

**BEFORE THE NATIONAL MARINE FISHERIES SERVICE**

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**PETITION TO CAP COOK INLET BELUGA WHALE TAKE AUTHORIZATIONS  
AND FOR ASSOCIATED ACTIONS AND RULEMAKING**

**January 19, 2022**

*Submitted By*

**CENTER FOR BIOLOGICAL DIVERSITY, ENVIRONMENTAL INVESTIGATION  
AGENCY, ALASKA WILDLIFE ALLIANCE, AND COOK INLETKEEPER**

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NMFS ESA/MMPA Permit #20465

Photo: Hollis Europe/Jacob Barbaro, NOAA Fisheries

*“It is the worst of times but it is the best of times because we still have a chance.”*

— Sylvia Earle

*“Consistent with these ongoing and unresolved concerns, the Commission once again recommends that NMFS defer issuance of the final incidental harassment authorizations to [the Port of Alaska] or any other applicant proposing to conduct sound-producing activities in Cook Inlet until NMFS has a reasonable basis for determining that authorizing any additional incidental harassment takes of Cook Inlet beluga whales would not contribute to or exacerbate the stock’s decline.”*

— Marine Mammal Commission (Jan. 23, 2020)

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## I. Introduction

Critically endangered Cook Inlet beluga whales (*Delphinapterus leucas*) are hovering on the brink of extinction. For the last several decades, their numbers have been in steep decline. With a loss of more than 75 percent of the population since the 1970s and a current population decline of 2.3% per year, scientists estimated that only 279 individuals remained as of 2018.<sup>1</sup> Along with the population's declining numbers, the condition of Cook Inlet beluga habitat has degraded over this same timeframe because of increased industrialization and urbanization in the Inlet and surrounding areas.

In December 2016, the National Marine Fisheries Service (NMFS) published a Recovery Plan for Cook Inlet belugas as the Endangered Species Act requires. In the plan, the agency identified three threats of high relative concern to belugas and their habitat: the risk of a catastrophic event (such as an oil spill); noise disturbance from a range of vessels and activities in the Inlet; and the cumulative effects of multiple stressors. Based on the particular concern surrounding cumulative effects, a central recommendation of the plan is to revise how NMFS authorizes takes of belugas. The plan recommends a "review [of] the current system for allocation of takes (by harassment) of CI belugas to see if a comprehensive approach, rather than by individual project, increases managers' ability to reduce the cumulative effects of harassment takes by numerous projects."<sup>2</sup>

Ignoring its own advice, NMFS continues to authorize take of Cook Inlet belugas without ever having undertaken a comprehensive review of the individual and cumulative impacts of its actions on the population and its habitat. Instead, NMFS continues to consider take applications almost entirely in isolation, occasionally providing a cursory list of other projects in the general area under the guise of a cumulative impacts analysis and proceeding to issue concerning high numbers of take authorizations without hesitation. In fact, as of December 31, 2020, NMFS authorized *nearly 120,000 takes* of Cook Inlet belugas from 2017 to 2025. In 2020 alone, NMFS authorized the equivalent of 50 percent of the entire Cook Inlet beluga whale population to be "incidentally" harassed by industrial projects in the Inlet, such as oil and gas development and pile driving activities.<sup>3</sup>

NMFS's actions impede Cook Inlet beluga survival and recovery, are contrary to its Recovery Plan for the population, and contradict recommendations issued by scientists, including the Marine Mammal Commission, which has made repeated pleas to NMFS to stop issuing these authorizations until the agency better understands and reverses the declining population trend. NMFS has repeatedly failed to heed these pleas.

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<sup>1</sup> If the 2.3 percent per year decline continued, this could mean only 260 Cook Inlet beluga whales in 2021.

<sup>2</sup> National Marine Fisheries Service, Recovery Plan for the Cook Inlet Beluga Whale (*Delphinapterus leucas*) (December 2016) [hereinafter "Recovery Plan"], at VI-30.

<sup>3</sup> Migura, M. & Bollini, C. (2021). To take or not take? Examination of the status quo process for issuing take authorizations of endangered Cook Inlet beluga whales and implications for their recovery. *Conservation Science and Practice*, e590. <https://doi.org/10.1111/csp2.590>.

In the process, NMFS has failed to fulfill its duties to Cook Inlet beluga whales and abdicated its statutory and regulatory responsibilities under the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), and the Marine Mammal Protection Act (MMPA). Scientists have warned that if the Cook Inlet beluga population drops to 200 individuals, it may cross a critical threshold where small population dynamics will prevent recovery.<sup>4</sup> At the current rate of decline, this threshold could be only about a decade away. NMFS must take immediate measures to ensure these critically endangered belugas survive and recover, starting with the actions outlined in this petition.

## II. Notice of Petition

Pursuant to the right to petition the government guaranteed by the Administrative Procedure Act (APA), including 5 U.S.C. § 553(e)<sup>5</sup> and the Constitution of the United States, U.S. Const., amend I,<sup>6</sup> the Center for Biological Diversity, the Environmental Investigation Agency, the Alaska Wildlife Alliance, and Cook Inletkeeper hereby petition the Secretary of Commerce, acting through the National Marine Fisheries Service (NMFS), to use its regulatory authority to take the following actions:

1. Prepare a Programmatic Environmental Impact Statement under the National Environmental Policy Act (NEPA) on NMFS's system of authorizing takes of Cook Inlet beluga whales in state and federal waters, with an emphasis on the cumulative and synergistic effects of the multiple stressors impacting these whales;
2. Complete programmatic consultation under the Endangered Species Act (ESA) on NMFS's system of authorizing takes of Cook Inlet beluga whales in state and federal waters;
3. Promulgate regulations establishing an annual "cap" on NMFS's authorizations for take of Cook Inlet beluga whales;
4. Set this cap at zero allowed instances of authorized take annually until programmatic NEPA and programmatic ESA consultation are completed *and* Cook Inlet beluga whales are recovering. Narrow exceptions for emergencies, certain research activities strictly tied to beluga recovery, and a limited number of other projects may be considered where the

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<sup>4</sup> Hobbs, R.C., Sheldon K.E.W., Vos, D.J., Goetz, K.T., & Rugh, D.J. (2006). Status review and extinction assessment of Cook Inlet belugas (*Delphinapterus leucas*). AFSC Processed Report 2006-16. Alaska Fisheries Science Center, National Marine Fisheries Service, NOAA. 74p. (as cited in Recovery Plan at II-37).

<sup>5</sup> The APA mandates that "[e]ach agency shall give an interested person the right to petition for the issuance . . . of a rule." 5 U.S.C. § 553(e); see also *id.* § 555(b) ("an interested person may appear before an agency or its responsible employees for the presentation, adjustment, or determination of an issue, request, or controversy in a proceeding, whether interlocutory, summary, or otherwise, or in connection with an agency function. With due regard for the convenience and necessity of the parties or their representatives and within a reasonable time, each agency shall proceed to conclude a matter presented to it").

<sup>6</sup> U.S. Const. amend. I ("Congress shall make no law . . . abridging the right of people . . . to petition the Government for redress of grievances."); see also *United Mine Workers v. Illinois State Bar Ass'n*, 389 U.S. 217, 222 (1967) (the right to petition for redress of grievances is among most precious of liberties without which the government could erode rights).

activity confers clear conservation benefits to Cook Inlet beluga whales and will promote their recovery; and

5. Create an online, publicly-accessible system that tracks all applications for take authorization, all issuances of take authorization, and all reported takes of Cook Inlet beluga whales, including documented unauthorized takes. This system must inform management decisions.

Failure to respond to this petition within a reasonable timeframe constitutes a violation of an agency's duty under the APA. 5 U.S.C. § 555(e) ("Prompt notice shall be given of the denial in whole or in part of a written application, petition, or other request of an interested person made in connection with any agency proceeding").

The Petitioners consider six months to be a reasonable timeframe for NMFS to respond to this petition given the severely depleted and endangered status of the Cook Inlet beluga population.<sup>7</sup>

### **III. Legal Framework**

#### **A. The National Environmental Policy Act**

The National Environmental Policy Act (NEPA) "is our basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a)(2019).<sup>8</sup> NEPA mandates that agencies take a "hard look" at the environmental impacts of federal actions that may significantly affect the quality of the human environment by preparing a detailed statement on the proposed action's environmental impacts, adverse effects, and alternatives. 42 U.S.C. § 4332(2)(C); *N. Plains Res. Council, Inc. v. Surface Transp. Bd.*, 668 F.3d 1067, 1075 (9th Cir. 2011) (citations omitted).

NEPA regulations define major federal actions to include "new and continuing activities, including projects and programs entirely or partially financed, assisted, conducted, regulated, or approved by federal agencies." 40 C.F.R. § 1508.18(a). They may include "[a]doption of official policy, such as rules, regulations, and interpretations adopted pursuant to the Administrative Procedure Act," "[a]doption of programs, such as . . . systematic and connected agency

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<sup>7</sup> The provisions of this Petition are severable. If any provision of this Petition is found to be invalid or unenforceable, the invalidity or lack of legal obligation shall not affect the other provisions of the Petition.

<sup>8</sup> NEPA regulations are codified at 40 C.F.R. § 1500–1508.1. The Council on Environmental Quality adopted new NEPA regulations that became effective on September 14, 2020. Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act, 85 Fed. Reg. 43,304 (July 16, 2020). However, NMFS can and should use the version of the regulations previously in effect due to the ongoing nature of its beluga whale take authorizations and to reflect its commencement of a programmatic NEPA analysis of Cook Inlet beluga whale take in 2014. See 40 C.F.R. § 1506.13 (2020) ("An agency may apply the regulations in this subchapter to ongoing activities and environmental documents begun before September 14, 2020"); Notice of Intent To Prepare an Environmental Impact Statement on the Issuance of Take Authorizations in Cook Inlet, Alaska, 79 FR 61,616 (Oct. 14, 2014). Furthermore, the Biden administration is reviewing a proposed rule to restore the previous CEQ regulations, and there are at least five pending legal challenges to the 2020 NEPA regulations. All citations to NEPA regulations in this petition are to the 1978 CEQ regulations (subject to a narrow amendment removing the requirement for a worst-case analysis in 1986).

decisions allocating agency resources to implement a specific statutory program,” and the “[a]pproval of specific projects, such as construction or management activities located in a defined geographic area.” 40 C.F.R. § 1508.18(b)(4).

To accomplish its objectives, NEPA requires agencies to fully disclose all potential environmental impacts of an action, including the “ecological . . . aesthetic, historic, cultural, economic, social, [and] health” effects. 40 C.F.R. § 1508.8. An EIS must include a “full and fair discussion” of direct and indirect environmental impacts. 40 C.F.R. § 1502.1. This includes “considering all foreseeable direct and indirect impacts.” *N. Alaska Env’t. Ctr. v. Kempthorne*, 457 F.3d 969, 975 (9th Cir. 2006) (citation omitted). These effects must be considered “whether direct, indirect, or cumulative.” 40 C.F.R. § 1508.8; *see N. Plains Res. Council, Inc.*, 668 F.3d at 1072 (citing 40 C.F.R. § 1508.25(c)). If an action has effects that *may* be significant, an agency must prepare an EIS before the action is taken. 42 U.S.C. § 4332(2)(C).<sup>9</sup>

Under NEPA, significance is determined by the *context* and *intensity* of an agency’s action. 40 C.F.R. § 1508.27. The context relates to the “affected region, the affected interests, and the locality” and “both short- and long-term effects are relevant.” 40 C.F.R. § 1508.27(a). Intensity refers to the severity of the impacts and hinges on several factors, including the “[u]nique characteristics of the geographic area,” the degree to which the impacts are “highly controversial,” whether the action is “related to other actions with individually insignificant but cumulatively significant impacts,” and the degree to which the action may adversely affect an endangered or threatened species or its critical habitat. *Id.* § 1508.27(b). “Implicating any one of the factors may be sufficient to require development of an EIS.” *Nat’l Parks Conservation Ass’n v. Semonite*, 916 F.3d 1075, 1082 (D.C. Cir. 2019) (citation omitted).

