” as well any act that “has the potential to injure a marine mammal” (known as “Level A” harassment) or disrupt behavioral patterns, including migration, breathing, breeding, or feeding (known as “Level B” harassment).33

In the MMPA, Congress directs NMFS to “prescribe such regulations with respect to the taking and importing of animals from each species of marine mammal (including regulations on the taking and importing of individuals within population stocks) as [the agency] deems necessary and appropriate to insure that such taking will not be to the disadvantage of those species and population stocks.”34

The MMPA also authorizes NMFS to promulgate regulations “necessary and appropriate” to carry out the purposes of the statute.35 Notably, in enacting the MMPA, Congress specifically recognized that the statute would provide the much-needed means for regulating vessels that negatively affect marine mammals, including prohibiting the use of certain vessels in important marine mammal habitat.36

The statute contains narrow exceptions to the otherwise broad take prohibition. The agency may issue regulations allowing take incidental to a “specified activity” for a five-year period, if, using the best available science, NMFS determines the proposed activity will take only “small numbers” of marine mammals and have no more than a “negligible impact” on the species; and only if it prescribes methods and means of effecting the “least practicable impact” on the species or stock and its habitat and measures to monitor take.37 A letter of authorization from NMFS is required to conduct any activity under the regulations.38 NMFS is directed to withdraw or suspend any issued regulations and authorizations if they are “not being substantially complied with” or “one or more activities within one or more regions is having, or may have, more than a negligible impact on the species or stock concerned.”39

NMFS may also issue authorizations for incidental take by harassment for up to one year, but only if the agency determines that the activity will take only small numbers and have a negligible impact on the species or stock, and only where the agency has prescribed methods “of effecting the least practicable impact” and measures to monitor and report take.40 NMFS “shall modify, suspend, or revoke” an authorization if NMFS finds its terms are not met.41

33 Id. §§ 1362(13), 1372(a)(2)(B), 1362(18)(A); 50 C.F.R. § 216.3.
34 Id. § 1373(a).
35 Id. § 1382(a).
36 See 1972 H.R. Rep. No. 92-707 (1972), reprinted in 1972 U.S.C.C.A.N. 4144, 4147–4150 (stating that “the operation of powerboats in areas where the manatees are found” posed a threat to manatees and, without the MMPA, “the Federal government is essentially powerless to force these boats to slow down or curtail their operations.” The MMPA “would provide the Secretary of the Interior with adequate authority to regulate or even forbid the use of powerboats in waters where manatees are found.”).
38 50 C.F.R. § 216.106(a).
39 16 U.S.C. § 1371(a)(5)(B); see also Id. § 1374(e) (Permits - Modification, Suspension, and Revocation).
40 Id. § 1371(a)(5)(D).
41 Id. § 1371(a)(5)(D)(iv).
III. Cook Inlet Beluga Whale Status

A. Distribution and Range

Cook Inlet beluga whales are geographically isolated and genetically distinct from the other populations of beluga whales in Alaska. They inhabit the coastal waters of Cook Inlet, which is also home to Alaska’s primary transportation hub and largest concentration of industrial activity. These belugas live year-round in Cook Inlet and can be found throughout the Inlet at any time of year, concentrating in the upper inlet region in summer.

The reported summer distribution of Cook Inlet belugas has contracted since the 1970s when whales dispersed over a larger area throughout the Inlet. Now, their summer range has primarily shifted northward and is concentrated around the Susitna River Delta, though they can still be found throughout the Inlet, including in the Tuxedni Bay area and other bays and tidal rivers nearby on the west side of lower Cook Inlet. Their winter habitat has been relatively unknown until recently, when a study by Castellote et al. (2024) found that belugas spend a significant amount of time in the fall, winter, and spring months in relatively undeveloped and quiet bays on the west side of upper Cook Inlet, especially in Tuxedni Bay.

B. Reliance on Sound

The waters of Cook Inlet are dark and turbid, so Cook Inlet belugas depend heavily on sound for foraging, navigation, and communication. They have a hearing sensitivity between 4 and 150kHz. Lower frequency whistles, noisy vocalizations, and pulsed sounds are associated with social behaviors, while high-frequency sounds are associated with navigation and foraging. Belugas are known as “the canaries of the sea” due to their impressive range of vocalizations. They are also known for their white color, social nature, “melon heads,” and ability to move between salt and freshwater. NMFS has recognized that “[b]eluga whales are known to be among the most adept users of sound of all marine mammals, using sound rather than sight for many important functions, especially in the highly turbid waters of upper Cook

44 Recovery Plan at II-8.
45 Castellote et al. (2024).
47 Id.
Inlet. Beluga whales use sound to communicate, locate prey, and navigate, and may make different sounds in response to different stimuli.\textsuperscript{49}

C. Diet

Cook Inlet beluga whales eat a range of foods, including fish such as salmon and eulachon as well as octopus, shellfish, and snails. In the summer, the waters of the Susitna River Delta are particularly important for feeding, breeding, and calving, and at times nearly the entire population has been observed in this area. Winter foraging has also been identified as important for belugas, and the Tuxedni Bay area appears particularly vital.\textsuperscript{50}

D. Abundance and Trends

Cook Inlet beluga numbers have declined by 75\% from a population of approximately 1,300 whales in the 1970s.\textsuperscript{51} These unique whales are in trouble, and they have shown no signs of recovery since they were protected under the ESA.\textsuperscript{52} NMFS most recent population estimate from 2021 and 2022 aerial surveys is 331 Cook Inlet beluga whales with the possibility of a slightly increasing population trend (0.2 – 0.9\%), but recent changes in survey methods calls into question the reliability of using this approach to identify trends in population status.\textsuperscript{53} Previous to the 2021 and 2022 aerial surveys, “a declining trend of 2.3\% per year was found to occur from 2008 to 2018.”\textsuperscript{54} Moreover, advancements in integrated population modeling confirmed this negative trend in the Cook Inlet beluga population.\textsuperscript{55} A recent population viability analysis estimates that the population will decline at an average rate of 1.6\% per year in the coming decades.\textsuperscript{56} NMFS has acknowledged that “the loss of more than one beluga whale annually could impede recovery.”\textsuperscript{57}

In general, beluga whales can live for up to 70 years and reach sexual maturity between 8 to 13 years of age for females and 8 to 15 years of age for males.\textsuperscript{58} Belugas give birth to a single calf every two to three years.\textsuperscript{59} At these reproductive rates, recovery of the population is slow and

\textsuperscript{49} Id.
\textsuperscript{52} Valdivia, A., et al., Marine mammals and sea turtles listed under the U.S. Endangered Species Act are recovering, 14 PLoSNE e0210164 (2019).
\textsuperscript{53} NMFS, Abundance and Trend of Belugas (Delphinapterus Leucas) in Cook Inlet, Alaska, June 2021 and June 2022 (2023).
\textsuperscript{54} Id. at iv.
\textsuperscript{55} Jacobson, E. K., et al., Assessing cetacean populations using integrated population models: an example with Cook Inlet beluga whales, 30 Ecological Applications e02114, at 1, 8, 9 (2020).
\textsuperscript{59} Recovery Plan at II-19.
difficult even before one considers the multitude of other stressors impacting the Cook Inlet beluga population, which are different from other beluga whale populations as on top of delayed reproductive rates, they are also dying younger. As McGuire et al. (2020) summarized, “[o]ur sample, consistent with Vos et al. (2019), suggests that adult [Cook Inlet belugas] are dying (of as-yet-unknown causes) at relatively younger but still reproductive ages, and few survive to reach the full extent of the potential lifespan of the species.” Instead of living to be 70 or more years old, they estimated the mean age at death likely younger than 42 to 45 years old, referencing the estimate given by Jacobson et al. (2020) of 14 to 17 years old at death. The oldest aged beluga documented from Cook Inlet was only 49 years old.

E. Legal Status Under the MMPA and ESA

NMFS listed the Cook Inlet beluga whale stock as depleted under the Marine Mammal Protection Act in 2000. NMFS determined the stock had fallen below its Optimum Sustainable Population; evidence indicated that the Cook Inlet stock’s carrying capacity was historically more than 1,000, but by the year 2000 had likely dropped to less than 35 percent of its historical abundance. This decline was below the Cook Inlet beluga’s Maximum Net Productivity Level, signifying the stock was depleted.

In 2008, NMFS listed the Cook Inlet Beluga Distinct Population Segment as endangered under the Endangered Species Act. NMFS based its listing decision upon several factors, including the population decline over the prior few decades, the small size of the population, and the alarming finding that the population did not appear to be recovering—instead annual surveys since 1994 revealed the steady and pervasive loss of the species.

