BEFORE THE U.S. SECRETARY OF COMMERCE

PETITION TO DESIGNATE THE SAKHALIN BAY-AMUR RIVER STOCK OF BELUGA WHALES (*DELPHINAPTERUS LEUCAS*) AS DEPLETED UNDER THE MARINE MAMMAL PROTECTION ACT

BY: ANIMAL WELFARE INSTITUTE, WHALE AND DOLPHIN CONSERVATION, CETACEAN SOCIETY INTERNATIONAL, AND EARTH ISLAND INSTITUTE

APRIL 23, 2014

NOTICE OF PETITION FOR STATUS REVIEW

Penny S. Pritzker, Secretary
U.S. DEPARTMENT OF COMMERCE
1401 Constitution Ave., NW
Washington, D.C. 20230

Donna S. Wieting, Director
Office of Protected Resources
U.S. NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, MD 20910

Dr. Rebecca Lent, Executive Director
U.S. MARINE MAMMAL COMMISSION
4340 East-West Highway, Suite 700
Bethesda, MD 20814

PETITIONERS

ANIMAL WELFARE INSTITUTE
900 Pennsylvania Ave., SE
Washington, D.C. 20003

Contact: Susan Millward, Executive Director
(202) 337-2332, or susan@awionline.org

WHALE AND DOLPHIN CONSERVATION
7 Nelson Street
Plymouth, MA 02360
1 (888) 699-4253

CETACEAN SOCIETY INTERNATIONAL
65 Redding Road
Georgetown, CT 06829-0953
(203) 770-8615

EARTH ISLAND INSTITUTE
International Marine Mammal Project
2150 Allston Way, Suite 460
Berkeley, CA 94704
(510) 859-9146

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I. INTRODUCTION

A. Purpose of this petition

Under § 1383b of the Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1361 et seq., the Animal Welfare Institute (AWI), Whale and Dolphin Conservation (WDC), Cetacean Society International, and Earth Island Institute hereby petition the Secretary of the U.S. Department of Commerce, through the U.S. National Marine Fisheries Service (NMFS), to designate Sakhalin Bay-Amur River beluga whales (*Delphinapterus leucas*) in the Sea of Okhotsk as a "depleted" stock. As described herein, the best scientific information available indicates that these beluga whales constitute a stock that is well below its optimum sustainable population (OSP) and, under the MMPA, qualify for such designation. The evidence also suggests that the stock continues to decline and faces a number of risk factors, providing additional impetus for such designation.

B. Petitioners

The Animal Welfare Institute (AWI) is an international nonprofit organization that, since its founding in 1951, has sought to alleviate the suffering inflicted on animals by people. AWI has worked for decades to safeguard marine species and their habitats. Whale and Dolphin Conservation (WDC) is an international nonprofit organization that is a leading global charity dedicated to the conservation and protection of cetaceans. WDC defends these remarkable creatures against the many threats they face through campaigns, lobbying, advising governments, conservation projects, field research, and rescue. Cetacean Society International is a nonprofit conservation, education, and research organization working on behalf of cetaceans and their marine environment. Earth Island Institute (EII) is a nonprofit, public interest, membership organization that supports projects that create solutions to protect our shared planet. EII's International Marine Mammal Project works globally to protect cetaceans and their habitat.

C. Congressional intent

Congress' "overriding purpose in enacting the MMPA was the protection of marine mammals."[1] The MMPA recognizes that marine mammals are resources of "great international significance, esthetic and recreational as well as economic."[2] Accordingly, Congress indicated that marine mammals "should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective of their management should be to maintain the health and stability of the marine

[1] Balelo v. Baldridge, 724 F.2d 753, 756 (9th Cir. 1984).
[2] 16 U.S.C. § 1361(6).

ecosystem."[3] Congress also found that "species and population stocks [of marine mammals] should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part."[4] Consistent with this goal, the MMPA provides that marine mammal species and stocks "should not be permitted to diminish below their optimum sustainable populations."[5]

II. NMFS RESPONSIBILITIES

A. MMPA depleted petition response process

NMFS has jurisdiction over this petition under the MMPA. The MMPA authorizes the NMFS to designate as depleted any marine mammal species or stock that, "after consultation with the Marine Mammal Commission and the Committee of Scientific Advisors on Marine Mammals[, the Secretary] determines [is] below its optimum sustainable population."[6]

The MMPA provides that NMFS "shall make any [depleted] determination . . . ***solely*** on the basis of the best scientific information available."[7] In addition, NMFS is to implement the MMPA based on the precautionary principle, which requires a "conservative bias" in favor of marine mammals.[8] In other words, NMFS must interpret and apply the MMPA for the benefit of marine mammals, "not for the benefit of commercial exploitation."[9]

Submission of this petition sets in motion a specific process that NMFS must follow. Specifically, under § 1383b(a)(3)(A) of the MMPA:

- NMFS must promptly publish a notice in the Federal Register that it has received the petition and that it is available for public review.
- Within 60 days after receipt of the petition, NMFS must publish a finding in the Federal Register "as to whether the petition presents substantial information indicating that the petitioned action may be warranted."[10]
- If NMFS makes a positive 60-day finding, then it must promptly initiate a review of the status of the subject marine mammal stock.
- If the status review supports the petitioned action, then—no later than 210 days after receipt of the petition—NMFS must publish in the Federal Register and solicit comments on "a proposed rule as to the status of the . . . stock, along with the reasons underlying the proposed status determination."[11]

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[3] *Id*.
[4] *Id*. at § 1361(2).
[5] *Id*.
[6] 16 U.S.C. § 1362(1)(A).
[7] *Id*. at § 1383b(2) (emphasis added).
[8] H.R. REP. NO. 92-707, at 24 (1971).
[9] *Id*. at 22.
[10] 16 U.S.C. § 1383b(a)(3)(B).
[11] *Id*. at § 1383b(a)(3)(D).

- No later than 90 days after the close of the (60 day) comment period on the proposed rule,[12] NMFS "shall issue a final rule on the status of the . . . stock involved, along with the reasons for the status determination."

B. NMFS's management authority for stocks in foreign waters

On August 5, 2013, NMFS denied an application for an MMPA permit by Georgia Aquarium, Inc. to import to the United States 18 beluga whales originally captured from the Sakhalin Bay-Amur River stock of beluga whales off the coast of Russia.[13] In its decision memorandum, NMFS stated that "if [it] were to make a [depleted] determination for this stock, the information [the agency] has suggests it would be considered depleted."[14] NMFS stated, however, that because it "does not manage the beluga stocks in the Sea of Okhotsk . . . a designation of 'depleted' would not be made by NMFS."[15] As discussed below, NMFS's suggestion that it lacks authority under the MMPA to designate as depleted a foreign stock of marine mammals that it does not directly manage, thereby triggering the MMPA's import prohibition, is contrary to the plain meaning of the MMPA, its implementing regulations, its legislative history, case law, and the precedent set by previous MMPA depleted designations.

1. The plain language of the MMPA

The plain language of the MMPA states that "[e]xcept pursuant to a permit for scientific research, or for enhancing the survival or recovery of a species or stock . . . it is unlawful *to import* into the United States *any* marine mammal if such mammal was . . . taken from a species or population stock which the *Secretary has . . . designated* as a depleted species or stock."[16] As stated above, a depleted stock means "*any* case in which . . . *the Secretary . . . determines* that a species or population stock is below its [OSP]."[17] These provisions do not limit the designation of stocks as depleted or the application of the MMPA's import prohibition to domestic stocks that NMFS manages directly. Likewise, nothing in the MMPA's implementing regulations prohibits NMFS from making depleted designations for foreign species or stocks.[18]

Interpreting the MMPA as not providing NMFS authority to designate as depleted stocks of marine mammals occurring in waters outside of U.S. jurisdiction would render meaningless the MMPA's prohibition on importing members of a depleted stock and make it a "dead letter," contrary to a fundamental principle of statutory construction.[19] The ordinary meaning of "importing" a member of a marine mammal stock to the United States involves importing an animal taken or to be taken from a species or population stock that occurs outside U.S. jurisdictional waters. Consistent with this plain meaning, the MMPA's implementing

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[12] *Id*. at § 1383b(a)(3)(E).
[13] NMFS, *Denial Letter & Decision Mem.* (Aug. 5, 2013), http://www.nmfs.noaa.gov/pr/permits/sci_res_pdfs/17324_denial_letter_final.pdf.
[14] *Id*. at 12.
[15] *Id*.
[16] 16 U.S.C. § 1374(b)(3) (emphases added).
[17] *Id*. at § 1361(2)(1)(A) (emphases added).
[18] *See generally* 50 C.F.R. pt. 216.
[19] *See, e.g.*, Sprietsma v. Mercury Marine, 537 U.S. 51, 63 (2003) (basic principle of statutory construction is that statutes should be construed "so as to avoid rendering superfluous" any statutory language).

regulations define "import" to mean "bring into . . . or attempt to . . . bring into . . . any place subject to jurisdiction of the United States."[20]

Further, under the plain language of the MMPA, "a species or population stock [that] is listed as an endangered species or a threatened species under the Endangered Species Act [ESA],"[21] 16 U.S.C. § 1531 et seq., "automatically becomes designated as depleted under the MMPA."[22] Consistent with the plain language of this provision, there are several marine mammal species and population stocks that do not occur in U.S. jurisdictional waters, and hence are not managed by NMFS, that are nonetheless designated as depleted as a result of their listing as endangered or threatened species under the ESA.[23] Other foreign species, regulated by the U.S. Fish and Wildlife Service (FWS), that qualify as depleted under the MMPA due to an ESA listing action include the Southern sea otter, the Southwest Alaska Distinct Population Segment of the Northern sea otter, West Indian manatee, and the polar bear. The polar bear ESA listing, for example, included stocks in Canada, Russia, and other countries that are not under the direct management authority of FWS, yet these are depleted stocks under the MMPA.[24]