NEPA’s implementing regulations specifically call for a programmatic EIS in certain circumstances. As explained by the NEPA regulations, “[e]nvironmental impact statements may be prepared, and are sometimes required, for broad Federal actions such as the adoption of new agency programs or regulations. Agencies shall prepare statements on broad actions so that they are relevant to policy and are timed to coincide with meaningful points in agency planning and decisionmaking.” 40 C.F.R. § 1502.4(b). The regulations advise that when preparing programmatic EISs, agencies can evaluate the action using a few different criteria, for example, “[g]eographically, including actions occurring in the same general location, such as a body of water, region, or metropolitan area,” as well as “[g]enerically, including actions which have relevant similarities, such as common timing, impacts, alternatives, methods of implementation, media, or subject matter.” *Id.* § 1502.4(c)(1), (2).<sup>10</sup>

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<sup>9</sup> The agency may prepare an Environmental Assessment (EA) to determine whether an EIS is warranted. 40 C.F.R. §§ 1508.9(a), 1501.4(b)–(c). An EA must analyze all direct, indirect, and cumulative impacts of the action. *Id.* §§ 1508.7, 1508.8. If an EA “demonstrates that significant effects *could* result, the agency must prepare an [EIS].” *Am. Rivers v. Fed. Energy Reg. Comm’n*, 895 F.3d 32, 38 (D.C. Cir. 2018) (emphasis added) (citing 42 U.S.C. § 4332(2)(C)). If, after taking a “hard look” at the impacts, the agency determines an EIS is not required, it must provide a convincing statement of reasons why the project’s impacts are insignificant and issue a finding of no significant impact (FONSI). 40 C.F.R. §§ 1501.4(e), 1508.13.

<sup>10</sup> Memorandum from Michael Boots, Council on Environmental Quality, to Heads of Federal Departments and Agencies, Effective Use of Programmatic NEPA Reviews (Dec. 18, 2014), at 6.

## B. The Endangered Species Act

Enacted in 1973, Congress enacted the Endangered Species Act (ESA), 16 U.S.C. §§ 1531–1544, to ensure that federal agencies protect and recover imperiled species and the ecosystems upon which they depend. 16 U.S.C. § 1531(b), (c). In the first landmark case upholding the powers of the ESA, the U.S. Supreme Court 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.” *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 184–85 (1978).

Toward this goal, the ESA imposes a series of substantive and procedural obligations to conserve species listed as threatened or endangered under the Act and their designated critical habitat.<sup>11</sup> These include the following:

***Prepare and implement recovery plans.*** NMFS is required to develop and implement “recovery plans” for listed marine species, with the plans including site-specific management actions necessary to achieve the conservation and survival of the species. 16 U.S.C. § 1533(f).

***Prohibit take.*** The ESA imposes a general prohibition on the “take” of listed species by any person. 16 U.S.C. § 1538(a)(1). “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.” 16 U.S.C. § 1532(19).

***Ensure no jeopardy or adverse modification, including from cumulative effects.*** Of particular relevance to this petition, 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.” 16 U.S.C. § 1536(a)(2) (emphasis added).

The ESA prescribes a consultation process by which a federal agency can meet its substantive “no jeopardy” and no adverse modification obligations. When an action agency proposes any action that “may affect” a listed species, it must consult with the expert wildlife agency delegated responsibility for that species, either NMFS or the U.S. Fish and Wildlife Service. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). Where NMFS is both the action agency and expert wildlife agency, it must undertake intra-agency consultation. At the completion of formal consultation, NMFS issues a biological opinion, providing its evaluation of whether the agency action is likely to result in jeopardy or adverse modification. The ESA requires the consultation process and resulting biological opinion to be based on “the best scientific and commercial data available.” 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(g)(8). To comply with

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<sup>11</sup> 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. 16 U.S.C. § 1532(6). 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.” *Id.* § 1532(5)(A)(i). It also includes areas outside the occupied areas at the time of listing if deemed “essential for the conservation of the species.” *Id.* § 1532(5)(A)(ii).

this requirement, NMFS “cannot ignore available biological information” and must “give the benefit of the doubt to the species.” *Conner v. Burford*, 848 F.2d 1441, 1454 (9th Cir. 1988) (citation omitted).

In conducting its jeopardy analysis, NMFS must determine whether the direct and indirect effects of an action—in the context of the existing status of the species, the environmental baseline, and taken together with cumulative effects—are likely to jeopardize the continued existence of a species. 50 C.F.R. § 402.14(g)(4), (h)(1); *see also* 16 U.S.C. § 1536(b)(3), (4). The environmental baseline includes “the past and present impacts of all Federal, State, or private actions and other human activities in the action area” along with “the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process.” 50 C.F.R. § 402.02. “Cumulative effects” are “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” *Id.*

Consultation can be done at a programmatic level to address multiple agency actions on a program, region, or other basis. Endangered and Threatened Wildlife and Plants; Regulations for Interagency Cooperation, 84 Fed. Reg. 44,976 (Aug. 27, 2019). Such consultations allow federal agencies to consult on “multiple similar, frequently occurring, or routine actions” in a particular geographic area and on a proposed program, policy, or regulation that would provide a framework for future actions.<sup>12</sup> In some circumstances, programmatic review and consultation is “the only way to avoid piecemeal destruction of species and habitat” *North Plains Res. Council v. U.S. Army Corps of Eng’rs*, 460 F. Supp. 3d 1030, 1035 (D. Mont. 2020).

***Use authority to further the conservation of listed species.*** The ESA also provides NMFS with the general duty and authority to promulgate regulations to protect endangered species. 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.” 16 U.S.C. § 1536(a)(1). Section 4(d) of the ESA provides authority to NMFS to issue such regulations as it “deems necessary and advisable to provide for the conservation” of listed species. 16 U.S.C. § 1533(d). ESA section 11(f) gives NMFS the authority “to promulgate such regulations as may be appropriate to enforce this Act.” 16 U.S.C. § 1540(f).

### **C. The Marine Mammal Protection Act**

The Marine Mammal Protection Act (MMPA) provides additional protections to marine mammals like the Cook Inlet beluga whale. 16 U.S.C. §§ 1361–1432h. 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.” 16 U.S.C.

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<sup>12</sup> NOAA, Section 7: Types of Endangered Species Act Consultations in the Greater Atlantic Region. <https://www.fisheries.noaa.gov/insight/section-7-types-endangered-species-act-consultations-greater-atlantic-region#programmatic-consultation> (last visited Dec. 16, 2021).



§ 1361(1), (6). “The interest in maintaining healthy populations of marine mammals comes first” under the statute. *Kokechik Fishermen’s Ass’n v. Sec’y of Comm.*, 839 F.2d 795, 800, 802 (D.C. Cir. 1988). 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.” 16 U.S.C. § 1362(1)(A). Cook Inlet belugas are listed as depleted under the MMPA. Designating the Cook Inlet, Alaska, Stock of Beluga Whale as Depleted Under the Marine Mammal Protection Act (MMPA), 65 Fed. Reg. 34,590 (May 31, 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.” 16 U.S.C. §§ 1371(a), 1372(a); *see id.* § 1362(8). Prohibited takes include actions that harass, capture, or kill 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). *Id.* § 1362(13), (18)(A); 50 C.F.R. § 216.3.

The MMPA contains limited exceptions to this default prohibition. As relevant here, NMFS may issue permits to take marine mammals for the purposes of “scientific research, public display, photography for educational or commercial purposes, or enhancing the survival or recovery of a species or stock.” 16 U.S.C. § 1371(a)(1); *id.* § 1374(c). The agency may also 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” and measures to monitor take. *Id.* § 1371(a)(5)(A); *see* 50 C.F.R. § 216.104. A letter of authorization from NMFS is required to conduct any activity under the regulations. 50 C.F.R. § 216.106(a). 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.” 16 U.S.C. § 1371(a)(5)(B); *see also id.* § 1374(e) (Permits - Modification, Suspension, and Revocation).

NMFS may also issue authorizations for incidental take by harassment for up to one year 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. 16 U.S.C. § 1371(a)(5)(D). NMFS “shall modify, suspend, or revoke” an authorization if NMFS finds its terms are not met. *Id.* § 1371(a)(5)(D)(iv).

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.” *Id.* § 1373(a).

The MMPA also authorizes NMFS to promulgate regulations “necessary and appropriate” to carry out the purposes of the statute. 16 U.S.C. § 1382(a). These regulations “may include, but are not limited to, *restrictions with respect to—the number of animals which may be taken* or imported in any calendar year pursuant to permits issued under section 104 of this title.” 16 U.S.C. § 1373(c)(1) (emphasis added). Additionally, the MMPA authorizes NMFS to “modify, suspend, or revoke in whole or in part any permit” it issued under the Act,” including when it is necessary to ensure a permit is consistent with any changes NMFS makes to its take regulations. 16 U.S.C. § 1374(e).

#### **IV. The Status of Cook Inlet Beluga Whales**

##### **A. Cook Inlet Beluga Whale Biology and Ecology**

The Cook Inlet beluga whale is geographically isolated and genetically distinct from the other populations of beluga whales around Alaska.<sup>13</sup> 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. Cook Inlet beluga whales eat a range of foods, including fish such as eulachon and salmon 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.

The waters of Cook Inlet are dark and turbid, so Cook Inlet belugas depend heavily on sound for foraging, navigation, and communication.<sup>14</sup> They have a hearing sensitivity between 4 and 150kHz.<sup>15</sup> Lower frequency whistles, noisy vocalizations, and pulsed sounds are associated with social behaviors, while high-frequency sounds are associated with navigation and foraging.<sup>16</sup> 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 Inlet. Beluga whales use sound to

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<sup>13</sup> NOAA, Species Directory: Beluga Whale, Overview. <https://www.fisheries.noaa.gov/species/beluga-whale#overview> (last visited Dec. 16, 2021); O’Corry-Crowe, G. M., Dizon, A. E., Suydam, R. S., & Lowry, L. F. (2002). Molecular genetic studies of population structure and movement patterns in a migratory species: the beluga whale, *Delphinapterus leucas*, in the western Nearctic. *Molecular and cell biology of marine mammals*. Krieger, Malabar, Florida, USA, 53–63.

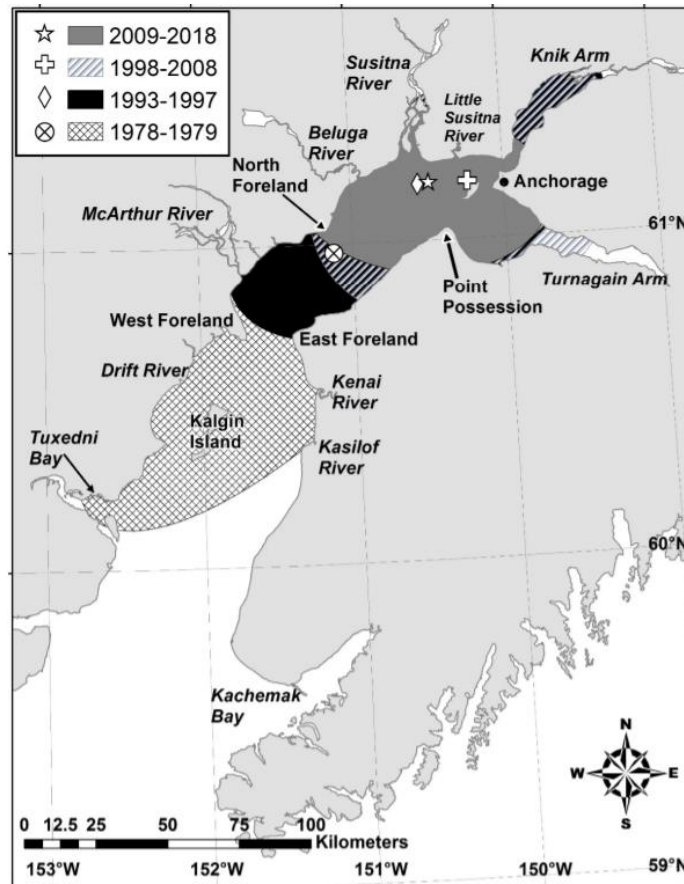
<sup>14</sup> Castellote, M., Mooney, T. A., Quakenbush, L., Hobbs, R., Goertz, C., & Gaglione, E. (2014). Baseline hearing abilities and variability in wild beluga whales (*Delphinapterus leucas*). *Journal of Experimental Biology*, 217(10): 1682–1691.