In 2011, NMFS designated a sizable portion of Cook Inlet as critical habitat for the belugas living there across two areas which reflect seasonal distribution changes. The first area encompasses 1,909 square kilometers (738 square miles) of Cook Inlet northeast of a line from the mouth of Threemile Creek to Point Possession. This area is bounded by the Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula borough. The area contains shallow tidal flats and river mouths or estuarine areas, and it is important for foraging and calving habitats. The second critical habitat area protects 5,891 square kilometers (2,275 square miles) of habitat; this area is used less in spring and summer but is frequented by belugas

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60 McGuire et al. (2020a).
61 Id.
62 Vos et al. (2019).
64 Id. at 34,596–97.
65 Id.
67 Id.
in fall and winter. It occurs south of the first critical habitat area and includes nearshore areas along the west side of the Inlet and Kachemak Bay on the east side of the lower Inlet.

Due to the importance of quiet areas for the whales’ survival and recovery, NMFS designated “[w]aters with in-water noise below levels resulting in the abandonment of critical habitat areas by Cook Inlet beluga whales” as one of five physical or biological features essential to the conservation of this species. It emphasized the importance of ensuring the belugas are not “presented with noise that may preclude their use of key habitat areas, particularly those that are important for feeding, breeding, or calving.” While not providing a numeric limit for when belugas will cease to use habitat, NMFS adopted general in-water noise thresholds that define when these animals are harassed or injured; they set the threshold for acoustic harassment at 160 dB re: 1 µPa for impulsive sounds (e.g., pile driving) and 120 dB re: 1 µPa for continuous noise.

F. Recovery Plan & Species in the Spotlight

Cook Inlet belugas face a serious risk of extinction. In 2015, Cook Inlet belugas became one of NMFS’s eight (now ten) “Species in the Spotlight,” which prioritizes those species at the highest risk of extinction. NMFS considers these Species in the Spotlight a “recovery priority #1.” A recovery priority #1 species is one who:

- 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 developed five-year action plans for each of the Species in the Spotlight that outline short-term efforts vital for stabilizing their population and preventing their extinction. The key short-term efforts NMFS identified for Cook Inlet belugas include: reducing anthropogenic noise in the Inlet; protecting key reproductive and foraging habitats; better understanding Cook Inlet beluga population dynamics; ensuring a plentiful abundance of healthy prey; and enhancing the stranding response program for Cook Inlet belugas.

In December 2016, NMFS published a Recovery Plan under the ESA for the Cook Inlet beluga whale with the following goal: “to guide efforts that achieve the recovery of CI belugas to a level sufficient to warrant their removal from the federal List of Endangered and Threatened Wildlife and Plants under the ESA (i.e., delist) by meeting the recovery criteria and addressing threats.”

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72 Id.
73 Id.
74 Id.
75 Id. at 20,188.
76 Id. at 20,204.
78 Id. at 4, 6, 8, 10, 12.
79 Recovery Plan at xiv.
The Recovery Plan identified ten potential threats to Cook Inlet beluga recovery and ranked them as high, medium, or low based on consideration of factors such as: the threat’s major effect to the whales; the extent of the threat; the frequency of the threat; the trend of the threat; the probability the threat will occur; and the magnitude of the threat. The Plan developed Recovery Actions targeted at population monitoring, Recovery Plan implementation, education/outreach, and threats-management. In addition, it identified a schedule for implementing the Recovery Actions over the course of the first five years after the publication of the Recovery Plan.

Since the publication of the Plan eight years ago, only one Recovery Action has been identified as completed, and it was a low priority action (research techniques workshop). Half of the actions are listed as ongoing, and nearly half are identified as not started. When looking at just the Recovery Actions specifically addressing threats to Cook Inlet belugas, over half of these actions have not been started, and none are identified as completed.

In 2021, NMFS renewed the Species in the Spotlight initiative and continued to include Cook Inlet beluga whales. It stated that key actions needed for 2021–2025 due to the whales “rapid decline and dire status” were to reduce the threat of anthropogenic noise, protect habitats that support foraging or reproduction of Cook Inlet beluga whales, and ensure healthy and plentiful prey are available, among others.

G. Relevant Continued Threats to Conservation and Recovery

1. Noise

NMFS acknowledges anthropogenic noise is one of the single greatest threats to Cook Inlet belugas and one of three threats listed in the recovery plan as a threat of highest relative concern to the species. The recovery plan states, for instance, that “[t]he effect of anthropogenic noise, particularly the combined effect of different sound sources occurring simultaneously or consecutively, has the potential to affect beluga acoustic perception, communication, echolocation, and behavior (such as foraging and movement patterns).” Furthermore, the long-term effects of such impacts “may induce chronic effects altering the health of individual [Cook Inlet] belugas, which in turn have consequences at the population level (i.e., decreased survival and reproduction).” The incredibly complex calls of Cook Inlet belugas are believed to be important for group cohesion. Thus, masking of certain parts of the call can also have impacts

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81 Id.
83 Id.
84 NMFS, Recovery Plan for the Cook Inlet Beluga Whale (Delphinapterus leucas) (2016).
85 Id. at xiii.
86 Id. at III-31; see also Castellote, M., Anthropogenic Noise and the Endangered Cook Inlet Beluga Whale, Delphinapterus leucas: Acoustic Considerations for Management, 86 Marine Fisheries Review 3 (2019) (emphasizing that the whale’s site fidelity makes them “particularly vulnerable to anthropogenic impacts” and they are suffering the impacts of existing noise by “potentially mask[ing] beluga hearing and interfer[ing] with their communication[s].”).
on the group.\textsuperscript{88} NMFS itself marks “[r]educing in-water noise as 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.”\textsuperscript{89}

Critical habitat is defined to include the areas “essential to the conservation of [a] species . . . which may require special management considerations or protection.”\textsuperscript{90} Notably, the critical habitat rule for Cook Inlet beluga whales includes the acoustic environment as an essential physical feature for beluga whales.\textsuperscript{91} Specifically, the critical habitat designation states that a primary constituent element essential to the conservation of Cook Inlet beluga whales is “waters with in-water noise below levels resulting in the abandonment of habitat by Cook Inlet beluga whales.”\textsuperscript{92} In designating such habitat, NMFS noted that the agency “consider[s] it essential for the whales’ conservation that they are not presented with noise that may preclude their use of key habitat areas, particularly those that are important for feeding, breeding, or calving.”\textsuperscript{93}

NMFS has repeatedly noted the importance of sound to Cook Inlet belugas:\textsuperscript{94}

Beluga whales are known to be among the most adept users of sound of all marine mammals, using sound rather than sight for many important functions, especially in the highly turbid waters of upper Cook Inlet. Beluga whales use sound to communicate, locate prey, and navigate, and may make different sounds in response to different stimuli. Beluga whales produce high frequency sounds which they use as a type of sonar for finding and pursuing prey, and likely for navigating through ice-laden waters. In Cook Inlet, beluga whales must compete acoustically with natural and anthropogenic sounds.

The Recovery Plan notes that the Cook Inlet beluga whale’s “high auditory sensitivity . . . and dependence upon sound to navigate, communicate, and find prey and breathing holes in the ice make belugas vulnerable to noise pollution, which may mask beluga signals or lead to temporary or permanent hearing impairment.”\textsuperscript{95} The Recovery Plan also summarizes how noise can also cause habitat degradation; is both localized and range-wide; is continuous, intermittent, and seasonal; and is increasing overall. All of these factors combined are why noise was identified as of high relative concern to the whales.\textsuperscript{96}

NMFS has recognized that “Cook Inlet belugas are vulnerable to harassment and injury from human-caused sources of noise” and that “[r]educing in-water noise in an especially important focal effort due to the importance of hearing to the Cook Inlet belugas’ survival in the

\textsuperscript{88} Id. at 3487.
\textsuperscript{91} 76 Fed. Reg. at 20,214.
\textsuperscript{92} Id.; codified at 50 C.F.R. § 226.220(c)(5).
\textsuperscript{93} Id. at 20,188.
\textsuperscript{94} Id.
\textsuperscript{96} Recovery Plan at III-3.
extraordinarily turbid waters of Cook Inlet.”97 Its Recovery Plan concludes that “[i]n the long term, anthropogenic noise may induce chronic effects altering the health of individual CI belugas, which in turn have consequences at the population level (i.e., decreased survival and reproduction).”98 The first of the “Key Actions Needed 2016–2020” in the NMFS’s Species in the Spotlight report for Cook Inlet beluga whales was “Reduce the Threat of Anthropogenic Noise in Cook Inlet Beluga Whale Habitat.”99 This remains a Key Action in NMFS’s most recent Species in the Spotlight report issued in 2021.100

Noise pollution can have a range of behavioral effects on beluga whales. Noise alters their swimming speed and diving patterns, disorients their sense of direction, displaces them from foraging habitat, and affects vocalizations.101 These effects arise from the extreme sensitivity of belugas to sound and the expansive range of sounds they hear. High-intensity noise, such as that from airguns used in seismic surveys, can impair belugas’ hearing, cause physiological changes like stress, displace them from habitat, and impair their ability to communicate, find prey or detect predators.102 Such noises can have population level-impacts.103 Population-wide impacts are often non-obvious, sub-lethal, difficult to detect, and hard for animals to avoid, especially animals with high site-fidelity, such as Cook Inlet belugas.104 Due to the acoustic properties of water, a single seismic survey can impact large areas. Construction and operation of oil and gas infrastructure (e.g., platforms and pipelines) also increase noise.105 The dynamic positioning systems (i.e., propellers and thrusters) used to maintain the position of offshore structures, such as drilling rigs, produce low-frequency noise.106 These sources of noise can interfere with or mask natural auditory signal processing by marine animals.107 Frequencies produced by anthropogenic sound like vessel noise overlap considerably with the hearing ranges of marine mammals, particularly those with sensitivity in relatively low-frequency ranges, such as beluga whales.108