2. Legislative history and depleted designation precedent

In addition to its plain language, the legislative history of the MMPA confirms that Congress unambiguously intended NMFS to designate as depleted in appropriate circumstances foreign stocks of marine mammals that it does not directly manage as an effective conservation tool. The D.C. Circuit has stated that:

> Congress, in enacting the MMPA, established as a matter of law the requisite causal relationship between American importing practices and [foreign countries' marine mammal] practices. The MMPA addresses not only the killing of marine mammals by Americans *but also the importation of them*. This reflects a congressional decision that denial of import privileges *is* an effective method of protecting marine mammals in other parts of the world. This conclusion is supported by the legislative history.[25]

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[20] 50 C.F.R. § 216.3.
[21] 16 U.S.C. § 1362(1)(C).
[22] Safari Club Int'l v. Jewell, 720 F.3d 354, 362 (D.C. Cir. 2013).
[23] The foreign marine mammal species listed under the ESA that are not directly managed by NMFS include the Chinese river dolphin, Indus river dolphin, vaquita, Southern right whale, Guadalupe fur seal, Baltic ringed seal, Okhotsk ringed seal, Ladoga ringed seal, Mediterranean monk seal, Saimaa seal, and a distinct population segment of the Southern spotted seal.
[24] *See Safari Club*, 720 F.3d at 361 (holding that "importation of sport-hunted polar bear trophies from Canada . . . is not an authorized exception [to the MMPA's moratorium] where depleted marine mammals are concerned").
[25] Animal Welfare Inst. v. Kreps, 561 F.2d 1002, 1009 (D.C. Cir. 1977) (emphasis added) (citing S. REP. NO. 92-863 (1972)). The Senate committee considering adoption of the MMPA stated that:

> Adoption of [the MMPA] will place the United States in a position of world leadership in protection and conservation of marine mammals. The committee wishes to emphasize the need for international cooperation. Moreover, with sealing in the Antarctic a pending reality, even further communication and cooperation are needed between nations to prevent an increased slaughter of these animals for commercial purposes without a complete understanding of the population dynamics of those animals in that part of the world. It is believed that this legislation

Further, the history of MMPA depleted designations reveals that NMFS has exercised its depleted designation authority over foreign marine mammal species or population stocks that it does not manage directly. For example, in 1993, NMFS designated the eastern spinner dolphin (*Stenella longirostris orientalis*) as depleted under the MMPA.[26] Although this subspecies may occur in U.S. waters, it is not legally considered to fall under the jurisdiction of the United States. In the final rule designating this subspecies as depleted, the geographic definition of the subspecies' range did not include U.S. jurisdictional waters,[27] with the "core range" of the subspecies described as "near the coast of Mexico and Central America, extending about 1,000 [kilometers] offshore."[28] In addition, although the MMPA requires the preparation of stock assessments for "each marine mammal stock which occurs in waters under the jurisdiction of the United States,"[29] NMFS has not prepared a stock assessment for the eastern spinner dolphin, indicating that it considers this a wholly foreign subspecies.[30] Indeed, on NMFS's map documenting the distribution of spinner dolphins, there is no subspecies or stock designated as ranging into the waters of the Pacific Ocean under the jurisdiction of the United States; the spinner dolphin that occurs in U.S. waters of the Atlantic Ocean is *Stenella longirostris*.[31] Thus, NMFS designated the eastern spinner dolphin stock as depleted under the MMPA, notwithstanding the fact that the agency has treated the stock as a foreign stock.[32] Likewise, NMFS has also treated the northeastern stock of offshore spotted dolphins, designated as depleted in 1993, as a foreign stock.[33]

3. The benefits and limited burden of a depleted designation

The Russian Federation's management authority, the Federal Agency for Fishery, has direct responsibility for managing the Sakhalin Bay-Amur River beluga whale stock. Nonetheless, the broad intent of the MMPA is to protect marine mammals, to maintain the health

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> can provide a start to assure that future generations will be able to enjoy a world population by all species of marine mammals.

S. REP. NO. 92-863, at 11.

[26] 50 C.F.R. § 216.15(e).

[27] Final Rule Designating Eastern Spinner Dolphin as Depleted, 58 Fed. Reg. 45,066, 45,066 (Aug. 26, 1993) (defining range of subspecies as "a large triangular region, with the northern point of the triangle off the coast of Baja California . . . , the southern point just south of the equator off the coast of Peru, and the offshore point at about 12 degrees N. lat., 135 degrees W. long").