<sup>15</sup> *Id.*

<sup>16</sup> Kendall, L. S., Širović, A., & Roth, E. H. (2013). Effects of construction noise on the Cook Inlet beluga whale (*Delphinapterus leucas*) vocal behavior. *Canadian Acoustics*, 41(3), 3–13.

communicate, locate prey, and navigate, and may make different sounds in response to different stimuli.”<sup>17</sup>

The reported summer distribution of Cook Inlet belugas has contracted since the 1970s when whales dispersed over a larger area throughout the Inlet.<sup>18</sup> Now, their summer range has shifted northward and is concentrated around the Susitna River Delta,<sup>19</sup> though they can still be found throughout the Inlet.<sup>20</sup>



**Figure 1.** Map of areas occupied by Cook Inlet beluga whales from Sheldon and Wade (2019).

<sup>17</sup> *Id.*

<sup>18</sup> Rugh, D. J., Sheldon, K. E., & Hobbs, R. C. (2010). Range contraction in a beluga whale population. *Endangered Species Research*, 12(1), 69–75; Sheldon, K. E., Goetz, K. T., Rugh, D. J., Calkins, D. G., Mahoney, B. A., & Hobbs, R. C. (2015). Spatio-temporal Changes in Beluga Whale, *Delphinapterus leucas*, Distribution: Results from Aerial Surveys (1977-2014), Opportunistic Sightings (1975-2014), and Satellite Tagging (1999-2003) in Cook Inlet, Alaska. *Marine Fisheries Review*, 77(2), 1–31.; Sheldon, K. E. W. & Wade, P. R. (Eds. 2019). Aerial surveys, distribution, abundance, and trend of belugas (*Delphinapterus leucas*) in Cook Inlet, Alaska, June 2018. AFSC Processed Rep. 2019-09, 93 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.

<sup>19</sup> Recovery Plan, at II-8.

<sup>20</sup> See, e.g. Sheldon & Wade (Eds. 2019), at 42.

## B. Abundance and Trends

Cook Inlet beluga numbers have declined by 75% since the 1970s.<sup>21</sup> What was a population of approximately 1,300 whales<sup>22</sup> has dwindled to a mere 250 to 317 individuals, with a best estimate of 279, as of NMFS's last estimate in 2018.<sup>23</sup> The “substantially improved model structure” NMFS used to obtain this estimate revealed that the Cook Inlet beluga population is significantly smaller and declining more rapidly than previously stated by NMFS.<sup>24</sup> The downward trend of abundance is now approximately -2.3% per year, a substantially higher rate of decline than previous estimates of a 0.5% decline per year.<sup>25</sup>

Beluga whales can live for up to 70 years and reach sexual maturity between 8 to 13 years of age for females and 8-15 years of age for males.<sup>26</sup> Belugas give birth to a single calf every two to three years.<sup>27</sup> At these reproductive rates, recovery of the population is slow and difficult even before one considers the multitude of other stressors impacting the Cook Inlet beluga population. Recent advancements in integrated population modeling confirmed the negative trend in the Cook Inlet beluga population.<sup>28</sup> The results indicate that low survival may be impeding recovery.<sup>29</sup>

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<sup>21</sup> NOAA, Species in the Spotlight, Priority Actions: 2016–2020, Cook Inlet Beluga Whale *Delphinapterus leucas* (2016).

<sup>22</sup> *Id.*

<sup>23</sup> Sheldon & Wade (Eds. 2019).

<sup>24</sup> *Id.*

<sup>25</sup> *Id.* at 55, 71; Sheldon, K.E.W., Hobbs, R.C., Sims, C.L., Vate Brattström, L., Mocklin, J.A., Boyd, C., & Mahoney, B.A. (2017). Aerial surveys of beluga whales (*Delphinapterus leucas*) in Cook Inlet, Alaska, June 2016. AFSC Processed Rep. 2017-09, 62 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.

<sup>26</sup> McGuire, T. L., Sheldon, K. E., Himes Boor, G. K., Stephens, A. D., McClung, J. R., Garner, C., Goertz, C. E. C., Burek-Huntington, K. A., O’Corry-Crowe, G., & Wright, B. (2020a). Patterns of mortality in endangered Cook Inlet beluga whales: Insights from pairing a long-term photo identification study with stranding records. *Marine Mammal Science*, 37(2), 492–511.

<sup>27</sup> Recovery Plan, at II-19.

<sup>28</sup> Jacobson, E. K., Boyd, C., McGuire, T. L., Sheldon, K. E., Himes Boor, G. K., & Punt, A. E. (2020). Assessing cetacean populations using integrated population models: an example with Cook Inlet beluga whales. *Ecological Applications* 30(5), e02114, at 1, 8, 9. <https://doi.org/10.1002/eap.2114>.

<sup>29</sup> *Id.*



Photo: Belugas in the Arctic (NOAA), available at <https://www.mmc.gov/priority-topics/species-of-concern/cook-inlet-beluga-whale/>

As McGuire et al. (2020a) 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.”<sup>30</sup> 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.<sup>31</sup> The oldest aged beluga documented from Cook Inlet was only 49 years old.<sup>32</sup>

Based on the most recent abundance estimate of 279 whales, if the population is declining at 2.3% a year, there may only be 261 whales in 2021. This is dangerously close to the 200-individual threshold identified by experts as the point at which small population dynamics, such as inbreeding depression and loss of genetic diversity, begin to pose a significant risk to Cook Inlet beluga recovery.<sup>33</sup> Small population dynamics may be a factor limiting recovery “when the impact to individual survival and fecundity increases as the population abundance decreases.”<sup>34</sup> If the existing rate of decline continues, it is predicted that the Cook Inlet beluga population size will drop below 200 individuals by the year 2033. NMFS has acknowledged that “the loss of more than one beluga whale annually could impede recovery.” Endangered Status for the Cook Inlet Beluga Whale, 73 Fed. Reg. 62,919, 62,927 (Oct. 22, 2008). Yet as described in more detail below, the agency continues to issue hundreds to thousands of take authorizations annually.

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<sup>30</sup> McGuire et al. (2020a).

<sup>31</sup> *Id.*

<sup>32</sup> Vos et al. 2019.

<sup>33</sup> Hobbs et al. (2006).

<sup>34</sup> Recovery Plan, at II-35.

### C. Legal Status Under the MMPA and ESA

In response to this staggering decline in Cook Inlet belugas, NMFS listed the Cook Inlet beluga whale stock as depleted under the Marine Mammal Protection Act in 2000. Designating the Cook Inlet, Alaska, Stock of Beluga Whale as Depleted Under the Marine Mammal Protection Act (MMPA), 65 Fed. Reg. 34,590 (May 31, 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. *Id.* at 34,596–97 This decline was below the Cook Inlet beluga's Maximum Net Productivity Level, signifying the stock was depleted. *Id.*

In 2008, NMFS listed the Cook Inlet Beluga Distinct Population Segment as endangered under the Endangered Species Act. Endangered and Threatened Species; Endangered Status for the Cook Inlet Beluga Whale, 73 Fed. Reg. 62,919, 62,920 (Oct. 22, 2008) (codified in 50 C.F.R. § 224). 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. *Id.*

In 2011, NMFS designated a sizable portion of Cook Inlet as critical habitat for the belugas living there, across two areas. Endangered and Threatened Species: Designation of Critical Habitat for Cook Inlet Beluga Whale, 76 Fed. Reg. 20,179 (Apr. 11, 2011) (codified in 50 C.F.R. § 226). 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. *Id.* This area is bounded by the Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula borough. *Id.* The area contains shallow tidal flats and river mouths or estuarine areas, and it is important as foraging and calving habitats. *Id.* 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 in fall and winter. *Id.* 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. *Id.*

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. *Id.* 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.” *Id.* at 20,188. 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. *Id.* at 20,204.

#### **D. Recovery Plan and Continued Barriers to Recovery**

Cook Inlet belugas face a serious risk of extinction. In 2015, Cook Inlet belugas became one of NMFS's eight (now nine) "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 whose extinction:

is almost certain in the immediate future because of a rapid population decline or habitat destruction, whose limiting factors and threats are well understood and the needed management actions are known and have a high probability of success, and is a species that is in conflict with construction or other developmental projects or other forms of economic activity.<sup>35</sup>

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.<sup>36</sup>

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."<sup>37</sup> 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 five years ago, only one Recovery Action has been identified as completed, and it was a low priority action (Recovery Action #8, research techniques workshop).<sup>38</sup> 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, 60 percent of these actions have not been started, and none are identified as

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<sup>35</sup> NOAA, Species in the Spotlight Priority Actions: 2016–2020, Cook Inlet Beluga Whale *Delphinapterus leucas* (2016), at 1, n.1.

<sup>36</sup> *Id.* at 4, 6, 8, 10, 12.

<sup>37</sup> Recovery Plan, at xiv.

<sup>38</sup> National Marine Fisheries Service, Recovery Action Database (screenshot of "Completed" actions for Cook Inlet beluga whale), downloaded on Jan. 10, 2022 from <https://www.webapps.nwfsc.noaa.gov/apex/sdmteam/r/rad/home>.

completed.<sup>39</sup> All but one of the population monitoring/Recovery Plan implementation/outreach Recovery Actions have been started. Most efforts to address threats have been put towards Recovery Actions focusing on noise (four actions ongoing), reduction in prey (six actions ongoing), and unauthorized take (four actions ongoing). None of the actions aimed at addressing the high-ranked threat of cumulative effects of multiple stressors have been started.<sup>40</sup>

## 1. Threats of “High Relative Concern”

The Plan includes three threats NMFS considered as “High Relative Concern” (out of ten main threats identified):<sup>41</sup> noise; cumulative effects of multiple stressors; and catastrophic events (e.g., natural disasters; spills; mass strandings).<sup>42</sup>

### *Noise*

NMFS acknowledges noise is one of the single greatest threats to Cook Inlet belugas. NMFS has noted the importance of sound to Cook Inlet beluga whales to communicate, locate prey, and navigate. *See, e.g.*, Designation of Critical Habitat for Cook Inlet Beluga Whale, 76 Fed. Reg. 20,180, 20,203 (Apr. 11, 2011). 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.”<sup>43</sup> 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.<sup>44</sup>

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 extraordinarily turbid waters of Cook Inlet.”<sup>45</sup> 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).”<sup>46</sup> 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

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<sup>39</sup> National Marine Fisheries Service Recovery Action Database, <https://www.webapps.nwfsc.noaa.gov/apex/sdmteam/r/rad/home> (last visited Jan. 10, 2022).

<sup>40</sup> *Id.*.

<sup>41</sup> Recovery Plan, at xiii.

<sup>42</sup> *Id.*

<sup>43</sup> Recovery Plan, at II-52.

<sup>44</sup> Recovery Plan, at III-3.

<sup>45</sup> NOAA (2016).

<sup>46</sup> Recovery Plan, at III-13.



Noise in Cook Inlet Beluga Whale Habitat.”<sup>47</sup> This remains a Key Action in NMFS’s most recent Species in the Spotlight report issued in 2021.<sup>48</sup>

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 beluga habitat.<sup>49</sup> Shipping noise has been reported to disrupt traveling, foraging, socializing, communicating, resting, and other behaviors in marine mammals.<sup>50</sup> 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 and the Port of Anchorage modernization project, could significantly increase the noise levels in the Inlet.<sup>51</sup>

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.<sup>52</sup> 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.<sup>53</sup> Such noises can have population level-impacts.<sup>54</sup> Population-wide impacts are often non-obvious, sub-lethal, difficult to detect, and hard for

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<sup>47</sup> NOAA (2016), at 4 (The report recommended accomplishing this, in part, through “the development, testing, and routine incorporation of sound-reducing technologies, especially for major noise-producing activities.”).

<sup>48</sup> NOAA, Species in the Spotlight Priority Actions: 2021–2025, Cook Inlet Beluga Whale *Delphinapterus leucas* (2021).

<sup>49</sup> Castellote, M., Thayre, B., Mahoney, M., Mondragon, J., Schmale, C., & Small, R.J. (2016). Anthropogenic Noise in Cook Inlet Beluga Habitat: Sources, Acoustic Characteristics, and Frequency of Occurrence. Alaska Department of Fish and Game, Final Wildlife Research Report, Juneau; *see also* Castellote, M., Thayre, B., Mahoney, M., Mondragon, J., Lammers, M.O., & Small, R.J. (2018). Anthropogenic Noise and the Endangered Cook Inlet Beluga Whale, *Delphinapterus leucas*: Acoustic Considerations for Management. *Marine Fisheries Review*, 80(3), 63–88.