Commercial shipping is a pervasive source of anthropogenic noise in Cook Inlet and is of high concern, given its noise levels, prevalence, and large distribution throughout the Cook Inlet

97 NMFS (2016).
99 NMFS at 4 (2016) (The report recommended accomplishing this, in part, through “the development, testing, and routine incorporation of sound-reducing technologies, especially for major noise-producing activities.”).
106 Id.
107 Id.
108 Id.
Shipping noise has been reported to disrupt traveling, foraging, socializing, communicating, resting, and other behaviors in marine mammals. A recent study determined that beluga whales exhibited behavioral responses to vessel noises that were 50 to 79 kilometers away. Other noise sources in Cook Inlet include activities associated with exploratory drilling for oil and gas (including for example seismic and geohazard surveys), pile driving, jet aircraft noise, dredging, and outboard motors. New fossil fuel and shipping infrastructure projects in the region, such as Lease Sale 258, the Port of Anchorage modernization project, and the proposed development of the Johnson Tract gold mine could significantly increase the noise levels in the Inlet.

The impacts of pile driving on beluga whales has been underestimated. Pile driving threatens marine mammals by potentially displacing them from key foraging habitat, causing hearing loss, masking communications, and interfering with natural behaviors. Modeling showed that pile driving could mask strong bottlenose dolphin vocalizations 10-15 km from the source. Pile driving has adverse effects on behavior and foraging of beluga whales. Bailey et al. measured 205 dB of broadband sound at 100 meters from one pile-driving source. Some marine mammals have been observed to avoid areas where pile driving was occurring and staying away for more than three days after those activities ceased. A resident population, like the Cook Inlet beluga whale, is particularly vulnerable to the impacts from high-intensity noise.

2. Habitat Loss and Degradation

Human activity is changing the physical environment of Cook Inlet rapidly and dramatically. This is causing displacement from habitat, which is no longer considered a “minor behavioral disruption” as has been assumed in the past; rather, displacement itself can be “a potential source of significant harm.” The Recovery Plan designates habitat loss or degradation (from sources other than prey, pollution, and noise impacts) as a medium relative concern threat. Ecological changes, such as increased water temperatures, siltation, and salinity could contribute to continuous distribution changes and habitat loss for the Cook Inlet beluga. These changes are

110 Duarte et al. (2021).
114 Bailey, H., et al., Assessing underwater noise levels during pile-driving at an offshore windfarm and its potential effects on marine mammals, 60 Marine Pollution Bulletin 888 (2010) (Note, however, that the thresholds used for TTS and PTS in this study are not stringent enough.).
116 Forney et al. (2017).
117 Id. at 408.
derived from natural sources, such as earthquakes or volcanic activity, development, and from climate change and runoff from anthropogenic sources. Construction, changes in freshwater flows from dams, dredging, and channeling can alter the chemical composition of the water, increase exposure to parasites, and change the acoustic propagation in the area.

3. Reduction in Prey

The 2011 critical habitat designation for Cook Inlet belugas identified shallow intertidal and subtidal waters of Cook Inlet in close proximity to medium to high flow anadromous fish streams along with four species of Pacific salmon (Chinook, sockeye, chum, and coho) as essential to the beluga’s conservation. NMFS’s 2016 Recovery Plan for Cook Inlet belugas identifies prey availability as a threat of medium concern for their recovery. NMFS’s Species in the Spotlight, 2021-2025 report states that, “[s]urvival and recovery of Cook Inlet beluga whales depend on an adequate quantity, quality, and accessibility of prey resources.”

Norman et al. (2020) have suggested that “the reproductive success of the Cook Inlet beluga is tied to salmon abundance and the Chinook run in the Deshka River.” This is consistent with observations from Alaska Native hunters with traditional knowledge that changes in fish runs and a decrease in the abundance of fish due to fishing pressure has changed the distribution of Cook Inlet belugas. For example, Alaska Natives noted that in 1998, fish runs were early and small on the Susitna River possibly due to fishing pressure, and belugas were not found at the mouth of that river as they usually were.

The Norman et al. study did not note that while Chinook are the most nutritionally important salmon species for Cook Inlet belugas, belugas still rely on other salmon species as important prey. In a recent notice for issuance of an IHA proposal from the Port of Alaska, NMFS noted that, “Pacific salmon represent the highest percent frequency of occurrence of prey species in CIBW stomachs.” Importantly, a recent 2023 study by McHuron et al. found that if there is enough prey abundance for Cook Inlet belugas, the whales can withstand other intermittent stressors, concluding that an increase in prey availability increases the belugas resiliency to threats.

Habitat disturbances due to development activities, such as dredging, oil and gas activities, or construction, may also affect the abundance of prey. These activities may either temporarily disturb habitat or permanently alter it. Increased pollution and exposure to pathogens through

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120 Id.
122 NMFS at III-13 (2016).
123 NMFS at 14 (2021).
126 Id.
128 McHuron et al. (2023).
these activities reduces the quality and abundance of prey. Noise from dredging, seismic activity, pile driving, and other anthropogenic sources can also diminish the abundance of prey. Studies suggest that noise can affect fish in a variety of ways, such as by inducing a startle response, an avoidance response, or causing death. Noise can also impact the very base of the marine food web. A recent study on seismic survey mortality in zooplankton revealed a two- to threefold increase in zooplankton death after exposure to an air gun, as compared to controls.

Additionally, prey conditions and nutritional content is shifting. Studies incorporating traditional and local ecological knowledge have uncovered trends in declining quality of beluga prey, including increasing incidence of fish with tumors, parasites, and deformities such as severely angled spines. Fishers in the Inlet also reported reduced oil content in local salmon, as well as reduced population numbers and smaller individual animal sizes, a trend they have recognized for the last 30 years.

4. Pollution

It is not clear why pollution is ranked as a low threat in the Recovery Plan. As the most populated region of Alaska, Cook Inlet concentrates pollution from several anthropogenic sources such as: offshore oil and gas development; waste discharge; oil spills; contaminated runoff from sources like the Anchorage International Airport; spills of contaminants other than oil; watercraft exhaust and effluent; coal transportation and burning; trash; and others. Alaska Native hunters note that the water is more polluted than in the past and fear that the increased oil and gas activities are harming belugas, given belugas and their prey depend on inshore waters where oil tends to accumulate. Beyond oil and gas effluent, ten communities discharge treated municipal wastewater into Cook Inlet or nearby bodies of water. Five of these treatment plants conduct only primary treatment; their fecal by-products may affect the quality of water and food resources in coastal ecosystems. Wastewater from these plants may contain a variety of organic and inorganic pollutants that have the potential to mix and concentrate downstream from the effluent plume. Some of these discharges have exceeded safe levels of fecal-coliform counts. As early as 1991, the National Toxics Campaign Fund found higher than average concentrations of barium on the west shore of Cook Inlet. Other possible contaminants include organic pollutants, aromatic hydrocarbons, chlorinated hydrocarbons, heavy metals, endocrine

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129 Recovery Plan at III-17.
130 Id.; see also Weilgart, L., The impact of ocean noise pollution on fish and invertebrates, Report for OceanCare, Switzerland (2018).
133 Id. at 303–04.
134 Id.
135 Huntington (2002).
137 Norman et al. at 97 (2015).
138 Id.
139 Moore et al. at 103 (2000).
disruptors, pharmaceuticals, antibiotics, sanitizers, disinfectants, detergents, insecticides, fungicides, and deicers.\textsuperscript{140} 

Increasing marine pollution is a major concern for belugas, which have the potential to accumulate high concentrations of persistent toxins in their tissues.\textsuperscript{141} Belugas feed near the top of the marine food web and are therefore exposed to chemicals that accumulate in their extensive body fat and are biomagnified in the food chain, including toxins like mercury and polychlorinated biphenyls (PCBs).\textsuperscript{142} Because Cook Inlet beluga whales frequent nearshore waters and can be commonly found several kilometers up major river systems, belugas have the potential to be exposed to many coastal contaminants.\textsuperscript{143}  