[28] *Id.* at 45,066.

[29] 16 U.S.C. § 1386(a).

[30] Conversely, NMFS has prepared stock assessments for other spinner dolphin subspecies or population stocks that are located in U.S. waters, including the American Samoa stock, the Hawaiian Islands stock complex, the Northern Gulf of Mexico stock, and the Western Atlantic stock. *See Marine Mammal Stock Assessment Reps. by Species/Stock*, NMFS (Jan. 22, 2014), http://www.nmfs.noaa.gov/pr/sars/species.htm.

[31] *See Spinner Dolphin Range*, NMFS (last visited Jan. 22, 2014), http://www.nmfs.noaa.gov/pr/pdfs/rangemaps/spinnerdolphin.pdf.

[32] Notably, just as NMFS identified the U.S. tuna industry as a threat to the eastern spinner dolphin in its decision designating the stock as depleted, *see* 58 Fed. Reg. 58,285, 58,296, 58,289 (Nov. 1, 1993), the U.S. aquaria industry is a threat to the Sakhalin Bay-Amur River stock of beluga whales given its interest in importing beluga whales captured from this stock for public display.

[33] Final Rule Designating Northeastern Offshore Spotted Dolphin as Depleted, 58 Fed. Reg. 58,285, 58,296 (Nov. 1, 1993).

and stability of marine ecosystems, and to prevent marine mammals from declining below their OSP. Among other things, a designation by NMFS of any marine mammal species or population stock as depleted triggers the MMPA's import prohibition, thereby providing a powerful tool to accomplish these objectives. In addition, NMFS's designation of the Sakhalin Bay-Amur River stock as depleted would: (1) signify U.S. government concern regarding the stock's status; (2) facilitate efforts by NMFS to prevent those persons under the jurisdiction of the United States from contributing to further decline of the stock; (3) raise the profile of the remote Sea of Okhotsk stocks globally; and (4) promote increased efforts and funding by U.S., Russian, and other international entities, such as the International Whaling Commission (IWC) and the International Union for Conservation of Nature's (IUCN) Cetacean Specialist Group, to study and protect this stock of beluga whales and its habitat.

Finally, designation of this stock as depleted does not impose an unmanageable burden on NMFS. Although the MMPA requires NMFS to prepare conservation plans for species designated as depleted under the MMPA, the Act provides flexibility in that it does not require preparation of such plans where NMFS "determines that it will not promote the conservation of the species or stock."[34] Thus, if NMFS designated the Sakhalin Bay-Amur River beluga whales as depleted, it could decide, as it has decided in other cases, that preparation of a conservation plan is not appropriate for a foreign species that NMFS does not directly manage.[35] Likewise, as noted above for the eastern spinner dolphin and northeastern offshore spotted dolphin, the MMPA requires the preparation of stock assessments only for those stocks that occurs in waters under the jurisdiction of the United States.[36]

Therefore, unquestionably, based on the plain meaning of the MMPA, its implementing regulations, its legislative history, case law, and the precedent set by past MMPA depleted designations, NMFS has authority to designate as depleted the Sakhalin Bay-Amur River stock of beluga whales—a foreign stock of marine mammals that it does not directly manage. Such a designation would trigger the MMPA's import prohibition, an important tool designed by Congress to promote marine mammal conservation.

III. SPECIES DESCRIPTION

A. Nomenclature

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[34] 16 U.S.C. § 1383b(b)(C).

[35] For example, in the final rule designating the eastern spinner dolphin as depleted, NMFS stated that:

> In summary, U.S. and international efforts to reduce dolphin mortality in the purse-seine fishery for tuna, and promote dolphin conservation, have been, or are being, implemented. These protective measures are considered adequate to protect the species from further declines within the foreseeable future, and NMFS therefore determines that a conservation plan would not further promote the conservation of the species. As a result, NMFS does not plan to prepare a conservation plan at this time.

58 Fed. Reg. at 45,070; *accord* 58 Fed. Reg. at 58,296 ("NMFS does not plan to develop a conservation plan for the northeastern spotted dolphin stock at this time because it would not further promote the conservation of the species.").

[36] 16 U.S.C. § 1386(a).

The word "beluga" comes from the Russian word "beloye," meaning "white."[37] Beluga whales are also known as "white whales."[38] The Latin name for the beluga whale, *Delphinapterus leucas*, means "white dolphin without a wing,"[39] a reference to the species' lack of a dorsal fin.