<sup>50</sup> Duarte, C.M., Chapuis, L., Collin, S. P., Costa, D. P., Devassy, R. P., Eguiluz, V. M., Erbe, C., Gordon, T. A. C., Halpern, B. S., Harding, H. R., Havlik, M. N., Meekan, M., Merchant, M. N., Miksis-Olds, J. L., Parsons, M., Predragovic, M., Radford, A. N., Radford, C. A., Simpson, S.D., . . . & Juanes, F. (2021). The soundscape of the Anthropocene ocean. *Science*, 371(6529), 5–6.

<sup>51</sup> For example, Castellote et al. (2018) note that the waters around the Port of Anchorage (POA) in lower Knik Arm are of particular concern: “A high concentration of noise sources was identified in the lower region of Knik Arm. This area is recommended for further research to evaluate the potential for beluga displacement and the basis to start considering cumulative impact effects in the permitting process.” That report also argues against the higher than standard allowance for noise (POA project gets a variance from the 120 dB harassment level, and instead noise levels are not considered harassment until 122+ dB).

<sup>52</sup> Kendall et al. (2013), at 3-13; Miller, P. J., Johnson, M. P., Madsen, P. T., Biassoni, N., Quero, M., & Tyack, P. L. (2009). Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico. *Deep-Sea Research Part I: Oceanographic Research Papers*, 56(7): 1168–1181.

<sup>53</sup> Miller, G.W., Moulton, V., Davis, R.A., Holst, M., Millman, P., Macgillivray, A., & Hannay, D. (2005). Monitoring seismic effects on marine mammals—southeastern Beaufort Sea, 2001–2002. *Offshore Oil and Gas Environmental Effects Monitoring: Approaches and Technologies*. Battelle Press, Columbus, OH, 511–542.

<sup>54</sup> Erbe, C., Reichmuth, C., Cunningham, K., Lucke, K., & Dooling, R. (2016). Communication masking in marine mammals: A review and research strategy. *Marine Pollution Bulletin*, 103(1-2), 15–38.

animals to avoid, especially animals with high site-fidelity, such as Cook Inlet belugas.<sup>55</sup> 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.<sup>56</sup> 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.<sup>57</sup> These sources of noise can interfere with or mask natural auditory signal processing by marine animals.<sup>58</sup> 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.<sup>59</sup>

### *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.<sup>60</sup> NMFS's Recovery Plan recognizes that Cook Inlet belugas continually face multiple stressors throughout their range.<sup>61</sup> 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."<sup>62</sup> 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.<sup>63</sup> 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.<sup>64</sup>

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."<sup>65</sup> 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

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<sup>55</sup> Forney, K. A., Southall, B. L., Slooten, E., Dawson, S., Read, A. J., Baird, R. W., & Brownell Jr, R. L. (2017). Nowhere to go: noise impact assessments for marine mammal populations with high site fidelity. *Endangered Species Research*, 32, 391–413, at 392.

<sup>56</sup> *Id.* at 5.

<sup>57</sup> *Id.*

<sup>58</sup> *Id.*

<sup>59</sup> *Id.*

<sup>60</sup> Recovery Plan, at III-10.

<sup>61</sup> *Id.*

<sup>62</sup> *Id.*

<sup>63</sup> National Academies of Sciences, Engineering, and Medicine. (2017). *Approaches to Understanding the Cumulative Effects of Stressors on Marine Mammals*. Washington, DC: National Academies Press, at 43.

<sup>64</sup> *Id.*

<sup>65</sup> Forney et al. (2017), at 407.

global reviews of anthropogenic stressors on marine life, and should now be included in assessments of cumulative effects on marine ecosystems.<sup>66</sup> Additional scholarship has found robust evidence of the negative synergistic impacts of cumulative stressors on marine life.<sup>67</sup>

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."<sup>68</sup> 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.<sup>69</sup> "It has been shown that the physiological impact can exponentially increase if the individual is concurrently or sequentially exposed to these chemicals and noise."<sup>70</sup>

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.<sup>71</sup> 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.<sup>72</sup> 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.<sup>73</sup> 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.<sup>74</sup> The authors commented that there is already sufficient evidence available in the

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<sup>66</sup> Duarte et al. (2021).

<sup>67</sup> Crain, C.M., Kroeker, K., & Halpern, B.S. (2008). Interactive and cumulative effects of multiple human stressors in marine systems. *Ecology Letters*, 11(12), 1304–1315, at 1310, 1315.

<sup>68</sup> Recovery Plan, at III-8.

<sup>69</sup> *Id.* (citing Steyger, P. S. (2009, February). Potentiation of chemical ototoxicity by noise. *In Seminars in Hearing* (Vol. 30, No. 01, pp. 038–046). Thieme Medical Publishers).

<sup>70</sup> Recovery Plan, at III-8 (citing Sliwinska-Kowalska, M., Zamyslowska-Szmytko, E., Szymczak, W., Kotylo, P., Fiszler, M., Wesolowski, W., Pawlaczyk-Luszczynska, M., Bak, M., & Gajda-Szadkowska, A. (2004). Effects of coexposure to noise and mixture of organic solvents on hearing in dockyard workers. *Journal of occupational and environmental medicine*, 46(1), 30–38..

<sup>71</sup> McGuire, T.L., Himes Boor, G.K., McClung, J.R., Stephens, A.D., Garner, C., Shelden, K.E.W., & Wright, B. (2020b). Distribution and habitat use by endangered Cook Inlet beluga whales: Patterns observed during a photo-identification study, 2005–2017. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 30(12), 2402–2427. <https://doi.org/10.1002/aqc.3378>.

<sup>72</sup> *Id.*

<sup>73</sup> Castellote et al. (2018).

<sup>74</sup> Small, R.J., Brost, B., Hooten, M., Castellote, M., & Mondragon, J. (2017). Potential for spatial displacement of Cook Inlet beluga whales by anthropogenic noise in critical habitat. *Endangered Species Research*, 32, 43–57.

literature to conclude that cumulative and chronic effects of disturbance can negatively impact cetacean reproductive success and survival.<sup>75</sup>

### *Catastrophic events*

The 2006 Cook Inlet beluga whale status review found that the reduced summer range in the upper Inlet makes the belugas far more vulnerable to catastrophic events that have the potential to kill or injure a significant portion of the population.<sup>76</sup> The Recovery Plan listed natural factors that may result in a catastrophic event with the potential to adversely affect Cook Inlet belugas, including “effects from environmental or climatic changes, earthquakes, volcanos, disease outbreaks, lethal mass strandings, and failures of key salmon runs.”<sup>77</sup> Anthropogenic events that may also have detrimental effects on belugas identified in the Plan include “oil spills and natural gas blowouts.”<sup>78</sup>

The Plan also noted that the listed catastrophic events may affect Cook Inlet beluga prey, whether through changes to spawning or migration patterns, direct mortality, or potential long-term sub-lethal impacts.<sup>79</sup> Finally, the Plan also explained that a catastrophic event may also be a contributing factor to a mass stranding event, and mass stranding resulting in numerous mortalities would be catastrophic to the recovery of Cook Inlet belugas. Therefore, the Plan considered mass strandings as a potential catastrophic event.

Since the publication of the Recovery Plan, NMFS published a technical report addressing disaster response activities specific to marine mammals in the Cook Inlet and Kodiak regions of Alaska.<sup>80</sup> However, the agency has not developed any site-specific stranding response plans despite scientists expressing that such plans would enable a more rapid concerted response when such events occur, as in the case of a catastrophic event like an oil spill that could result in mass stranding.<sup>81</sup> The threat of a catastrophic oil spill or gas leak in Cook Inlet is real and significant.

Anthropogenic events that may also have detrimental effects on belugas identified in the Plan include “oil spills and natural gas blowouts.”<sup>82</sup> The Cook Inlet watershed encompasses a significant amount of aging oil and gas infrastructure, including sixteen offshore oil and gas platforms,<sup>83</sup> several onshore wells,<sup>84</sup> over 1,000 miles of oil/gas pipelines,<sup>85</sup> a refinery,<sup>86</sup> a

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<sup>75</sup> *Id.*

<sup>76</sup> Hobbs et al. (2006).

<sup>77</sup> Recovery Plan, at III-5.

<sup>78</sup> Recovery Plan, at III-5.

<sup>79</sup> Recovery Plan, at III-5.

<sup>80</sup> National Marine Fisheries Service (2019). NMFS Cook Inlet & Kodiak Marine Mammal Disaster Response Guidelines. NOAA Fisheries Guidance Document. pp 79 + appendices. doi: 10.25923/g85z-ge25.

<sup>81</sup> McGuire et al. 2020b.

<sup>82</sup> Recovery Plan, at III-5.

<sup>83</sup> Belmar Engineering, Platform Information, Cook Inlet, Alaska (1st Edition 1993), <https://www.circac.org/wp-content/uploads/Platform-Information-Cook-Inletpdf.pdf>.

<sup>84</sup> Bureau of Land Management, Cook Inlet Federal Onshore Oil & Gas Production, <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/about/alaska/Cook-Inlet-Units> (last visited Jan. 3, 2022).

liquified natural gas plant,<sup>87</sup> and a major petrochemical facility.<sup>88</sup> Aging pipelines routinely leak oil and other contaminants into the waters of Cook Inlet. As just one example, an underwater pipeline owned by Hilcorp leaked methane into the inlet for almost four months in 2017 and was again found to be leaking in 2021.<sup>89</sup> Cook Inlet also faces threats of catastrophic impacts from oil tanker spills; Cook Inlet is the only major port in North America that lacks tug escorts for oil tankers, despite the region’s notorious tides, ice, and other challenging navigational conditions.<sup>90</sup>

## 2. Threats of “Medium Relative Concern”

The Recovery Plan identifies four threats of “Medium Relative Concern” disease agents; habitat loss or degradation; reduction in prey; and unauthorized take.

### *Disease agents*

Several disease agents exist in and around Cook Inlet, including pathogens, parasites, and harmful algal blooms. The extensive pollution in the Inlet only worsens the potential for disease—anthropogenic sources of disease-causing vectors affecting belugas include untreated sewage outfalls, malfunctioning septic systems, pet waste, runoff from agriculture, and discharge from vessels. Disease agents can harm or kill individuals and reduce the reproductive capacity of the species. A small population size could be a driver of disease-induced extinction for the species.<sup>91</sup> Of major concern in Cook Inlet are the local wastewater treatment facilities around Anchorage, which discharge primary treated effluent into the Knik Arm of Cook Inlet. This effluent can contain many pollutants and pesticides and has been shown to be a probable source

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<sup>85</sup> Nuka Research, Cook Inlet Infrastructure Assessment, Final Report (June 2020), <http://www.circac.org/wp-content/uploads/200630-CI-Pipelines-Report-Final.pdf> [350 miles not 1,000]; Talbert, J. & Branosky, E., Oil and Gas Infrastructure in Cook Inlet – A Potential Public Liability? (Sept. 2013), <https://sustainable-economy.org/wp-content/uploads/Cook-Inlet-DRR-Costs-Report-Final.pdf>.

<sup>86</sup> Marathon Petroleum, Kenai Refinery, <https://www.marathonpetroleum.com/Operations/Refining/Kenai-Refinery/> (last visited Jan. 3, 2022).

<sup>87</sup> ConocoPhillips, Kenai Liquefied Natural Gas Plant and North Cook Inlet Gas Field, Alaska (last updated April 2014), [http://static.conocophillips.com/files/resources/fact-sheet\\_kenai-Ing\\_current.pdf](http://static.conocophillips.com/files/resources/fact-sheet_kenai-Ing_current.pdf).

<sup>88</sup> Poux, S., *Fertilizer facility inches closer to reopening, but natural gas prices still high*, KDLL Public Radio (Dec. 2, 2020), <https://www.kdll.org/post/fertilizer-facility-inches-closer-reopening-natural-gas-prices-still-high#stream/0>. (currently shut down).