Years before NMFS published the Recovery Plan, the agency recognized that pollution was a serious concern for Cook Inlet belugas, as it was a threat identified in the 2008 Conservation Plan,\textsuperscript{144} and “waters free of toxins or other agents of a type and amount harmful to Cook Inlet beluga whales” was included as an essential feature of critical habitat in 2011.\textsuperscript{145} The potential for new projects that will discharge into Cook Inlet beluga whale habitat continues to grow. The Recovery Plan itself provided sufficient information to justify a higher ranking for this threat. The Plan not only acknowledged the amount of pollution entering Cook Inlet is increasing and will continue to increase, but it also presented multiple cases where concentrations of tested contaminants were higher in Cook Inlet belugas than other Arctic belugas (e.g., PCB, PFC, PAH, copper, Hexabromocyclododecane).\textsuperscript{146} It also presented a list of seven chemical classes that were identified as being of probable or possible concern specifically to Cook Inlet belugas,\textsuperscript{147} based on “their potential to contribute adverse reproductive effects on the belugas.”\textsuperscript{148}  

Since publication of the Plan, a 2019 study evaluated polycyclic aromatic hydrocarbon (PAH)-DNA adduct formation in beluga intestines, comparing whales living in areas with low or no PAH contamination (Arctic and aquaria), and those living in known PAH-contaminated St. Lawrence Estuary and Cook Inlet.\textsuperscript{149} PAHs are a class of chemicals that occur naturally in coal, crude oil, and gasoline. The researchers found the St. Lawrence Estuary and Cook Inlet belugas’ intestines had significantly higher PAH-DNA damage than the intestines of low PAH areas.\textsuperscript{150} Although cancer has not been documented in Cook Inlet belugas, this study provides a direct link between gastrointestinal cancer in belugas to environmental PAH contamination, indicating there

\footnotesize{\textsuperscript{140} Recovery Plan at III-22. \\
\textsuperscript{141} Becker, P. R., et al., Concentrations of Polychlorinated Biphenyls (PCB’s), Chlorinated Pesticides, and Heavy Metals and Other Elements in Tissues of Belugas, \textit{Delphinapterus leucas}, from Cook Inlet, Alaska, 62 Marine Fisheries Review at 82 (2000). \\
\textsuperscript{142} Id. \\
\textsuperscript{143} Id. \\
\textsuperscript{144} NMFS, Conservation Plan for the Cook Inlet beluga whale (\textit{Delphinapterus leucas}) (2018). \\
\textsuperscript{145} See 76 Fed. Reg. 20,203. \\
\textsuperscript{146} Recovery Plan at IX-60. \\
\textsuperscript{147} Recovery Plan at IX-53-56. \\
\textsuperscript{149} Poirer, M.C., et al., Intestinal polycyclic aromatic hydrocarbon-DNA adducts in a population of beluga whales with high levels of gastrointestinal cancers, 60 Environmental and Molecular Mutagenesis 29 (2019). \\
\textsuperscript{150} Id.}
are significant health risks to Cook Inlet belugas from PAH pollution of sediment and beluga prey.

Petitioners are aware that in 2017, NMFS collected six species of fish (eulachon, coho salmon, longfin smelt, saffron cod, starry flounder, staghorn sculpin) known to be consumed by Cook Inlet belugas from four sites in upper Cook Inlet (Eagle River, Ship Creek, Susitna River, and Twentymile River). Eight water samples were also collected from each of these four sites. The fish were tested for the presence of 119 contaminants of emerging concern and the water samples were tested for 126 contaminants of emerging concern. It is our understanding based on preliminary test results that analytes of 21 contaminants were detected in fish and four were detected in water samples. Several contaminants were detected at high levels. To our knowledge, no report was written or produced and no additional studies or management actions associated with the outcome of this project were planned. In fact, Petitioners are not aware of any plan to meaningfully study the potential impacts of pollution on Cook Inlet beluga whales by NMFS even though all available evidence suggests that pollution is a high-level threat to the population.

A recent study documented congenital defects observed in two Cook Inlet belugas. The first case was an aborted fetus that lacked a peduncle and flukes, along with other issues. The second had a perineal groove defect and systemic herpesvirus infection. These are the first documented cases of congenital defects in these animals, raising concerns that the species is now suffering new harms. While the causes of the defects are not known, scientists suspect it may be due to exposure to pollution, lack of genetic diversity, nutritional stress, or a combination thereof. This study adds to the evidence supporting the fact that increasing marine pollution is a major concern for belugas. Indeed, studies have shown that Cook Inlet belugas have elevated levels of numerous contaminants compared to other belugas off Alaska and elsewhere, including polycyclic aromatic hydrocarbons, which could lead to adverse reproductive effects, gastrointestinal cancer, and other problems for belugas.

5. Unauthorized Take

In the Recovery Plan, NMFS acknowledged that “activities which result in harassment or harm to [Cook Inlet] belugas but which NMFS has not authorized (i.e., unauthorized take) may result in changes in [Cook Inlet] beluga behavior, displacement of [Cook Inlet] belugas from important areas, or injury or mortality to [Cook Inlet] belugas.” The Plan identified activities with potential to result in unauthorized take or trauma to include, “entanglements from fisheries

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151 NMFS unpublished data obtained through a FOIA request in 2021 (DOC-NOAA-2020-002037).
153 Id.
154 Id.
155 Id.
157 Recovery Plan at IX-60; Bors, E.K. et al., An epigenetic clock to estimate the age of living beluga whales, 14 Evolutionary Applications 1263 (2021).
158 Recovery Plan at III-19
operations, strikes from vessel activities, unanticipated mortalities or harassment associated with
research projects, mortalities or injuries from poaching and intentional harassment, and other
adverse outcomes (e.g., displacement) associated with miscellaneous activities such as whale
watching.\textsuperscript{159}

Castellote et al. (2018) documented at least two activities in April 2012 at Kenai that created
noises but were not permitted even though permits should have been required, concluding that
activities involving important acoustic disturbances within beluga critical habitat are occurring
without prior evaluation of their potential impact.\textsuperscript{160} McGuire et al. (2020c) analyzed Cook Inlet
beluga whale photographs and stranding records to determine the prevalence of scars indicative
of anthropogenic trauma, and classified these scars according to their likely sources (e.g.,
etanglements, vessel strikes, puncture wounds, and research) and found that over one-third of
the individuals in the examined dataset had scars indicative of human-caused trauma.\textsuperscript{161} They
conclude the medium rank of unauthorized takes was too low and did not consider many factors,
namely, how (1) the low carcass recovery rate, especially of younger animals that may sink after
death, precludes knowledge of the true extent of anthropogenic-caused trauma and mortality, and
(2) long-term effects from anthropogenic-caused injury may lead to a reduced lifespan or
reduced reproduction in animals that survive traumatic events.\textsuperscript{162} They also found that females
had more scars indicative of anthropogenic trauma than males and that males may be more prone
to death from anthropogenic trauma due to accumulation of other stressors (e.g., higher
contaminant accumulation).\textsuperscript{163}

There are other likely sources of unauthorized take that NMFS has also failed to evaluate or
require permitting for, including takes of Cook Inlet beluga whales associated with wastewater
and stormwater discharges and unauthorized pile driving as detected by Castellote et al.
(2024).\textsuperscript{164} Despite NMFS recognizing unauthorized take in the Recovery Plan as a medium
threat, and despite evidence that unauthorized take is indeed occurring, Petitioners are not aware
of any analysis NMFS has conducted to determine the extent of unauthorized takes of Cook Inlet
beluga whales.

6. Climate Change

Climate change is likely to result in habitat loss or alteration for marine mammals, including
Cook Inlet beluga whales. As a non-migratory population that exhibits high fidelity to
summering areas and occupies a small, constricted range, Cook Inlet beluga whales may be
particularly vulnerable to climate-induced habitat alteration and reduction of their prey base.
This population of belugas relies largely on Pacific salmon (\textit{Oncorhynchus} spp) runs in Cook
Inlet, yet these runs are threatened by increasing water temperatures both in marine waters of

\textsuperscript{159} Id.
\textsuperscript{160} Castellote et al. (2018).
\textsuperscript{161} McGuire, T.L., et al., Anthropogenic scarring in long-term photo-identification records of Cook Inlet beluga
\textsuperscript{162} Id. at 37.
\textsuperscript{163} Id.
\textsuperscript{164} Castellote et al. at 12 (2024).
Alaska and freshwater spawning habitat. Water temperature is known to have a strong effect on the abundance and health of anadromous fish populations, with warmer than usual temperatures associated with increases in disease, depressed oxygen levels, reduced growth and reduced survival in salmonids and other fishes.

Increasing ocean acidification is also likely to impact coastal Alaskan fish populations and ultimately the marine mammals that depend on them, including Cook Inlet beluga whales. Ocean acidification is occurring more rapidly in the coastal and pelagic waters of Alaska than in tropical climates, and is likely to result in a decrease in abundance of pteropods and other shelled planktonic species, which are unable to grow as rapidly in acidic waters. These species represent an important food source for pink salmon and other species; given the short life cycle of salmon, prey quality and availability during the juvenile stage strongly affect salmon biomass and abundance. Studies estimate that a 10% reduction in pteropods could result in a 20% decrease in the weight of adult salmon. While the full impact of warming waters and ocean acidification on beluga prey species is difficult to predict, these changes will almost certainly be negative and the MMPA requires the agency to take a precautionary approach.