B. Taxonomy

Beluga whales are one of two living species of the family Monodontidae, the other being the narwhal.[40] The family name "Monodontidae" comes from Greek words meaning "one" and "tooth," but beluga whales generally have eight or nine pairs of "peg-like teeth in each jaw."[41] Beluga whales are sometimes confused with narwhals, but "the blotchy grey color of narwhals, and the tusks of males of this species, should permit proper identification in most situations."[42] Both monodontids are still hunted for their meat and other parts including their skin, which is considered a delicacy in Arctic communities.[43]

C. Size, morphology, and coloration

Beluga whales can grow to be 5.5 m (18 feet) in length and a weight of 1500 kg (3,300 pounds).[44] Their maximum estimated age is approximately sixty years.[45] Their coloration is one of the many physical characteristics that distinguish them from other cetaceans, including narwhals. Young beluga whales are born a grey-cream color, which then changes to dark brown or blue-grey.[46] They lighten as they age, eventually becoming completely white, except for "dark pigment on the dorsal ridge and along the edges of the flukes and flippers."[47] The white color, which so distinguishes these whales, is reached in females at about seven years and in males at about nine years.[48] Each summer, beluga whales undergo a molting process at which point their white color is "regenerated."[49] Their white color may be an adaptation to life in the Arctic that allows them to blend into their environment, camouflaging them from polar bears and killer whales, their major predators.[50]

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[37] Gregory M. O'Corry-Crowe, *Beluga Whale (Delphinapterus leucas)*, *in* ENCYCLOPEDIA OF MARINE MAMMALS 108 (2d ed. 2008).
[38] Boris Culik, *Odontocetes, The Toothed Whales: "Delphinapterus leucas"* (U.N. ENVT. PROGRAMME/CONVENTION ON MIGRATORY SPECIES, 2010); Randall R. Reeves, et al., *Beluga*, *in* GUIDE TO MARINE MAMMALS OF THE WORLD 318 (1st ed. 2002).
[39] *See, e.g.*, THE N. ATLANTIC MARINE MAMMAL COMM'N, *Beluga – White Whale* (last visited Feb. 7, 2014).
[40] Reeves et al., *supra* note 38, at 316.
[41] *Id*.
[42] Thomas A. Jefferson et al., *Delphinapterus leucas*, *in* MARINE MAMMALS OF THE WORLD 76, 77 (1993).
[43] Reeves et al., *supra* note 38, at 317.
[44] O'Corry-Crowe, supra note 37, at 108.
[45] *See* R.E.A. Stewart et al., *Bomb Radiocarbon Dating Calibrates Beluga (Delphinapterus leucas) Age Estimates*, 84 CANADIAN J. OF ZOOLOGY 1840, 1840 (2007).
[46] Culik, *supra* note 38.
[47] Reeves et al., *supra* note 38.
[48] Culik, *supra* note 38.
[49] Whitney R. Friedman, *Envtl. Adaptations of the Beluga Whale* (*Delphinapterus leucas*), 143 COGNITIVE SCIENCE 1, 3 (2006).
[50] *Id*.

Beluga whales have a fat layer that "extends over much of their body except for their head."[51] The layer can be up to 15 cm thick and may account for up to 40 percent of their body weight.[52] The fat acts as insulation, which is important considering a beluga whale's habitat may include waters varying from 0 to 18 degrees Celsius.[53] Unusual among cetaceans, beluga whales have seven unfused cervical vertebrae. This feature contributes to the marked mobility of their necks, which, in turn, enhances their visual signaling, assists in "pursuit of prey and predator evasion," and aids in maneuverability.[54] All other cetaceans except rorquals, some river dolphins, and the narwhal have fused neck vertebrae.[55] Beluga whales lack a dorsal fin, but instead have a tough dorsal ridge, which the whales use to break through ice up to 8 cm thick.[56] The lack of a dorsal fin is an important adaptation, given that "satellite tracking has indicated belugas moving up to 700 km into areas in which ice coverage exceeds 90% of the surface."[57]

Finally, beluga whales have a protruding, "bulbous" forehead, which is created by the organ known as the "melon."[58] They can alter the shape of their melons, presumably by moving air through various sinuses or using peripheral muscles.[59] The melon is used in sound production[60] and, by changing the shape of its melon, a beluga can create "a more focused and variable sonar output."[61]

D. Distribution, movements, and habitat

The beluga whale is a circumpolar species found in the cold waters of the northern hemisphere, specifically the coastal waters of Canada, Alaska, Russia, Norway, and Greenland.[62] Although some beluga whales remain in the same general area year-round,[63] others are known to migrate seasonally;[64] the movements of these latter beluga whales often coincide with the forming and drifting of sea ice.[65] These migrating beluga whales spend the winter months in shallow or coastal areas with light or highly mobile ice cover, with some populations described as "Arctic populations or Sub-Arctic populations."[66] In the summer months, the whales are typically found congregating in shallow, warm water, but are occasionally found in deeper