<sup>89</sup> Poux, S., *Hilcorp ordered to replace gas pipeline with history of leaks*, AK Public Media (Apr. 8, 2021), <https://www.alaskapublic.org/2021/04/08/hilcorp-ordered-to-replace-gas-pipeline-with-history-of-leaks/>; *see also* Pipeline and Hazardous Materials Safety Administration, Amended Corrective Action Order, CPF No. 5-2021-019-CAO (Apr. 6, 2021).

<sup>90</sup> Mullen, F., *Opinion: Cook Inlet tanker traffic needs escort tugs*, Anchorage Daily News (June 29, 2016), <https://www.adn.com/commentary/article/cook-inlet-tanker-traffic-needs-escort-tugs/2014/11/27/>; Cape International & Nuke Research (2006). Cook Inlet Vessel Traffic Study, [https://www.circac.org/wp-content/uploads/CI\\_VesselTrafficStudy\\_Final\\_Mar07.pdf](https://www.circac.org/wp-content/uploads/CI_VesselTrafficStudy_Final_Mar07.pdf).

<sup>91</sup> Norman, S. A., Hobbs, R. K. C., Goertz, C. E. C., Burek-Huntington, K. A., Sheldon K. E. W., Smith, W. A., & Beckett, L. A. (2015). Potential Natural and Anthropogenic Impediments to the Conservation and Recovery of Cook Inlet Beluga Whales, *Delphinapterus leucas*. *Marine Fisheries Review*, 77(2), 89–105.

of pathogens in Cook Inlet.<sup>92</sup> Although the characterization of the threat of disease agents in Cook Inlet has been hard to study, climate change and increased development will affect the epidemiology of infectious diseases.<sup>93</sup> A 2021 study identified wastewater treatment facilities in Cook Inlet as a possible vector for disease transmission, including novel diseases such as COVID-19, providing support for upgrading local wastewater treatment facilities to treat viruses among other pollutants.<sup>94</sup>

Disease in marine mammal populations is a quickly growing management concern. Marine wildlife disease has markedly increased over the past 40 years; “recent reports suggest the true magnitude of marine disease is grossly underestimated.”<sup>95</sup> And humans are responsible. Anthropogenic pathogens enter marine habitats via stormwater runoff and man-made freshwater intrusions.<sup>96</sup> This is especially disastrous for marine animals—exposure to toxic chemicals and warming temperatures has greatly deteriorated immune function in many species.<sup>97</sup> A 2020 study determined that “human disturbances likely contribute to behavioral and immunological changes in marine mammals, which in turn increases individual susceptibility and infectivity, and alters exposure.”<sup>98</sup> Scientists are predicting worse marine disease epidemics, exacerbated by the indirect effects of human activity.<sup>99</sup>

### ***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.”<sup>100</sup> The Recovery Plan designates habitat loss or degradation (from sources other than prey, pollution, and noise impacts) as a medium magnitude, medium relative concern threat.<sup>101</sup> 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 derived from natural sources, such as earthquakes or volcanic activity, and from climate change and runoff from anthropogenic sources.<sup>102</sup> Construction, changes in freshwater flows from dams, dredging, and channeling can alter the

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<sup>92</sup> Norman, S. A., Hobbs, R. C., Wuertz S., Melli A., Beckett, L. A., Chouicha, N., Kundu A., & Miller, W. A. (2013). Fecal pathogen pollution: Sources and patterns in water and sediment samples from the upper Cook Inlet, Alaska ecosystem. *Environmental Sciences: Processes and Impacts*, 15(5), 1041–1051.

<sup>93</sup> Patz, J. A., Graczyk, T. K., Geller, N., & Vitto, A. Y. (2000). Effects of environmental change on emerging parasitic diseases. *International Journal for Parasitology*, 30(12-13), 1395–1405.

<sup>94</sup> Mathavarajah, S., Stoddart, A.K., Gagnon, G.A., & Dellaire, G. (2021). Pandemic danger to the deep: The risk of marine mammals contracting SARS-CoV-2 from wastewater. *Science of the Total Environment*, 760, 143346.

<sup>95</sup> Collier, M. A., Ali, S., Mann, J., & Bansal, S. (2020). Impacts of human disturbance in marine mammals: Do behavioral changes translate to disease consequences? *EcoEvoRxiv Preprints*, at 1.

<sup>96</sup> *Id.* at 2.

<sup>97</sup> *Id.*

<sup>98</sup> *Id.* at 9.

<sup>99</sup> *Id.*

<sup>100</sup> Forney et al. (2017) at 408.

<sup>101</sup> Recovery Plan at III-5, III-15.

<sup>102</sup> Recovery Plan at III-15.

chemical composition of the water, increase exposure to parasites, and change the acoustic propagation in the area.<sup>103</sup>

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.<sup>104</sup> Such drastic changes to water temperature may significantly increase the incidence of disease in fish prey populations and generally reduce prey availability or distribution,<sup>105</sup> including Chinook salmon populations in Cook Inlet.<sup>106</sup> 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.<sup>107</sup>

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.<sup>108</sup> 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.<sup>109</sup> Climate change may also be increasing siltation as warming temperatures reduce snowfall during warmer winters and cause glaciers to melt, releasing sediment.<sup>110</sup> Such elevated siltation and deposition levels may affect beluga whale access to river mouths and feeding habitat.<sup>111</sup>

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.<sup>112</sup> 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.<sup>113</sup> This suggests there is concern about Cook Inlet beluga habitat declining significantly as a result of a

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<sup>103</sup> *Id.*

<sup>104</sup> Norman et al. (2015).

<sup>105</sup> *Id.*

<sup>106</sup> Jones, L. A., Schoen, E. R., Shaftel, R., Cunningham, C. J., Mauger, S., Rinella, D. J., & St. Saviour, A. (2020). Watershed-scale climate influences productivity of Chinook salmon populations across southcentral Alaska. *Global Change Biology*, 26(9), 4919–4936.

<sup>107</sup> *Id.*

<sup>108</sup> Carter, B. T., & Nielsen, E. A. (2011). Exploring ecological changes in Cook Inlet beluga whale habitat through traditional and local ecological knowledge of contributing factors for population decline. *Marine Policy*, 35(3), 299–308, at 306.

<sup>109</sup> See, e.g., Earl, E., *Kenai king salmon fishery shuts down*, Alaska Public Media (July 20, 2021), <https://www.alaskapublic.org/2021/07/20/kenai-king-salmon-fishery-shuts-down/>.

<sup>110</sup> Carter & Nielsen (2011) at 305.

<sup>111</sup> *Id.* at 304, 306.

<sup>112</sup> Skovrind, M., Louis, M., Westbury, M.V., Garilao, C., Kaschner, K., Castruita, J.A.S., Gopalakrishnan, S., Knudsen, S.W., Haile, J.S., Dalen, L., Meshchersky, I.G., Shpak, O.V., Glazov, D.M., Rozhnov, V.V., Litovka, D.I., Krasnova, V.V., Chernetsky, A.D., Bel'kovich, V.M., Lydersen, C., . . . & Lorenzen, E.D. (2021). Circumpolar phylogeography and demographic history of beluga whales reflect past climatic fluctuations. *Molecular Ecology*, 30(11), 2543–2559.

<sup>113</sup> *Id.*

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.<sup>114</sup>

### ***Reduction in Prey***

Competition, habitat loss, and noise may limit the abundance of prey for the Cook Inlet beluga. Reduction in prey could be a result of competition with humans or other predators for those same resources, such as salmon and eulachon. Belugas rely on dense concentrations of highly nutritious prey, so pressure on the population of prey could directly impact the Cook Inlet beluga population.<sup>115</sup>

Specifically, researchers have suggested that “the reproductive success of the Cook Inlet beluga is tied to salmon abundance and the Chinook run in the Doshka River.”<sup>116</sup> 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.<sup>117</sup> For example, Alaska Natives noted that in 1998, fish runs were early and small on the Susitna River possibly due to hunting pressure, and belugas were not found at the mouth of that river as they usually were.<sup>118</sup>

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 these activities reduces the quality and abundance of prey.<sup>119</sup> 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.<sup>120</sup> 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.<sup>121</sup>

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

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<sup>114</sup> Forney et al. (2017).

<sup>115</sup> *Id.* at 306.

<sup>116</sup> Norman, S. A., Hobbs, R. C., Beckett, L. A., Trumble, S. J., & Smith, W. A. (2020). Relationship between per capita births of Cook Inlet belugas and summer salmon runs: age-structured population modeling. *Ecosphere*, 11(1), e02955.

<sup>117</sup> Huntington, H. P. (2002). Traditional Knowledge of the Ecology of Belugas, *Delphinapterus leucas*, in Cook Inlet, Alaska. *Marine Fisheries Review*, 62(3), 134–140.

<sup>118</sup> *Id.*

<sup>119</sup> Recovery Plan at III-17.

<sup>120</sup> *Id.*; see also Weilgart, L. (2018). The impact of ocean noise pollution on fish and invertebrates. *Report for OceanCare, Switzerland*. 34 pp.

<sup>121</sup> McCauley, R. D., Day, R. D., Swadling, K. M., Fitzgibbon, Q. P., Watson, R. A., & Semmens, J. M. (2017). Widely used marine seismic survey air gun operations negatively impact zooplankton. *Nature ecology & evolution*, 1(7), 1–8.



severely angled spines.<sup>122</sup> Fishers in the Inlet also reported reduced oil content in local salmon meat, as well as reduced population numbers and smaller individual animal sizes, a trend they have recognized for the last 30 years.<sup>123</sup>

### *Unauthorized take*

In the Recovery Plan NMFS acknowledged that “activities which result in harassment or harm to CI belugas but which NMFS has not authorized (i.e., unauthorized take) may result in changes in CI beluga behavior, displacement of Cook Inlet belugas from important areas, or injury or mortality to CI belugas.”<sup>124</sup> The Plan identified activities with potential to result in unauthorized take or trauma to include, “entanglements from fisheries 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.”<sup>125</sup>

Castellote (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.<sup>126</sup> 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., 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.<sup>127</sup> 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.<sup>128</sup> 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).<sup>129</sup>

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. Despite NMFS recognizing unauthorized take in the Recovery Plan as a medium threat, and despite evidence that unauthorized take is indeed occurring, Petitioners

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<sup>122</sup> Carter & Nielsen (2011) at 303.

<sup>123</sup> *Id.* at 303–04.

<sup>124</sup> Recovery Plan at III-19

<sup>125</sup> Recovery Plan at III-19

<sup>126</sup> Castellote et al. (2018).

<sup>127</sup> McGuire, T.L., Stephens, A.D., McClung, J.R., Garner, C., Burek-Huntington, K.A., Goertz, C.E.C., Shelden, K.E.W., O’Corry-Crowe, G., Himes Boor, G.K., & Wright, B.A. (2020c). Anthropogenic scarring in long-term photo-identification records of Cook Inlet beluga whales, *Delphinapterus leucas*. *Marine Fisheries Review* 82(3-4), 20–40.

<sup>128</sup> *Id.* at 37.

<sup>129</sup> *Id.*

are not aware of any analysis NMFS has conducted to determine the extent of unauthorized takes of Cook Inlet beluga whales.

### 3. Threats of “Low Relative Concern”

The Recovery Plan identifies three threats that individually pose a “Low Relative Concern:” pollution; predation; and subsistence hunting. It is not clear why pollution was 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.<sup>130</sup> 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.<sup>131</sup> Beyond oil and gas effluent, ten communities discharge treated municipal wastewater into Cook Inlet or nearby bodies of water.<sup>132</sup> 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.<sup>133</sup> 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.<sup>134</sup> Some of these discharges have exceeded safe levels of fecal-coliform counts.<sup>135</sup> 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 disruptors, pharmaceuticals, antibiotics, sanitizers, disinfectants, detergents, insecticides, fungicides, and deicers.<sup>136</sup>

Increasing marine pollution is a major concern for belugas, which have the potential to accumulate high concentrations of persistent toxins in their tissues.<sup>137</sup> 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).<sup>138</sup> 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.<sup>139</sup>

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<sup>130</sup> Carter & Nielsen (2011).

<sup>131</sup> Huntington (2002).

<sup>132</sup> Moore, S. E., Shelden, K. E. W., Litzky, L. K., Mahoney, B. A., & David J. R. (2000). Beluga, *Delphinapterus leucas*, habitat associations in Cook Inlet, Alaska. *Marine Fisheries*, 62(3), 60–80.