Studies indicate that climate change will further negatively impact the whales through, for example, shifts in sea ice regimes and associated increases in human activities (including vessels), increases in the incidence of disease in fish prey populations; and generally reduced prey availability or distribution, including Chinook salmon populations in Cook Inlet. Climate change may also be increasing siltation as warming temperatures reduce snowfall during warmer winters and cause glaciers to melt, releasing sediment. Such elevated siltation and deposition levels may affect beluga whale access to river mouths and feeding habitat.

Warming waters due to climate change have an enormous potential to alter beluga habitat. In a study of 15 sites across Cook Inlet, scientists predicted that water temperatures could rise by more than 3°C over the next 100 years. Such drastic changes to water temperature may significantly increase the incidence of disease in fish prey populations and generally reduce prey availability.

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166 See, e.g., id.
171 Carter et al. (2011).
172 Id.
173 Norman et al. (2015).
availability or distribution, including Chinook salmon populations in Cook Inlet. This can potentially stifle beluga health and reproduction due to decreased energy intake and increased energy expenditure to find suitable prey; related loss of sea ice can exacerbate this trend.

Climate change also induces less intuitive, detrimental changes to beluga habitat. Warming waters are increasing the abundance of sharks and even northern pike in the Inlet, placing competitive pressure for prey on belugas. Warming waters also threaten many key prey species for Cook Inlet belugas and other marine mammals. For example, many salmon populations are facing unprecedented threats and low returns in 2021, including from extreme heat waves, habitat degradation, contaminants, fishing pressure, and delays in removing dams. Climate change may also be increasing siltation as warming temperatures reduce snowfall during warmer winters and cause glaciers to melt, releasing sediment. Such elevated siltation and deposition levels may affect beluga whale access to river mouths and feeding habitat.

A 2018 study examined beluga genomes from around the Arctic, including Cook Inlet belugas, and combined that data with habitat modeling and found a past association between climate, beluga population size, and available habitat. The authors’ forecast for the year 2100 indicated beluga habitat will decrease and shift northwards as oceans continue to warm, with populations along the southern edge of the circumpolar range impacted the greatest. This suggests there is concern about Cook Inlet beluga habitat declining significantly as a result of a warming climate in the next several decades, especially since their habitat has already shifted north in the past several decades with virtually no capacity for further northward shifts.

Overall, “[h]uman activities, such as urbanization, resource exploration and extraction, pollution, noise, ecotourism, and fishing, may exacerbate or interact with effects of climate change to influence population dynamics.”

### 7. Cumulative Effects of Multiple Stressors

As industrial development in Cook Inlet continues to introduce additional pollution and noise into the beluga’s already overburdened habitat, cumulative effects are of high concern as a barrier to recovery. NMFS’s Recovery Plan recognizes that Cook Inlet belugas continually

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174 Id.
176 Id.
177 Carter et al. at 306 (2011).
179 Carter et al. at 305 (2011).
181 Id.
182 Forney et al. (2017).
183 McHuron et al. (2023).
184 Recovery Plan at III-10.
face multiple stressors throughout their range. Cumulative impacts may be synergistic and are a significant concern because, *inter alia*, “[e]xposure to any given stressor at a sub-lethal level may predispose individual belugas to greater susceptibility to mortality or long-term effects from other stressors.” In other words, the synergistic effects of two stressors are greater than the harm of the stressors considered in isolation. Researchers caution against assuming that the effects of multiple stressors are simply additive, rather than synergistic, which can lead to inaccurate estimates of the stressors’ cumulative impact on species. The Recovery Plan states that cumulative and synergistic effects are “a most plausible explanation” for why Cook Inlet belugas have not recovered, and as such, require a “complex approach” to resolve.

Cumulative impacts in Cook Inlet are unsurprising given the high level of anthropogenic activity in the region. That said, cumulative impacts can be hard to study and measure—scientists have found that long-term cumulative impacts “are of major importance,” but that their effects are generally detectable only after years of monitoring the population and in most cases, only if the impacts are “very severe.” Despite these challenges, there is growing understanding and consensus in the scientific community that noise is one of the key cumulative stressors that belugas and other marine mammals face. Recent research has concluded that anthropogenic noise—despite being a known stressor for marine animals—has been ignored in cumulative and global reviews of anthropogenic stressors on marine life and should now be included in assessments of cumulative effects on marine ecosystems. Additional scholarship has found robust evidence of the negative synergistic impacts of cumulative stressors on marine life.

NMFS’s Recovery Plan acknowledges as one example the “potential for synergistic effects occurring as a result of co-exposure to certain chemical pollutants and noise” and how this is “of increasing concern in the marine environment, especially in coastal areas where chemical pollutants are concentrated.” Although not yet studied in belugas, *in vivo* studies in mammals, including humans, have shown that noise and certain chemical pollutants, including ototoxins and organic solvents, have detrimental synergistic effects. “It has been shown that the physiological impact can exponentially increase if the individual is concurrently or sequentially exposed to these chemicals and noise.” The Recovery Plan noted the smell of predators combined with even sublethal concentrations of a toxic pollutant can “drastically increase” mortality by amplifying each individual stressor, even without actual predation taking place. This is important to note because the Castellote et al. (2024) study found killer whales, the main predator to belugas, present in Tuxedni Bay throughout the year.
Several studies published since the adoption of the Recovery Plan confirm the importance of adequately considering the impact cumulative effects have on belugas. McGuire et al. (2020b) examined thirteen years of Cook Inlet beluga whale photo-ID data and expressed concerns about the travel corridors between important areas for belugas because the likelihood of exposure to multiple, localized threats is increased. They recommended the consideration of cumulative effects of all activities range-wide and consider the potential to affect the entire population when regulating anthropogenic activities. Castellote et al. (2018) examined acoustic recordings collected near continuously for five years from around Cook Inlet and detected a high concentration of noise sources in the vicinity of Cairn Point in lower Knik Arm, and how noise in this area often exceeded acoustic harassment guidelines, emphasizing the importance of considering cumulative impact effects in the permitting process. Small et al. (2017) examined the potential impact of anthropogenic noise on Cook Inlet belugas, pointing out that the whales are particularly vulnerable to anthropogenic impacts, in part due to their close proximity of critical habitat to Alaska’s largest urban area, which exposes them to a wide variety of stressors. The authors commented that there is already sufficient evidence available in the literature to conclude that cumulative and chronic effects of disturbance can negatively impact cetacean reproductive success and survival.

8. Additional Threats

The Recovery Plan lists additional threats to the conservation and recovery of Cook Inlet belugas: catastrophic events (e.g. natural disasters, spills, and mass strandings) – high relative concern; disease agents – medium relative concern; and predation and subsistence hunting – low relative concern. Particularly the high and medium relative concern threats add to the challenge of conserving and recovering Cook Inlet beluga whales.

IV. Importance of the Tuxedni Bay Area for Cook Inlet Beluga Whales

The Tuxedni Bay area provides unique, irreplaceable habitat for Cook Inlet beluga whales. Cook Inlet belugas have inhabited this area for at least 1700 years, evidenced by radiocarbon-dated pictographs discovered on the walls of rock shelters near Tuxedni Bay. The Tuxedni Bay area is a rich, diverse marine ecosystem that is remote, roadless, and relatively pristine with no industrial development. A 2005 mid-water trawl study sampling forage fish in multiple locations in lower Cook Inlet found that “mid-water catches near Chisik Island in Tuxedni Bay” were

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198 Id.
199 Castellote et al. (2018).
201 Id.
202 For the purposes of this petition, we consider the Tuxedni Bay area to encompass all marine waters of Cook Inlet within two nautical miles seaward of the mean high-water line between two miles south of the Johnson River delta to two miles north of the Crescent River delta, including the upper tidal reach of the Tuxedni River.
the most diverse [and that] Chisik [also] had the highest species richness [(total no. of species caught)] among all areas.”

The Tuxedni Bay area experiences annual successive runs of all five species of salmon – Chinook, sockeye, coho, chum and pink— and eulachon from April to October into the Tuxedni River and other key nearby rivers, including Bear Creek and the Johnson and Crescent Rivers. The area is rich with other forage fish and prey throughout the year, including sand lance, walleye pollock, capelin, longfin smelt, variegated snail fish, Pacific sandfish, Pacific lamprey, snake prickleback, Pacific cod, dolly varden, sculpins, flat fishes, pandalid shrimp, and tanner, Dungeness, and red king crab.

Perhaps most critical to Cook Inlet belugas is the low level of anthropogenic noise in the Tuxedni Bay area, compared to the east side of lower Cook Inlet with “numerous roads and urban concentrations with fishing ports, a gas liquefaction facility, oil and gas support infrastructure, and is a seasonal tourist hub.” While commercial ship and generator noise are present in Tuxedni Bay, it remains “among the quietest and most pristine soundscapes of all the quantified locations in Cook Inlet [where] 85.8% of time [there was] no evident sources of anthropogenic noise.” This makes Tuxedni Bay one of the most special and undisturbed parts of Cook Inlet belugas’ critical habitat.