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[51] *Id.*
[52] *Id.*
[53] *Id.*
[54] *Id.*; Reeves et al., *supra* note 38, at 318.
[55] Friedman, *supra* note 49, at 3.
[56] *Id.*
[57] *Id.* at 2.
[58] Reeves et al., *supra* note 38, at 318.
[59] *Id.*; Friedman, *supra* note 49, at 3, 4.
[60] O'Corry-Crowe, supra note 37, at 120.
[61] Friedman, *supra* note 49, at 3, 4.
[62] *Id.*; *see also* I. G. Meschersky et al., *Molecular Genetic Study of the Beluga* (*Delphinapterus leucas*: *Cetacea, Monodontidea*) *Summering in the Southern Sea of Okhotsk as Compared to North American Populations*, 44 RUSSIAN J. OF GENETICS 1105, 1105 (2008).
[63] INT'L UNION FOR CONSERVATION OF NATURE, *Delphinapterus leucas (Beluga, White Whale)* (last visited Feb. 7, 2014), http://www.iucnredlist.org/details/6335/0.
[64] Olga V. Shpak et al., *Seasonal Migrations of Sea of Okhotsk Beluga Whales* (*Delphinapterus leucas*) *of the Sakhalin-Amur Summer Aggregation*, 36 RUSSIAN J. MARINE BIOLOGY 56, 58 (2010).
[65] *Id.* at 58.
[66] IUCN, supra note 63.

offshore waters and may enter estuaries and move upstream into rivers.[67] Beluga whales "exhibit a high degree of philopatry, or fidelity to a site, and individuals (females in particular) tend to return, year after year, to feed in the estuary visited by their mother in the year of their birth."[68]

E. Swimming, diving, and diet

Beluga whales generally swim an average of 6–9 kilometers per hour.[69] They are known to be capable of deep dives.[70] Their normal deep dives can last 12–20 minutes, although 25–minute dives have been recorded.[71] Their dives can reach depths of 800 meters.[72] Such dives are used to obtain prey. The beluga whale diet varies depending on location and season,[73] and includes a wide variety of fish, cephalopods such as squid and octopi, crustaceans, marine worms, and large zooplankton.[74]

F. Social structure and behavior, and sound production

Beluga whales are extremely social animals.[75] Although the population structure of beluga whales is not completely understood,[76] they live in close-knit pods that often are segregated by age and sex.[77] A pod usually consists of fifteen or fewer whales, but aggregations of hundreds to thousands have been observed.[78]

Beluga whales use sound for a variety of purposes. They are considered the most voluble of all cetaceans and are referred to as "canaries of the sea" because of their rich vocal repertoire.[79] They "can propagate at least fifty different identifiable calls" of tonal and pulsed nature, which they use in various social situations.[80] "[O]n the whole, variable tonal signals and the greater part of the pulsed-tonal signals are used for short-range communication, while stereotypical tonal signals [are used] for long-range communication."[81]

G. Reproduction

Beluga whales are presumed to mate in the spring,[82] and their gestation period is thought to be 14 to 14.5 months.[83] They "have complex parental behavior and long periods of contact

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[67] Shpak et al., *supra* note 64; IUCN, supra note 63.
[68] Reeves et al., *supra* note 38, at 319.
[69] Jefferson et al., *supra* note 42; Friedman, *supra* note 49, at 2.
[70] Reeves et al., *supra* note 38, at 317.
[71] Friedman, *supra* note 49, at 2.
[72] IUCN, supra note 63.
[73] Culik, *supra* note 38.
[74] IUCN, supra note 63; Reeves et al., *supra* note 38, at 321.
[75] Reeves et al., *supra* note 38, at 320.
[76] Shpak et al., supra note 64.
[77] Reeves et al., *supra* note 38, at 320; Culik, *supra* note 38.
[78] Culik, *supra* note 38; Friedman, *supra* note 49, at 1, 2.
[79] Friedman, *supra* note 49, at 2; E. M. Panova et al., *The Relationship Between the Behavioral Activity and the Underwater Vocalization of the Beluga Whale (Delphinapterus leucas*), 52 OCEANOLOGY 79, 79 (2012).
[80] Panova et al., supra note 79; Friedman, *supra* note 49, at 2.
[81] Panova et al., supra note 79, at 86.
[82] Shpak et al., supra note 64.

between a mother and child."[84] Beluga young are nursed for at least two years, but the close contact between mother and offspring continues past that point, possibly for a considerable period.[85] The calving interval for beluga whales averages three years.[86]

IV. THE SAKHALIN BAY-AMUR RIVER BELUGA WHALES COMPRISE A STOCK

In evaluating this petition, NMFS must address two major questions. The first, addressed in this part of the petition, is whether the beluga whales in the Sakhalin Bay-Amur River area comprise a manageable stock under the MMPA. Genetic and satellite tag tracking data indicate the existence of at least two distinct beluga whale populations in the Sea of Okhotsk: one in the northeastern region and the other in the western region.[87] *See* Fig. 1. In addition, as discussed below, the best available scientific evidence suggests that beluga whales in the western region of the Sea of Okhotsk comprise, and should be managed as, more than one stock.