<sup>133</sup> Norman et al. 2015 at 97.

<sup>134</sup> *Id.*

<sup>135</sup> Moore et al. (2000) at 103.

<sup>136</sup> Recovery Plan at III-22.

<sup>137</sup> Becker, P. R., Krahn, M. M., Mackey, E. A., Demiralp, R., Schantz, M. M., Epstein, M. S., ... & Wise, S. A. (2000). Concentrations of Polychlorinated Biphenyls (PCB's), Chlorinated Pesticides, and Heavy Metals and Other Elements in Tissues of Belugas, *Delphinapterus leucas*, from Cook Inlet, Alaska. *Marine Fisheries Review*, 62(3), 81–98, at 82.

<sup>138</sup> *Id.*

<sup>139</sup> *Id.*

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,<sup>140</sup> 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. *See* 76 Fed. Reg. at 20,203. The potential for new projects that will discharge into Cook Inlet beluga whale habitat continues to grow. As just one example, the Bureau of Ocean Energy Management (BOEM) recently proposed to lease a new area of Cook Inlet for oil and gas exploration and production. The area under consideration for leasing covers approximately 1.09 million acres from Kalgin Island in the north to Augustine Island in the south.<sup>141</sup> BOEM’s Draft EIS for this project inappropriately overlooks the chemicals routinely used and discharged in the process of extracting offshore oil using fracking and acidizing techniques, including in Alaska. These chemicals are toxic to aquatic life.

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).<sup>142</sup> It also presented a list of seven chemical classes that were identified as being of probable or possible concern specifically to Cook Inlet belugas,<sup>143</sup> based on “their potential to contribute adverse reproductive effects on CI belugas.”<sup>144</sup>

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.<sup>145</sup> 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.<sup>146</sup> 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 are significant health risks to Cook Inlet belugas from PAH pollution of sediment and beluga prey.

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<sup>140</sup> National Marine Fisheries Service. (2008). Conservation Plan for the Cook Inlet beluga whale (*Delphinapterus leucas*). National Marine Fisheries Service, Juneau, Alaska.

<sup>141</sup> *See* Bureau of Ocean Energy Management, Lease Sale 258, Cook Inlet OCS Oil & Gas Lease Sale 258, <https://www.boem.gov/oil-gas-energy/leasing/lease-sale-258> (last visited Dec. 16, 2021).

<sup>142</sup> Recovery Plan at IX-60.

<sup>143</sup> Recovery Plan at IX-53-56.

<sup>144</sup> URS Corp. (2010). Chemical exposures for Cook Inlet beluga whales: a literature review and evaluation. Report prepared for National Marine Fisheries Service, NOAA, Anchorage, Alaska. NMFS contract no. AB133F-06-BU-0058, <https://media.fisheries.noaa.gov/dam-migration/cibtoxicology0310-akr.pdf>.

<sup>145</sup> Poirer, M.C., Lair, S., Michaud, R., Hernández-Ramon, E.E., Divi, K.V., Dwyer, J.E., Ester, C.D., Si, N.N., Ali, M., Loseto, L.L., Raverty, S.A., St. Leger, J.A., van Bonn, W.G., Colegrove, K., Burek-Huntington, K.A., Suydam, R., Stimmelmayer, R., Wise Sr., J.P., Wise, S.S., . . . & Martineau, D. (2019). Intestinal polycyclic aromatic hydrocarbon-DNA adducts in a population of beluga whales with high levels of gastrointestinal cancers. *Environmental and Molecular Mutagenesis*, 60(1), 29–41.

<sup>146</sup> *Id.*

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.<sup>147</sup> 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.

## **V. The Agency’s Current System for Allocation of Takes Is Broken**

Despite the increasingly dire status of Cook Inlet beluga whales, NMFS continues to authorize take of this critically imperiled species. And NMFS is doing so without adequately and comprehensively assessing the cumulative effects of its authorizations on Cook Inlet beluga whales under NEPA, the ESA, or the MMPA and responding with appropriate management measures. NMFS has instead defaulted to a fragmented approach that promises to result in death by a thousand cuts.

### **A. NMFS’s 2014 Programmatic EIS Initiation Acknowledged Gaps**

On October 14, 2014, NMFS announced its intent to prepare a programmatic Environmental Impact Statement (EIS) under NEPA to analyze the effects of issuing authorizations for the incidental take of marine mammals from activities occurring in both the state and federal waters of Cook Inlet, Alaska. Notice of Intent to Prepare an Environmental Impact Statement on the Issuance of Take Authorizations in Cook Inlet, Alaska, 79 Fed. Reg. 61,616 (Oct. 14, 2014). This notice of intent proposed to analyze the effects of “issuing take authorizations for the incidental take of marine mammals from activities occurring in both the state and Federal waters of Cook Inlet, AK, from Knik Arm in the northern part of the Inlet to the southern edge of Kachemak Bay on the southeastern part of the Inlet and to the southern edge of Cape Douglas on the southwestern part of the Inlet.” *Id.* at 61,617.

NMFS recognized the value of analyzing “multiple activities over multiple years,” which would provide “a comprehensive decision-support tool for NMFS, allowing us to address cumulative effects over a longer time frame, consider a wider range of reasonable alternatives consistent with our statutory mandates, and analyze a wider range of practicable mitigation and monitoring measures for protecting marine mammals and the availability of marine mammals for subsistence uses.” *Id.* NMFS elaborated that the programmatic EIS

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<sup>147</sup> National Marine Fisheries Service unpublished data obtained through a FOIA request in 2021 (DOC-NOAA-2020-002037).

will not only achieve greater administrative efficiency for NMFS's ITA [Incidental Take Authorization] program but will increase NMFS's options and flexibility for processing MMPA ITA requests in the region while ensuring compliance with MMPA, ESA, and NEPA mandates. NMFS has determined that the preparation of such an EIS will provide the best decision support tool for processing MMPA ITA requests in Cook Inlet.

*Id.*

In August 2015, NMFS announced that it would in the interim prepare a series of annual Programmatic Environmental Assessments (EA) evaluating the effects of issuing "multiple concurrent one-year MMPA authorizations to take Cook Inlet beluga whales" to "aid [NMFS] in more effectively assessing the aggregate effects of multiple incidental take authorizations and to more comprehensively consider a range of mitigation and monitoring measures in the context of the multiple activities." Programmatic Environmental Assessment on the Issuance of Take Authorizations in Cook Inlet, Alaska, 80 Fed. Reg. 48,299, 48,300 (Aug. 12, 2015). This was to occur "while the Cook Inlet beluga EIS is being prepared," which would "analyze the effects of issuing of multiple concurrent one-year MMPA authorizations to take Cook Inlet beluga whales." *Id.*

In 2016, NMFS issued a near-identical announcement. Notice of Intent to Prepare an Environmental Assessment on the Issuance of Take Authorizations in Cook Inlet, Alaska, 81 Fed. Reg. 66,639 (Sept. 28, 2016). However, NMFS never undertook the EIS. Instead, in its 2017 notice of intent to prepare an EA for the upcoming year's annual take authorizations, it concluded,

[d]ue to the reduced number of ITA requests in the region, combined with current funding constraints, NMFS' intention of preparing an Environmental Impact Statement (EIS) for oil and gas activities in Cook Inlet has been postponed . . . Should the number of ITA requests, or anticipated requests, noticeably increase, NMFS will re-evaluate whether preparation of an EIS is necessary.

Notice of Intent to Prepare an Environmental Assessment on the Issuance of Take Authorizations in Cook Inlet, Alaska, 82 Fed. Reg. 41,938 (Sept. 5, 2017). No reasoning was cited except for this purported lack of funding and decrease in applications. For example, there was no criterion for how large the requested levels of take are, for the continued decline in the population, or for increasing threats to it.

Seven years ago, NMFS understood the need to undertake a comprehensive analysis of the impacts of take authorizations on Cook Inlet beluga whales. Yet the agency kept issuing take authorizations without this analysis and while the Cook Inlet beluga population continued its decline. Given the state of the population, this assessment is grossly overdue. NMFS must revive and expand upon what it began in 2014 and prepare a programmatic EIS to analyze the environmental effects of authorizing take of Cook Inlet beluga whales from all activities in state and federal waters in Cook Inlet, Alaska.

## B. NMFS's 2016 Recovery Plan Recommended Overhaul

Action 62 of NMFS's 2016 Recovery Plan for Cook Inlet belugas states NMFS's intent to "review the current system for allocation of takes (by harassment) of CI belugas to see if a comprehensive approach, rather than by individual project, increases managers' ability to reduce the cumulative effects of harassment takes by numerous projects."<sup>148</sup> The Plan explicitly acknowledges that applications for Incidental Harassment Authorizations are reviewed "on the basis of an individual activity in isolation," which fails to account for "creeping normality (e.g., death by a thousand cuts."<sup>149</sup> The Plan described this term as encapsulating circumstances like those Cook Inlet belugas face where individual activities might be deemed insignificant when considered independently but can cause substantial adverse effects to species at both individual and population levels.<sup>150</sup>

Action 62 suggests NMFS consider developing a "framework . . . for assessing cumulative impacts to belugas from the numerous activities occurring in Cook Inlet" and that it should consider establishing "a limit for annual takes granted to development projects, research projects, and all projects combined. The total allocated take could be capped annually at some fraction of the population estimate from the previous year."<sup>151</sup> However, five years after publication of the Recovery Plan, Action 62 is still listed as "Not Started" in NMFS's Recovery Action Database.<sup>152</sup>

As NMFS acknowledged in the Recovery Plan, applications for incidental harassment authorizations historically have been reviewed on the basis of individual activity in isolation. But the high level of human activity in Cook Inlet has increased such that cumulative effects of multiple activities must be appropriately accounted for. While assessing cumulative impacts from multiple activities is challenging, the results of such an assessment might be particularly relevant for understanding the lack of recovery for Cook Inlet belugas. Without such a framework for assessing cumulative impacts developed by NMFS, Cook Inlet belugas will not recover and will instead continue their downward trend to extinction.

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<sup>148</sup> Recovery Plan at VI-30.

<sup>149</sup> Recovery Plan at VI-30 (defining creeping normality as "the way a major negative change, which happens slowly in many unnoticed increments, is not perceived as objectionable" and referencing the book *Collapse: How Societies Choose to Fail or Succeed* by Jared Diamond).

<sup>150</sup> *Id.*

<sup>151</sup> *Id.* at VI-30, VII-21. Action 64 titled *Consider analysis of results for cumulative effects of multiple stressors to update regulations* relatedly stated "Regulations should not only consider the noise type and overall levels introduced into CI beluga habitat by each activity independently, but also the potential effects of different stressors (acoustic and non-acoustic) occurring concurrently or sequentially over time or space. Research results on cumulative (including synergistic effects) could inform appropriate revisions to existing regulations that would improve management of acoustic impacts to CI belugas."

<sup>152</sup> National Marine Fisheries Service, Recovery Action Database (screenshot of "Action Code: 62"), downloaded on Jan. 10, 2022 from <https://www.webapps.nwfsc.noaa.gov/apex/sdmteam/r/rad/home>.