Recently, a team of NMFS scientists used passive acoustic monitoring methods to document the distribution and foraging occurrence of Cook Inlet belugas in Tuxedni Bay from September 2021 to September 2022. The study found beluga foraging behavior in the Tuxedni Bay area “primarily in two periods, September-October, and January,” but beluga presence was “still very high in February, and to a lesser extent, in March and April [even though] foraging behavior was not identified.” Belugas foraged in the river in the fall and the bay in the winter, and the whales foraged for up to 37 minutes per day “which is a high value compared to other important foraging areas monitored acoustically with the same methodology.” On two consecutive winter days, belugas were present in the bay for a full 24 hours, which is remarkable as “this level of concentrated acoustic presence has only been observed in the Susitna delta in June when beluga concentrate in this area preying on salmon.” Recent population modeling has highlighted “how survival and resilience against disturbed environments are influenced by winter energy intake,” and how “prey availability outside of summer months was critical, as it either

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206 Arimitsu, M. et al., Monitoring the recovery of seabirds and forage fish following a major ecosystem disruption in Lower Cook Inlet, BOEM (2021); Castellote et al. at 11 (2024).

207 Castellote, M. et al., Using passive acoustics to identify a winter foraging refugia and quiet space for an endangered beluga population in Alaska, BOEM at 8 (2023).

208 Castellote et al. at 13 (2024).

209 Id. at 1.

210 Id.

211 Id. at 38 (2023).

212 Castellote et al. at 10 (2024).

213 Id.
exacerbated or buffered against reductions in prey availability during summer months. Overall, Tuxedni should be considered “an important fall/winter foraging” area, especially because “no other winter foraging ground has been described yet for Cook Inlet beluga.”

While no belugas were recorded in Tuxedni Bay or River during the summer of the Castellote et al. (2024) one-year study, there are extensive historical reports of summer beluga presence in the area. In the 1970s and 80s, residents of the nearby Chinitna Bay said groups of 5-20 belugas were “seen occasionally in June and commonly in July.” An oral history of habitat use by Cook Inlet belugas compiled by the Alaska SeaLife Center (2012) noted summer sightings of belugas in July (year not specified (between 1975-1994) at mouth of Crescent River) and August 1978 in Tuxedni Bay, and sightings from June to October every year from 1976-1992 in Chinitna Bay. A Lake Clark National Park biologist observed up to 38 beluga whales daily in Tuxedni Bay in June and July 1992. A review of the abundance of Cook Inlet belugas between 1994-2000 noted belugas in Tuxedni Bay in June 1997. Modeling in a 2012 study by Goetz et al. showed that the Tuxedni Bay area remains a high-probability use area and suitable habitat for belugas during the summer, and noted that while sightings in lower Inlet areas in the summer have become more rare, “a reoccupation of suitable habitat throughout Cook Inlet can be expected if this population recovers to historic levels.”

The Castellote et al. (2024) study did identify a beluga detection in the nearby Chinitna River on June 5, which the study notes “matches sporadic sightings of single whales or small groups in this region from surveys 30+ years ago.” The study explained that “[e]ven though this was a single event, it is significant as it suggests there might still be a wider spatial distribution in early summer than recent accounts […]”. Aerial surveys that run annually in June have focused on areas of the upper Cook Inlet, are limited given they only survey during a roughly two week period, and in recent years have not included Tuxedni Bay. It is also highly likely that an aerial survey (or detection by boat) could easily miss a small pod or a single beluga in this area, as it is thought that belugas travel in the lower Inlet during the summer cryptically and very close to shore, sometimes in only three to four feet of water primarily to avoid killer whale predation, just skimming the shoreline. Furthermore, sound recorder data for the Tuxedni River between May-October 2022 from the Castellote et al. (2024) study was lost due to theft of the recorder data cards. As such, it remains highly likely that Cook Inlet belugas are still at least occasionally...

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214 McHuron et al. (2023).
215 Castellote et al. at 11 (2024).
220 Goetz et al., Cook Inlet beluga whale essential habitat, 16 Endang Species Res 135 (2012).
221 Castellote et al. at 35 (2024).
222 Id. at 36
223 Id.; see also Goetz, K. T. et al., Abundance of belugas (*Delphinapterus leucas*) in Cook Inlet, Alaska, June 2021 and June 2022, AFSC Processed Rep. 2023-03 at 20 (Figure 6) (2023).
224 Id. at 25.
present in the Tuxedni Bay area during the summer, and conclusions should not be overdrawn from this single-year study, with a significant data gap during the summer. Ensuring that one of the last remaining low-noise and undeveloped areas of Cook Inlet, considered a proactive, “opportunity site” for the beluga’s recovery, remains in such a suitable state year-round is an essential.225

V. Industrial Disturbance Threats to the Tuxedni Bay Area

A. Anthropogenic Noise

The Castellote et al. (2024) study found that overall “anthropogenic noise was present [in Tuxedni Bay] 14.2% of the time.”226 Similar to areas in upper Cook Inlet, they found that the primary contributor of anthropogenic noise in Tuxedni Bay was commercial shipping, likely involving “traffic coming in and out of the Port of Alaska (Anchorage), Port of Nikiski, and Port of Homer, with shipping lanes roughly 18 nautical miles from the Tuxedni Bay mooring.”227 The second most common source of noise in Tuxedni Bay was commercial ship generators, likely caused by anchored or idling commercial shipping vessels in the proximity of the bay.228 While two other sources of anthropogenic noise were identified in Tuxedni Bay, outboard motors and aircraft, commercial ship noise and their generators accounted for 99% of all anthropogenic noise in the Bay, with outboard motors and aircraft below 0.3%.229 The Tuxedni River had almost no anthropogenic noise recorded during the sampled period (268 days, August 22, 2021 to May 5, 2022), with only one 53 second aircraft event identified.230

![Pie chart showing percent of time for each noise class and silence]

Figure 1 - This pie chart shows “the percent of time for each noise class and silence

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225 Castellote et al. at 13 (2023); see also, Williams, R. et al., Quiet(er) marine protected areas, 100 Marine Pollution Bulletin 154 (2015).
226 Castellote et al. at 26 (2023).
227 Id. at 26.
228 Id. at 43.
229 Id. at 44.
230 Id. at 27.
During the study period, 15.5% of beluga encounters in Tuxedni Bay were overlapped by anthropogenic noise, all caused by commercial shipping, which is a result of the currently low prevalence of anthropogenic noise in the Bay, especially compared to other places in Cook Inlet. Of the beluga encounters masked by noise, half of them were “affected in totality (100% noise overlap)” The authors assume based on their findings that “belugas in [Tuxedni Bay] are negatively affected by the current level and type of anthropogenic noise in that their communication and passive listening for acoustic cues (i.e. prey or predator signals) are disrupted.” Moreover, they conclude that “any future increase in shipping activity in the area could quickly escalate the potential negative effects of masking.” In addition to this relatively small amount of anthropogenic noise that is already disturbing belugas in Tuxedni Bay, development projects that are under way or have been proposed could substantially increase commercial vessel traffic related to industrial activities in the Tuxedni Bay area, which would be devastating for the whales.

### B. Offshore Oil and Gas Drilling

Cook Inlet oil and gas development has caused extensive harm to Cook Inlet beluga whales. Tuxedni Bay is bordered by the Federal Outercontinental Shelf (OCS) waters of the Bureau of Ocean Management (BOEM) Cook Inlet Planning Area (CIPL). Any fossil fuel exploration and development activities in the OCS would negatively impact Tuxedni Bay. NMFS has said that “offshore oil and gas exploratory surveys […] despite mitigation measures for the near-distance take of marine mammals, [have] caused unavoidable disturbance.” There have been two recent oil and gas lease sales in the Cook Inlet OCS, lease sale 244 in June 2017 and lease sale 258 in December 2022, both which resulted in the issuance of leases. BOEM’s environmental analysis for lease sale 258 showed that, if a large oil spill occurs in winter, the oil “has the highest chance of contacting (≥50%) Cook Inlet beluga [critical habitat]” on the western side, including areas where belugas are known to congregate in significant numbers such as Tuxedni Bay. As this analysis showed, a large oil spill from oil extraction in the Cook Inlet OCS would have devastating consequences for belugas. Exploration and the development of these leases, in addition to ongoing harms from existing oil and gas extraction and infrastructure in state waters in Cook Inlet, could directly harm the belugas’ critical habitat in Tuxedni Bay and constitutes a serious threat to Cook Inlet belugas in lower Cook Inlet.

Such threats are exacerbated by the age of the infrastructure in state waters. Indeed, many of the pipelines are beyond the age scientists say significantly increase risk of oil spills. For example, according to scientists, aging poses risks of corrosion, erosion and fatigue stress to subsea infrastructure.