The MMPA defines a "population stock" and "stock" to mean a "group of marine mammals of the same species or smaller taxa in common spatial arrangement, that interbreed when mature."[88] Separate stocks of the same species may interbreed, but this is possible only if their ranges overlap during the breeding season for the species. There are a variety of ways to define the boundaries of a marine mammal stock. The stock structure of beluga whales has been defined based on the consideration of "distribution and migration patterns, morphology, contaminants, population trends, and genetics."[89]

For beluga whales in the western region of the Sea of Okhotsk, evidence of distinct matrilineal lines, separate summer birthing and feeding distributions, and high site fidelity, all indicate that this region supports more than one stock of beluga whales. Shpak et al. (2010) recognized two aggregations in this region: "(1) in the area of Amur Firth and Sakhalin Bay (Sakhalin-Amur aggregation) [and] (2) in the bays of the Shantar Sea (i.e., Tugursky, Udskaya, Nikolaya, and Ulbansky Bays) (Shantar aggregation)."[90] *See* Fig. 1. In a separate assessment, the IUCN also recognized (as its preferred hypothesis) the existence of a distinct Sakhalin Bay-Amur River stock.[91] Similarly, in 1999, the International Whaling Commission Scientific Committee recognized the Sakhalin Bay-Amur River beluga whales as a separate stock.[92] Furthermore, in 2013, the IWC Scientific Committee recommended separate management of at

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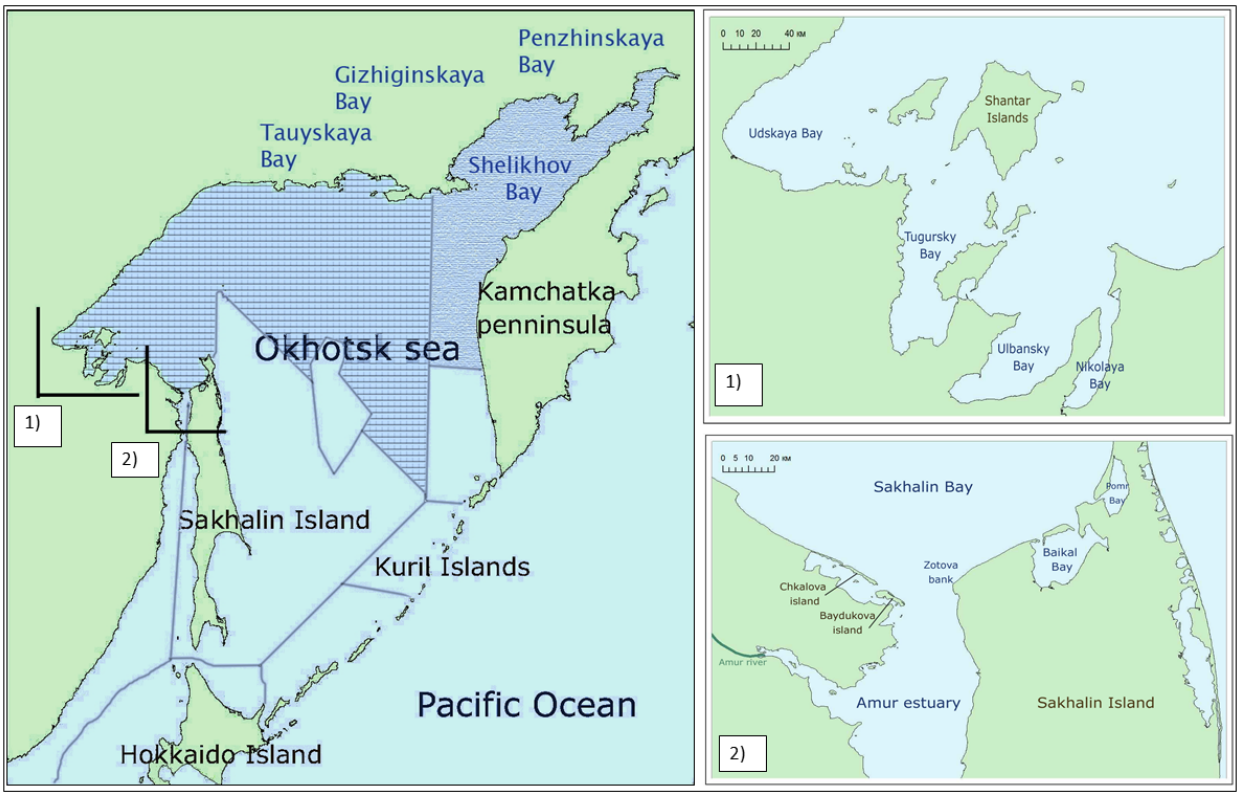
[83] O'Corry-Crowe, supra note 37, at 111.
[84] V. M. Bel'kovitch & M. N. Sh'ekotov, *The Belukha Whale: Natural Behavior and Bioacoustics* 84 (J. Christopher Haney & Cheri Recchia eds., Marina A. Svanidze trans., WOODS HOLE OCEANOGRAPHIC INST. 1993).
[85] Reeves et al., *supra* note 38, at 321; Bel'kovitch & Sh'ekotov, *supra* note 84, at 84.
[86] Reeves et al., *supra* note 38, at 321.
[87] Olga V. Shpak & Dmitri Glazov, *Review of the Recent Scientific Data on the Okhotsk Sea White Whale (Delphinapterus leucas) Population Structure and Its Application to Management*, J. CETACEAN RES. MGMT, INT'L WHALING COMM'N SCI. COMM. 65th Annual Mtg. 2013, at 3.
[88] 16 U.S.C. § 1362(11).
[89] Gregory M. O'Corry-Crowe & L.F. Lowry, *A Review of the Status and Stock Structure of Beluga Whales,* Delphinapterus leucas, INT'L WHALING COMM'N SCI. COMM. 51st Annual Mtg. 1999, at 2.
[90] Shpak et al., *supra* note 64, at 56; *accord* Shpak & Glazov, *supra* note 87, at 3.
[91] Randall R. Reeves et al. *Sustainability Assessment of Beluga (*Delphinapterus leucas*) Live-capture Removals in the Sakhalin-Amur Region, Okhotsk Sea, Russia* 3–4, 11–12 (Occasional Paper of the IUCN Species Survival Comm'n No. 44 2011).
[92] INT'L WHALING COMM'N, REP. OF THE 1999 SCIENTIFIC COMM. ANNUAL MTG. 41 (2000) [hereinafter 1999 IWC SCIENTIFIC COMM. REP.].