### C. Experts Repeatedly Call for No More Take

The Marine Mammal Commission (MMC), an independent agency tasked with providing science-based oversight of federal policies that impact marine mammals and their ecosystems, 16 U.S.C. § 1402, has repeatedly informed NMFS that it is not adequately addressing Cook Inlet beluga threats. On multiple occasions over more than a decade, the MMC has written to NMFS to urge the agency to stop issuing take authorizations for belugas to *any* applicant proposing to conduct sound-producing activities in Cook Inlet until NMFS has a reasonable basis for determining that authorizing any additional incidental harassment takes of Cook Inlet beluga whales would not contribute to or exacerbate the stock's decline.<sup>153</sup> For example, citing ongoing uncertainty surrounding cumulative effects impacting belugas, the MMC admonished NMFS for its inadequate analysis of impacts on Cook Inlet belugas when the agency recently issued five-year incidental take regulations authorizing Hilcorp Alaska, LLC to take belugas incidental to its oil and gas activities:

As indicated in previous letters regarding proposed incidental take authorizations for other sound-producing activities in Cook Inlet<sup>154</sup> the Commission remains concerned about the potential impacts of human activities on the endangered Cook Inlet beluga whale population. The Commission has recommended that NMFS defer issuance of incidental take authorizations and regulations until it has better information on the cause or causes of the decline in that population and, as part of NMFS's small numbers and negligible impact determinations, has a reasonable basis for determining that authorizing additional takes by harassment would not contribute to or exacerbate that decline. In addition, NMFS did not follow, or even mention in the preamble, its more recent interpretations of what constitute small numbers and a negligible impact. Further, NMFS did not discuss its criteria and interpretation for ensuring the means of effecting the least practicable adverse impact on the stock. Consistent with these concerns, *the Commission once again recommends that NMFS defer issuance of a final rule to Hilcorp, Harvest, or any other applicant proposing to conduct sound-producing activities in Cook Inlet until NMFS has a reasonable basis for*

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<sup>153</sup> See, e.g., Letter from Rebecca J. Lent, Marine Mammal Commission to Jolie Harrison, National Marine Fisheries Service (Dec. 29, 2014) (regarding notice of intent to prepare programmatic EIS for issuance of incidental take authorizations in Cook Inlet); Letter from Rebecca J. Lent, Marine Mammal Commission to Jolie Harrison, National Marine Fisheries Service (Oct. 5, 2017) (regarding incidental take authorizations for 2018); Letter from Peter Thomas, Marine Mammal Commission, to Jolie Harrison, National Marine Fisheries Service (Mar. 29, 2018) (regarding application from Harvest Alaska LLC); Letter from Peter Thomas, Marine Mammal Commission, to Jolie Harrison, National Marine Fisheries Service (May 1, 2019) (regarding application from Hilcorp Alaska LLC); Letter from Peter Thomas, Marine Mammal Commission, to Jolie Harrison, National Marine Fisheries Service, (Aug. 5, 2019) (regarding application from Alaska Gasline Development Corporation); Letter from Peter Thomas, Marine Mammal Commission, to Jolie Harrison, National Marine Fisheries Service (Jan. 23, 2020) (regarding Port of Alaska's Petroleum and Cement Terminal).

<sup>154</sup> Citing to "the Commission's 21 October 2011, 9 January 2013, 31 January 2014, 4 April 2014, 9 May 2014, 14 September 2014, 13 April 2015, 20 April 2015, 24 July 2015, 12 January 2016, 7 March 2016, 28 March 2016, 13 July 2016, and 29 March 2018 letters."

*determining that authorizing any incidental harassment takes would not contribute to or exacerbate that decline.*<sup>155</sup>

Other marine scientists have revealed gaps in the current management scheme for Cook Inlet belugas, especially in the context of noise pollution. Current management regimes to avoid noise-based death, injury, and harassment to marine mammals fail to consider many facets of the belugas' plight. For example, on-ship lookouts for monitoring and mitigation are often very ineffective in the Inlet's turbid waters.<sup>156</sup> Current mitigation also fails to account for the biological costs of interrupting key behaviors and displacing belugas from important habitats.<sup>157</sup> The primary goal of mitigation has been to reduce the risk of direct physical injuries to belugas and other marine animals exposed to anthropogenic noise. Mitigation measures such as ramp-up or suspension of activities when animals are detected assume that animals can get away without being harmed.<sup>158</sup> But this assumption is unfounded. Displacement can be a source of significant harm (including injury or death), "particularly for small, resident populations that may have nowhere to go and for which the costs of leaving their habitat may be severe."<sup>159</sup> Both NMFS and industry representatives have pointed to the sustained presence of belugas near noisy activities in Cook Inlet as proof of their resilience to elevated noise levels. However, the mere fact that animals may remain in an area exposed to development does not prove they are not adversely impacted.<sup>160</sup> Because Cook Inlet belugas truly have nowhere else to go, their decision to remain in an area may likely reflect tolerance (i.e., persisting in an important area despite the cost) rather than habituation (i.e., remaining in an area by adaptively lowering the cost to remain).<sup>161</sup>

Scientists are also recognizing that the distances sound can move in water have been underestimated. While efforts on study and mitigation of close-range noise sources like pile driving and seismic surveys have been prevalent, myriad other sources of anthropogenic noise occur across the vast region of Cook Inlet.<sup>162</sup> Potential impacts at moderate ranges (10–100 km) have been ignored, even though sound travels efficiently at these distances.<sup>163</sup> Scientists also suspect that the intensity of loud noise in the Inlet is likely underreported due to technological constraints. Noises beyond the threshold for injury (level A takes) exceed the dynamic range of

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<sup>155</sup> Letter from Peter Thomas, Marine Mammal Commission (May 1, 2019), at 3 (emphasis added).

<sup>156</sup> See, e.g., Kendall et al. (2013); Castellote, M. (2019). Harvest's Cook Inlet Pipeline (CIPL) Extension Project Acoustic Monitoring, Final Report (April 2019) ("When concurrent acoustic and visual efforts were compared, all days with beluga whale sightings included acoustic detections except 3 (2.3 percent), while 28 days (21.3 percent) with beluga acoustic detections did not include visual sightings."). For many larger projects, NMFS does not require the entire harassment zone be visually monitored.

<sup>157</sup> Forney et al. (2017).

<sup>158</sup> *Id.*

<sup>159</sup> *Id.* at 403.

<sup>160</sup> Nowacek, D. P., Clark, C. W., Mann, D., Miller, P. J., Rosenbaum, H. C., Golden, J. S., Jasny, M., Kraska, J., & Southall, B. L. (2015). Marine seismic surveys and ocean noise: time for coordinated and prudent planning. *Frontiers in Ecology And the Environment*, 13(7), 378–386, at 379.

<sup>161</sup> *Id.*

<sup>162</sup> Castellote et al. (2018).

<sup>163</sup> Nowacek et al. (2015), at 379.



recording systems and as such are not tracked.<sup>164</sup> Furthermore, unidentifiable noises are common throughout the inlet and exceed beluga hearing thresholds at frequencies of 500 Hz and higher.<sup>165</sup>

As noted above, researchers are also finding that they have not been accurately estimating the capability of lookouts to monitor and detect marine animals. Species that respond to noise by avoiding an area are unlikely to be observed using traditional methods, such as via Protected Species Observers (PSOs) or Passive Acoustic Monitoring (PAM), because animals may react at these farther distances well beyond the potential detection range, meaning even strong reactions could remain unobserved and unrecorded.<sup>166</sup> The petroleum industry has admitted that “1 or 2 PSOs and/or PAMs cannot detect all marine mammals within a radius of 1 to 1.5 km around a seismic survey vessel.”<sup>167</sup> Even if scientists could consistently detect all beluga individuals within even a 500 m safety zone, this still focuses primarily on Level A takes (serious injury and mortality) and discounts the vast majority of Level B (harassment) takes.<sup>168</sup> Animals located far beyond this safety zone may also be experiencing severe physiological stress and behavioral disruption.<sup>169</sup>

Because of these uncertainties, along with the fact that the scope of potential harm to belugas at both the individual and population levels is “rarely considered explicitly” due to a lack of information on the consequences of disturbance,<sup>170</sup> researchers have recommended a pause on permitting until there is a better understanding of current trends of belugas’ vital rates, distribution, ranging patterns, population structure, body condition, and impacts.<sup>171</sup> Researchers also assert that the effects of elevated noise levels should be a more explicit component of environmental analyses and rulemakings; currently, noise effects may be vaguely or generally acknowledged but not substantively addressed.<sup>172</sup>

Scientists have similarly reported that “regulators are failing to meet their statutory obligations if the cumulative exposure to and potentially interacting influences of the full suite of anthropogenic activities occurring in the same region are being inadequately evaluated.”<sup>173</sup> Cook Inlet’s many sources of overlapping high-amplitude, manmade noises, especially in Knik Arm, require regulators to undertake cumulative impact analyses during the permitting process to fully address the problem.<sup>174</sup> Researchers have recommended instituting a cap, quota, or otherwise “fixed share system” each season, and cataloging all noise-producing activities in Cook Inlet beluga critical habitat, both to minimize and to understand better the cumulative impacts on the whales.<sup>175</sup> Scientists have also asserted that in the context of cumulative effects, precautionary

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<sup>164</sup> Castellote et al. (2018), at 65.

<sup>165</sup> *Id.* at 77–78.

<sup>166</sup> Forney et al. (2017), at 403.

<sup>167</sup> *Id.* at 397.

<sup>168</sup> Weilgart, L.S. (2014). *Are We Mitigating Underwater-Noise Producing Activities Adequately?: A Comparison of Level A and Level B Cetacean Takes*. (Vol. 7). International Whaling Commission Working Paper, SC/65b, at 14.

<sup>169</sup> *Id.*

<sup>170</sup> Forney et al. (2017), at 403.

<sup>171</sup> Nowacek et al. (2015), at 380.

<sup>172</sup> *Id.*

<sup>173</sup> *Id.* at 381.

<sup>174</sup> Castellote et al (2018), at 65.

<sup>175</sup> *Id.*

action is needed; regulators should not wait on definitive proof of impact or causation by stressors, but rather should focus on strengthening populations to be as robust as possible to multiple, cumulative stressors.<sup>176</sup>

## **VI. NMFS Continues to Authorize Take of Cook Inlet Belugas Without Adequate Analysis**

Even amid NMFS's own recognition of a broken system and expert warnings to proceed with extreme caution, NMFS continues to routinely authorize take of belugas for a range of activities in the Inlet using project-specific permitting and analyses under the MMPA, ESA, and NEPA. Despite the precarious state of Cook Inlet beluga whales and the exacting requirements of the relevant statutes and implementing regulations, Petitioners are not aware of any instance where NMFS has denied a take authorization request under the MMPA or concluded any take authorization would jeopardize Cook Inlet beluga whales or adversely modify their critical habitat under the ESA. Similarly, the agency's project-specific analyses under NEPA generally only include very cursory descriptions of projects in the action area under the guise of a cumulative impacts analysis, with little to no substantive analysis of impacts and implications for the belugas.

Concerned about the lack of progress on Recovery Action 62 (review the current system for allocation of takes), Migura and Bollini assessed the number and types of takes of Cook Inlet belugas effective after the publication of the Recovery Plan and on or before December 31, 2020.<sup>177</sup> As of the end of 2020, NMFS had already authorized a total of 371 incidental takes,<sup>178</sup> 118,671 research takes, and a cumulative total of 119,042 for the period 2017–2025.<sup>179</sup> Based on the status quo pattern, this number is likely to increase as NMFS authorizes more projects for 2022–2025.

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<sup>176</sup> Simmonds, M.P. (2018). *Marine Mammals and Multiple Stressors: Implications for Conservation and Policy*. *Marine Mammal Ecotoxicology* (pp. 459–470), Academic Press, at 468.

<sup>177</sup> Migura & Bollini (2021).

<sup>178</sup> The incidental take authorizations included, for example: Taking Marine Mammals Incidental to Implementation of a Test Pile Program in Anchorage, Alaska, 81 Fed. Reg. 15,048 (Mar. 21, 2016); Taking Marine Mammals Incidental to Seismic Surveys in Cook Inlet, Alaska, 81 Fed. Reg. 47,240 (July 20, 2016); Taking Marine Mammals Incidental to the Cook Inlet Pipeline Cross Inlet Extension Project, 83 Fed. Reg. 19,224, 19,224 (May 2, 2018); Taking Marine Mammals Incidental to Oil and Gas Activities in Cook Inlet, Alaska, 84 Fed. Reg. 37,442, 37,442 (July 31, 2019); Taking Marine Mammals Incidental to Alaska Fisheries Science Center Fisheries Research, 84 Fed. Reg. 46,788 (Sept. 5, 2019); Taking Marine Mammals Incidental to Construction of the Port of Alaska's Petroleum and Cement Terminal, Anchorage, Alaska, 85 Fed. Reg. 19,294, 19,294 (Apr. 6, 2020); Taking Marine Mammals Incidental to Alaska Liquefied Natural Gas (LNG) Project in Cook Inlet, 85 Fed. Reg. 50,720 (Aug. 17, 2020).