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231 Id. at 27.
232 Id. at 31.
233 Id. at 45, 46.
234 Id. at 45.
235 Id. at 45, 46.
236 Id. at 10.
237 Id. at 9, 10.
238 Appendix A to FEIS for LS 258 at A-34 to A-35
Subsea pipeline corrosion appears to accelerate over time, and can act synergistically with fatigue stress to increase the rate of crack propagation. Marine environments are especially known to produce significant corrosion on steel surfaces, and when a steel structure is at or beyond its elastic limit, the rate of corrosion increases 10 to 15 percent. One offshore pipeline study found that after 20 years the annual probability of pipeline failure increases rapidly, with values in the range of 0.1 to 1.0, which equates to a probability of failure of 10 to 100 percent per year.

Figure 2 - This map shows the proximity of the Federal OCS Lease Area to Tuxedni Bay

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241 PSA Norway 2006.
244 Castellote et al. (2024).
C. Johnson Tract Mine

The most existential threat to the Tuxedni Bay area is a marine ore terminal in the Tuxedni Bay Channel for the proposed Johnson Tract gold mine, which is currently in advanced exploration stage. The Johnson Tract is an inholding owned by Cook Inlet Region, Inc. (CIRI) within Lake Clark National Park. The CIRI inholding is a result of the 1976 Cook Inlet Land Exchange Act (Act). The Terms and Conditions Agreement related to the Act states that “The Secretary [of Interior] shall also convey to CIRI an easement for a port” for shipping of the raw ore extracted from the Johnson Tract, as well as a transportation easement to get the raw ore from the mine to the port. In 1993, CIRI presented an Environmental Analysis with a preliminary assessment of the potential environmental damages anticipated from industrial activities associated with the construction and operation of a mining transportation and road corridor. The project remained nascent over the next few decades.

In 2019, CIRI signed a lease agreement with HighGold Mining, a Canadian gold exploration company, for an initial 10-year lease of the Johnson Tract for the purpose of mineral exploration. HighGold has since actively explored the prospect to bring it to a point where it would be attractive to a larger mine developer. On July 10, 2024, Contango Ore acquired HighGold Mining, along with the Johnson Tract lease. Contango Ore is also a co-owner with Kinross of the Manh Choh gold mine in eastern Alaska that ships ore to the Kinross-owned mill at the Fort Knox mine site north of Fairbanks for processing. Contango Ore has a “unique direct ship ore model” where it ships raw ore from gold mines to third-party mills for processing. It is anticipated that Contango Ore will propose to ship raw ore from the Johnson Tract up Cook Inlet to either Port McKenzie or Anchorage (which would cross and degrade vital Cook Inlet beluga summer habitat in the upper Inlet).

Meanwhile, CIRI has recently approached the National Park Service to work towards the conveyance of the port and transportation easements. In June 2024, Lake Clark National Park and Preserve announced it was preparing to conduct a resource analysis to evaluate the port and transportation easements. The image below shows CIRI and the Park Service’s current proposed port site and transportation corridor to reach the Johnson Tract mine site.

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245 National Park Service, Resource Analysis for the Johnson Tract Transportation and Port Site Easements, Lake Clark National Park and Preserve (June 2024).
247 Terms and Conditions for Land Consolidated and Management in the Cook Inlet Area at 14, 15 (Dec. 19, 1975, as clarified Aug. 31, 1976)
248 National Park Service, Resource Analysis for the Johnson Tract Transportation and Port Site Easements, Lake Clark National Park and Preserve (June 2024).
In its 1993 Environmental Analysis, CIRI described that they envisioned ore would be driven in “40-ton haul trucks (possibly with trailers) [from the] mine mouth, transported directly to the port site, and stored in the open on a leveled pad. Underground mining and ore truck hauling could continue year around if operations proved feasible throughout the winter.”\textsuperscript{250} From the port, “the ore would be loaded onto a barge and transported across the Gulf of Alaska,” although per Contago Ore’s direct ship ore model and existing relationship with Kinross’s Fort Knox processing facility, it is now thought that ore would be transported across Cook Inlet to the Port of Alaska at Anchorage or Port McKenzie.\textsuperscript{251} CIRI expected that it would make trips across the inlet each month of the year, although it noted that “winter barging is uncertain due to weather in the Gulf of Alaska and ice conditions in Tuxedni Channel.”\textsuperscript{252} This analysis noted that the Tuxedni Channel port location would be the least expensive but would have “the highest

\textsuperscript{249} \textit{Id.}.
\textsuperscript{251} \textit{Id.} at 2-2.
\textsuperscript{252} \textit{Id.}
potential for damage from a fuel spill” on wildlife.\(^{253}\) While this environmental analysis is far from adequate and is certainly outdated, it makes it clear that the Johnson Tract Mine marine ore terminal, currently proposed for the Tuxedni Channel, could have year round operations, and even if only operating from spring to fall would have profoundly devastating impacts on Cook Inlet belugas and their critical habitat in the Tuxedni Bay area.

As a species predominately found in nearshore waters,\(^{254}\) NMFS has found that “continued development within and along upper Cook Inlet” poses a significant threat to the species’ recovery.\(^{255}\) Should this easement be granted and the marine ore terminal built in Tuxedni Channel, it would threaten Cook Inlet belugas with nearly every high, medium, and low threat of relative concern detailed in their Recovery Plan: destruction and loss of habitat, pollution, catastrophic event, prey reduction, unauthorized take, and anthropogenic noise. It is hard to imagine how a major industrial port development in the beluga’s currently only known winter foraging area, where they are frequently present September 1-May 15 and likely occasionally during the summer, would not hinder their recovery and potentially their survival altogether.

A marine ore terminal built within the proposed easement area would cause degradation and loss of habitat for Cook Inlet belugas. NMFS’s Recovery Plan states that anthropogenic activities that can result in “substantial changes in habitat or [] permanent loss of habitat [can include] in-water construction, port expansion, … dredging, and channeling.”\(^{256}\) As shown in the NOAA marine chart below, access into the Tuxedni Channel between Chisik Island and the mainland could require a structure spanning up to .5 mile or more into the channel to get to deeper water. This significant and permanent infrastructure would “alter localized water flow and characteristics,” changing tidal and sediment flows and potentially the entire ecology of the area.\(^{257}\) The result of such disturbance could result in a reduction in prey for Cook Inlet belugas, avoidance behavior expending additional energy from September to May when they are frequently present in the Bay, and eventually avoidance of the area altogether, among other harms, causing both individual and population-level impacts.

\(^{253}\) Id. at 4-6, 5-1.
\(^{254}\) Recovery Plan at xii.
\(^{255}\) Id. at I-2.
\(^{256}\) Id. at III-15.
\(^{257}\) Id.
Figure 4 - This NOAA marine chart shows the shallow tidal areas (green) in the location of the proposed marine ore terminal easement area. The tidal areas that would need to be spanned by infrastructure to reach the channel could be up to .5 mile wide.258

The marine ore terminal would also threaten Cook Inlet beluga whales through risks of pollution.259 The Johnson Tract deposit ore has been found to be made up of roughly 1% lead.260 Lead dust, leaching or ore spillage into the marine environment either directly at the port site and associated ore staging area, or in the upstream watersheds could cause lead poisoning of belugas, a known probable harm.261 Indeed, mining causes the discharge or deposition of toxic pollution, including not just lead but also mercury, arsenic, and cyanide among other harmful pollutants, as well as acid mine drainage (which must be treated in perpetuity), which can degrade water quality and bioaccumulate in belugas.262 Moreover, the Recovery Plan lists other potential sources of pollution harming belugas that would likely occur at the port site: bilge discharge, marine oil spills, runoff from roads, mines, and construction sites, terrestrial and marine spills of contaminants other than oil, resuspension of contaminants through dredging, ship ballast.

258 NOAA Marine Chart (accessed June 21, 2024).
259 Norman S.A. et al. (2022).
discharge, watercraft exhaust and effluent, antifouling paint, and trash. Belugas would be exposed to pollution through their exposure to marine sediments and air, and consumption of prey, as they spend months each year foraging in the Tuxedni Bay area. Belugas could become contaminated with pollution, and female belugas can transfer some of their contaminant load to their calves during pregnancy and lactation, potentially harming reproduction success and rates. In addition to general pollution, the risk of a catastrophic event from a major oil spill would not be out of the realm of real possibility with this mine. The 1993 environmental analysis stated that “[f]uel would be barged to the port site and pumped to upland storage facilities at the port with a capacity of approximately 400,000 gallons.” The Recovery Plan states that an event like this could cause direct injury or mortality or indirect damage to beluga habitat or prey and “will increase the likelihood of extinction.”

The Recovery Plan also considered habitat disturbances or modifications as a result of anthropogenic activities to not only harm belugas directly but also to reduce beluga prey. These detrimental effects can cause both seasonal and continual harm to the whales. The construction of docks, bridges, breakwaters or other structures are listed in the Recovery Plan as anthropogenic activities that “may disturb or modify the habitat of beluga prey.” The construction of this kind of infrastructure not only leads to “loss of habitat available to beluga prey species by displacement or avoidance, [but] anthropogenic activities may reduce the quality of the prey as a result of contamination of the habitat.” Pollution from this infrastructure can bioaccumulate and pass up the food chain, impacting the “survival, quality, and reproduction of the prey species,” with studies showing, for example, that “elevated copper concentrations can harm salmon and other Cook Inlet beluga prey.” Moreover, anthropogenic noise such as pile driving can be a cause of prey reduction, flight, and avoidance in species like juvenile salmon. Given the importance of prey to beluga reproduction and recovery, including during the winter when beluga whales appear to primarily forage in Tuxedni Bay, any reduction in prey from the Johnson Tract Mine marine ore terminal could be devastating to the whales.

The threat of vessel strikes from increased vessel traffic in the area could cause also harass, harm, or kill (i.e., “take”) belugas. There have been numerous whales found dead with blunt trauma wounds likely from ship strikes. For example, McGuire et al. (2020) analyzed Cook Inlet beluga whale photographs and stranding records to determine the prevalence of scars indicative of anthropogenic trauma, classified these scars according to their likely sources (e.g., entanglements, vessel strikes, puncture wounds, and research), and found that over one-third of the individuals in the examined dataset had scars indicative of human-caused trauma.

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263 Recovery Plan at III-22.
264 Recovery Plan at III-23.
266 Recovery Plan at III-5, III-6.
267 Id. at III-15.
268 Id. at III-17.
269 Id.
270 Id.
271 Id.
272 Id. at III-18.
273 Id. at III-20.
Additionally, “NMFS researchers have witnessed avoidance and overt behavioral reactions by [Cook Inlet] belugas when approached by small vessels,” let alone the behavioral changes assumed from large industrial vessels.\textsuperscript{275}

As previously discussed, anthropogenic noise is one of the most significant threats to Cook Inlet beluga recovery and survival. While the type and amount of vessel traffic from cargo vessels and potentially tug boats at the marine ore terminal is currently not specified, it is expected that there would be very substantial vessel traffic at the terminal. If this traffic was only during the ice-free time of year, it could overlap with beluga presence in the Tuxedni Bay area during the spring and fall months. If there was vessel traffic year-round, then certainly vessel noise would be persistent. In addition, if the raw ore was shipped from Tuxedni Bay to Port McKenzie, that vessel traffic would cause significant noise harms to belugas in their key foraging areas during the summer and fall. Noise from tug boats and cargo/tanker vessels is recognized as the most harmful to Cook Inlet belugas.\textsuperscript{276} Moreover, the marine ore terminal would produce noise from more than vessel traffic. There would be pile driving, shore construction, and dredging noise during construction periods and likely noise from generators, road and terrestrial vehicles, airplanes, and more during normal operations. In the short term, noise can cause negative behavioral effects of belugas, and over the long term, noise can cause population level harms, including decreased survival and reproduction. For these reasons, anthropogenic noise is considered a threat of high relative concern.

Taken together, the cumulative effects of all these stressors from the Johnson Tract marine ore terminal may contribute to multiple short- and long-term harms to Cook Inlet belugas, including disruption of foraging, reproductive failure, and even mortality.\textsuperscript{277} This is especially true when considering all of these new threats to Cook Inlet belugas alongside intensifying climate change-driven disturbances. The Recovery Plan notes that peaks in mortalities are “likely to be associated with periods of greatest stress, such as over winter […]”.\textsuperscript{278} The Recovery Plan also states that the “combination of noise and other stressors are of particular concern,” but the synergistic effects of all of these harms outlined above would be severely detrimental.\textsuperscript{279} In an area shown by recent research to be of critical importance to the struggling Cook Inlet belugas, the cumulative and synergistic harms from the Johnson Tract Mine marine ore terminal would be devastating for the whales.

**VI. A Protection Zone Is Necessary for the Conservation and Recovery of Cook Inlet Beluga Whales**

Overall, the importance of the Tuxedni Bay area for the conservation and recovery of Cook Inlet beluga whales cannot be overstated. The Tuxedni Bay area is a refuge from one of the single greatest threats to Cook Inlet belugas – noise. Moreover, it provides critical winter foraging opportunities, especially winter prey. With its relatively pristine, undeveloped state, beluga whales do not experience two additional threats, the loss and degradation of Cook Inlet beluga

\textsuperscript{275} Recovery Plan at III-20.
\textsuperscript{276} Id. at III-11.
\textsuperscript{277} Id. at III-7.
\textsuperscript{278} Id. at III-8.
\textsuperscript{279} Id.
critical habitat and pollution, and the current absence of industrial activity in the Bay reduces the threat of a third threat, catastrophic events. Given the cumulative effects of all the stressors Cook Inlet belugas face throughout other areas of their critical habitat, the protection of the Tuxedni Bay area from industrialization may be one of the most critical actions NMFS can take to halt the species’ slide into extinction and to facilitate its recovery.

While the recent Castellote et al. (2024) study focuses on the importance of restricting noise in Tuxedni Bay from fall through spring, protection must be granted year-round, considering beluga whales were historically common in the area during the summer and likely still use the area occasionally during summer months. Moreover, given the ample prey availability in the summer, especially salmon, it is reasonable to expect that that, should the whales recover and the population increase, Cook Inlet belugas would eventually return to their previous pattern of frequent summer usage of the area. As a matter of fact, the belugas ability to re-expand their summer range into the Tuxedni Bay area could be critical to their recovery, so protection of the area year-round and increasing their population may be directly linked. As such, such limited seasonal protections would fall far short of what’s needed to ensure Cook Inlet beluga recovery and conservation.

In addition, while certainly it is a priority to protect the soundscape in the Tuxedni Bay area from high noise producing anthropogenic activities in the fall, winter, and spring when beluga whales were detected during the recent study, seasonal noise restrictions alone will fail to adequately protect the habitat from degradation that can occur when belugas may be absent. Noise is certainly not the only threat to the Tuxedni Bay area that warrants restrictions and protections. While NMFS has started to gather immensely valuable data on the presence of Cook Inlet belugas in Tuxedni Bay and lower Cook Inlet, it is important to keep in mind that the study only gathered one year of data, and sound recorder data was lost for the summer months in the Tuxedni River. Given the precarious status of Cook Inlet belugas, which are hovering on the brink of extinction, NMFS must take a precautionary approach by implementing, year-round restrictions on any industrial development and activities.

NMFS actions have to-date inadequately protected the whales from threats identified in their listing and critical habitat determinations and Recovery Plan. The Recovery Plan specifically states that Cook Inlet beluga foraging habitats must be “protected through appropriate management measures (e.g. time and area closures) to ensure the integrity of these habitats for meeting the needs of a growing [Cook Inlet] beluga population,” and that management actions are necessary to “address and reduce the effects of anthropogenic noise on Cook Inlet belugas and their habitat.” Accordingly, NMFS must use its clear authority under the ESA and MMPA to create a beluga Protection Zone and attendant regulations to aid in the recovery and conservation of Cook Inlet beluga whales. Given the status of Cook Inlet belugas and the increasingly imminent threats they face in Tuxedni Bay and across Cook Inlet, NMFS should create this Protection Zone and regulations without delay. NMFS’s failure to promulgate such regulations would be an abdication of its duties under the ESA and MMPA and would drive the Cook Inlet beluga whale closer to extinction.

\[280\] Id. at V-4.
VII. Proposed Regulatory Language for the Cook Inlet Beluga Protection Zone in Tuxedni Bay

*Protective regulations for Cook Inlet beluga whales in the Tuxedni Bay Area —*

(1) *Applicability.* The following restrictions apply year-round in all marine waters of Cook Inlet within two nautical miles seaward of the mean high-water line between two miles south of the Johnson River delta to two miles north of the Crescent River delta, including the upper tidal reach of the Tuxedni River. This area shall be called the Cook Inlet Beluga Protection Zone.

(2) *Definitions.*

   (i) For purposes of these regulations, the term “industrial” refers to any activities serving or related to energy development and extraction, mining, and commercial shipping.

(3) *Prohibitions.*

   (i) No incidental take authorizations or regulations may be issued for any industrial activities within the area specified in paragraph (1) of this section, including, but not limited to:

      (A) Dredging, pile driving, seismic surveys, and shore construction.

      (B) Construction and operation of docks, platforms, bridges, or trestles.

      (C) Helicopters or airplane traffic.

   (ii) No industrial vessels are allowed within the restricted area, including but not limited to tug, cargo, barge, survey, or tanker vessels.
VIII. Conclusion

Cook Inlet beluga whales are struggling to survive and failing to recover. The Tuxedni Bay area is vitally important for the belugas, providing a crucial refuge from incessant industrial anthropogenic noise in much of Cook Inlet and essential fall, winter, and spring foraging grounds, yet it is under acute threat of devastating industrial development. Avoiding degradation of the Tuxedni Bay area is of the utmost importance for the continuation of this special and unique beluga whale population. For all the reasons described in this petition, rapid action is reasonable, appropriate, and necessary to protect the Tuxedni Bay area. As such, NMFS should grant this emergency petition within 90 days and implement the necessary regulations within six months, ensuring the Tuxedni Bay area remains undisturbed by industrial development and Cook Inlet beluga whales have a chance to survive and recover.