<sup>179</sup> Migura & Bollini (2021). This total excludes 26 takes issued to the Port of Alaska between April 1, 2016 and March 31, 2017, because it did not fit the methods used by Migura and Bollini (2021) to calculate annual take. The total also excludes (1) Furie's Offshore Oil & Gas Exploration Drilling in Kitchen Lights Unit, which authorized three takes from 2018–2021 but is listed as "Withdrawn and Inactive," and (2) oil and gas lease sale 244, which estimated 160–305 Cook Inlet beluga whales could be taken in the first five years of exploration but concluded the lease sale in and of itself would not result in take. *See* National Marine Fisheries Service (2017). Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion for Lease Sale 244, Cook Inlet, Alaska, 2017–2022. NMFS Consultation Number: AKR-2016-9580.

For the year 2020 alone, NMFS authorized 133 total incidental harassment takes from a population projected to number only 267 individuals (assuming the 2.3 percent declining trend continued beyond 2018). That is the equivalent of at least 50 percent of the population legally harassed in just one year. If you include authorizations to take belugas in association with directed research purposes (22,217), the cumulative total authorized for 2020 is 22,350 takes. This does not include all the unauthorized takes and various other stressors to which Cook Inlet beluga whales are exposed.<sup>180</sup> Nor does it reflect the multiple takes that could occur to an individual whale in a day from a specific project, which NMFS only considers a single take.

The Recovery Plan stated that in 2012, when an estimated 312 belugas remained, “over 2,700 takes were requested for research and development projects,” whereas Migura and Bollini (2021) documented over 22,000 takes (research plus incidental) authorized in 2020 when the population was estimated at 267 individuals (assuming continued 2.3 percent annual decline).<sup>181</sup> They found a negative correlation between total take authorized annually and estimated population size. Assuming the status quo patterns continue, total annual authorizations are anticipated to continue to increase while the population size continues to decrease. The cumulative effects associated with this increase in take authorizations is almost certainly a contributing factor to the Cook Inlet beluga whale population’s continued decline.<sup>182</sup>

The authors conclude that to promote the recovery of Cook Inlet beluga whales, NMFS must implement the Recovery Plan (in particular Recovery Action 62) and reassess the process for take authorization, including recommending measures that align with the requests in this petition: 1) establishing an annual maximum take level that changes with population size; 2) developing a comprehensive and publicly-accessible take tracking system for both authorizations and incurred takes; and 3) ensuring that takes issued for research have a clear connection to promoting recovery of Cook Inlet beluga whale recovery (as reflected in Recovery Action 45, which recommends refining research methods to minimize harm on beluga whales and limits research to only that which has a clear connection to their recovery).<sup>183</sup> Unfortunately, even well-intentioned research methods and activities can create unanticipated mortalities or harassment.<sup>184</sup> Research techniques must be included in any assessment of cumulative effects of stressors on belugas, should be tailored to induce the least adverse impact on the animals, and should be limited to exclude any action that is not directly related to advancing Cook Inlet beluga conservation and recovery.

With a population as small and fragile as that of the Cook Inlet beluga, every occurrence of take matters. Though any one authorization may appear insignificant when viewed in isolation, NMFS has never adequately addressed the totality of these aggregate authorizations and the compounding stressors they inflict on a critically endangered population. Finally, unauthorized takes of Cook Inlet belugas occur frequently but are not accounted for in NMFS’s

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<sup>180</sup> Migura & Bollini (2021).

<sup>181</sup> Migura & Bollini (2021); Recovery Plan, at VI-30.

<sup>182</sup> For example, in the U.S. Fish & Wildlife Service’s proposed rule to delist the grizzly bear, it stated “[w]e consider estimates of population trend (*i.e.*, ‘lambda’) to be the ultimate metric to assess cumulative impacts to the population.” 82 Fed. Reg. 30,502, 30,544 (June 30, 2017).

<sup>183</sup> Migura & Bollini (2021).

<sup>184</sup> Recovery Plan at page III-21.

authorization decisions. The impacts of wastewater and sewage outfalls, vessel traffic, and other anthropogenic sources of harm are not accounted for in NMFS's current regulatory regime.

## **VII. Requested Actions to Stop Cumulative and Synergistic Harm to Cook Inlet Belugas**

For all the reasons discussed above, NMFS must do more to address the cumulative impact of its Cook Inlet beluga whale take authorizations, reverse the decline of this critically endangered species, and help put the whale on the path to recovery.

***NMFS Must Prepare a Programmatic EIS Under NEPA.*** NMFS must complete a programmatic EIS for its directed (scientific research) and incidental take authorization system. In the five years since the agency published the Recovery Plan for Cook Inlet beluga whales, and the seven since it announced its intent to prepare an EIS, Cook Inlet belugas have only continued to decline while development in the Inlet has increased. It is evident from NMFS's own reports, the MMC's repeated refrain, and the best available science that the current management regime for authorizing take of belugas is broken. The take authorizations NMFS issues for Cook Inlet belugas pose individual, aggregate, and synergistic threats to a beluga population showing no signs of recovery. NMFS's system for authorizing takes in this geographically distinct region and for this unique, declining, ESA-listed species on the brink of extinction certainly *may* result in a significant impact to the environment and warrants a programmatic EIS comprehensively evaluating the direct, indirect, and cumulative impacts of NMFS's annual take authorizations for belugas, alternatives to its system of authorizing take, and a full suite of mitigation and reporting measures, including the data-tracking initiatives proposed by NMFS in its Recovery Plan.<sup>185</sup>

***NMFS Must Undertake Programmatic Consultation Under the ESA.*** For similar reasons counseling for a programmatic EIS, programmatic consultation on NMFS's system of issuing directed (scientific research) and incidental take authorizations for Cook Inlet belugas is warranted. A programmatic consultation would provide a better ecosystem-wide and species range-wide evaluation of the effects NMFS's issuance of take authorizations is having on this geographically limited and highly endangered Cook Inlet beluga whale population.

Along with evaluating the direct and indirect effects of take authorizations in the context of the existing status of Cook Inlet belugas, the environmental baseline (including from unauthorized take), and cumulative effects, the consultation should address how to monitor, report, and validate aggregate and additive effects of NMFS's take authorizations to ensure they

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<sup>185</sup> See Action 27, Recovery Plan at VI-16, which calls for a database to chart anthropogenic noise in the inlet. Such geospatial data would record information on anthropogenic noise, such as duration and specific acoustic characteristics of the activities. This will help NMFS understand Cook Inlet beluga exposure and response to anthropogenic noise and could allow invaluable cross-referencing with a stranding database and a take tracking system. Such an effort would also advance Action 56, which recommends conducting a temporal and spatial analysis of all types and sources of threats to Cook Inlet belugas, documenting times and areas where threats overlap, thereby enabling assessment of whether a correlation exists with Cook Inlet beluga abundance or distribution and the cumulative impacts of the many stressors confronting belugas. Recovery Plan, at VI-28. See also Action 62, Recovery Plan at VI-30, which notes that “[r]equiring more frequent reporting of takes and better tracking of take will better inform NMFS of how many takes are actually occurring, and will allow better take allocation in subsequent years.”

are not likely to jeopardize Cook Inlet beluga whales or adversely affect their designated critical habitat. The biological opinion should also require an annual review of the take system.

***NMFS Must Promulgate a Cap on Take of Cook Inlet Beluga Whales Using its ESA and MMPA Authorities.*** When the agency considers the continuing decline of Cook Inlet belugas, the ongoing degradation of their habitat, and the intensifying development pressure on- and off-shore, it should finally accept the recommendations of its own staff, the Marine Mammal Commission, and other scientists and establish a cap on take of beluga whales. The broad legal authority provided to NMFS under the ESA and MMPA not only allows, but as discussed *supra* specifically directs, the agency to affirmatively act to protect and recover critically endangered species like Cook Inlet beluga whales.

The cap on take must reflect the status of the population. Consequently, unless and until NMFS definitively determines a specific reason or reasons for the lack of recovery of this beluga population that can be adequately controlled, until the population's downward trend is reversed and Cook Inlet beluga whales are recovering, that cap must be set at zero authorized takes per year with limited exceptions for emergency and carefully-designed research and other activities with clear conservation benefits for the belugas and minimal potential harm to the population (i.e. abundance or stranding response aerial surveys, photo identification research, and non-invasive research on the impacts of pollution on Cook Inlet belugas).

***NMFS Must Increase Public Transparency of its Take System.*** The agency should create an online, publicly-accessible system that tracks all applications for Cook Inlet beluga whale take authorization, all issuances of take authorization, and all reported takes of Cook Inlet beluga whales, including documented unauthorized takes, and use this information to improve and update management decisions on a regular and timely basis. This is consistent with Recovery Action 62, which acknowledged that if the agency is going to monitor "how many allocated takes are actually used (as opposed to how many takes are granted), the process for reporting takes needs to be streamlined and expedited."<sup>186</sup>

## **VIII. Proposed Regulatory Language**

Although Petitioners are not legally required to submit proposed regulatory language, they do so here for the agency's convenience. Petitioners note, however, that irrespective of the extent to which NMFS chooses to adopt or reject some or all of this proposed regulatory language, the agency must conclude the petitioned action as stated *supra* in Section II at 2 within a reasonable time.

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<sup>186</sup> Recovery Plan at VI-30.

*Protective regulations for Cook Inlet Beluga Whales—*

*(a) Applicability.*

The following restrictions shall apply to the National Marine Fisheries Service’s system for processing applications for take authorizations and regulations for Cook Inlet beluga whales under the Marine Mammal Protection Act.

*(b) Establishing a Cap on Take*

(1) The Assistant Administrator is establishing an annual cap on take authorizations for Cook Inlet beluga whales. This cap applies to all applications for incidental harassment authorizations, incidental take regulations, and any other form of take authorization, including directed take for scientific research.

(2) The cap established in (1) shall be set at zero takes authorized per year for the next five years.

(3) The Assistant Administrator may approve limited exceptions to the take cap in (2) for (a) emergencies posing a threat to public and environmental health and safety, such as oil leaks or spills, (b) non-emergency projects that confer clear conservation benefits to Cook Inlet beluga whales and have undergone non-emergency review procedures as well and been endorsed by the Marine Mammal Commission; and (c) a limited number of research activities, provided that the applicant can demonstrate that the research is strictly tied to beluga conservation purposes and has a high likelihood of directly informing management decisions to promote the recovery of the population.

(4) The zero take authorization cap shall be automatically extended unless the Assistant Administrator has established that Cook Inlet beluga whales are recovering.

(5) This cap shall not apply to take authorizations issued for Cook Inlet beluga whales before the effective date of this regulation, but it will apply to any requests for extension or renewal.

*(c) Take Tracking System.* The Assistant Administrator shall develop a take tracking system that documents all applications for take authorization and all authorized and unauthorized takes of Cook Inlet beluga whales. The tracking system shall be updated quarterly to record the amount of take authorized and the amount of authorized and unauthorized take reported. This tracking system will be publicly available online. The results of the take tracking system will be integrated into annual take program reviews.

## **IX. Conclusion**

The best available science clearly demonstrates that cumulative and synergistic stressors are negatively impacting Cook Inlet beluga whales and are the likely reason for their failure to recover. Current management measures have proven inadequate to reverse the population’s distressing downward trend. Until NMFS understands more about Cook Inlet beluga whale decline and the population is on a clear recovery path, the agency must comport with its statutory duties and exercise its broad authority to better protect and recover belugas before they are gone.

To this end, NMFS must prepare a programmatic EIS and programmatic ESA consultation that rigorously evaluate and mitigate the cumulative effects of take authorizations on Cook Inlet beluga whales. Furthermore, NMFS must establish a cap on take authorizations for Cook Inlet beluga whales and set this cap at zero until such time as the programmatic NEPA and ESA evaluations are completed and belugas are recovering. Additionally, NMFS must create a transparent, routinely updated system to track applications for take as well as reported authorized and unauthorized take of belugas.

We look forward to a substantive response to this petition commensurate with the urgent status of the Cook Inlet beluga whale population and expect a response and initiation of rulemaking within six months. Any responses and all correspondence related to this petition should be directed to Julie Teel Simmonds, Senior Attorney, Center for Biological Diversity at the email and address provided below.

Respectfully submitted this 19<sup>th</sup> day of January 2022.

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<sup>187</sup> References will be submitted on a USB drive via UPS along with a hard copy of this Petition, and they are also available at the following link: <https://tinyurl.com/2cd5fb89>.



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