least four aggregations of beluga whales in the western region (i.e., Sakhalin Bay-Amur River, Tugursky Bay, Ulbansky Bay, and Udskaya Bay).[93] The IWC Scientific Committee did so based on more recent genetic data (nuclear and mitochondrial) and evidence of the pronounced philopatry of Sakhalin Bay-Amur River and Shantar beluga whale stocks.[94]

Figure 1. The Sea of Okhotsk, with: (1) Shantar area, and (2) Sakhalin Bay-Amur River area. Fishing subzone borders are marked with blue lines, while darker, shaded textures indicate subzone areas in the northeastern and western regions of the Sea of Okhotsk.[95]



Genetic information provides the strongest evidence of stock separation in the western Okhotsk region. In this case, the best genetic data available indicates a distinction between the Sakhalin Bay-Amur River beluga whales and the beluga whales occupying the western bays in the Shantar Sea.[96] Meschersky et al. (2013) found that "[s]ets of maternal lines (mtDNA) in each of the studied summer aggregations [including the Shantar and Sakhalin-Amur summer

[93] INT'L WHALING COMM'N, REP. OF THE 2013 SCIENTIFIC COMM. ANNUAL MTG. 63 (2013) [hereinafter 2013 IWC SCIENTIFIC COMM. REP.].
[94] *See id.*; *see also* INT'L WHALING COMM'N, *2013 Rep. of the Subcomm. on Small Cetaceans*, *in* REP. OF THE 2013 SCIENTIFIC COMM. ANNUAL MTG. Annex L, at 8–9 (2013) [hereinafter *2013 IWC Small Cetacean Subcomm. Rep.*]; Olga V. Shpak et al., *Current Status of the Sakhalin-Amur Beluga Aggregation (the Okhotsk Sea, Russia): Sustainability Assessment, Rep. for 2007–2010 Stages: Results of 4 Years of Study and Preliminary Conclusions* (IUCN Independent Sci. Review Panel, Working Paper, March 2011); Reeves et al., *supra* note 91, at 1–4.
[95] Shpak & Glazov, *supra* note 87, at 2.
[96] *See* I. G. Meschersky et al., *A Genetic Analysis of the Beluga Whale* Delphinapterus leucas *(Cetacea: Monodontidae) from Summer Aggregations in the Russian Far East*, 39 RUSSIAN J. OF MARINE BIO. 125, 128–31, 134 (2013).

aggregation] differ . . . from one another . . . with a high statistical significance," and concluded that "[t]his fact proves the extremely high level of philopatry to the grounds of summer aggregations, that is expressed by beluga whales of the North Pacific."[97] The data, however, are not sufficient to test for a genetic distinction between the Sakhalin Bay-Amur River beluga whales and the beluga whales in the southeastern Shantar region.[98] Notably, Meschersky et al. (2013) also found that the Sakalin Bay-Amur River stock "features the highest level of haplotypic diversity, both among samples [from the four summer aggregations in the western Okhotsk region] and among those from all over the North Pacific."[99]

In addition, distribution and movement patterns of the Sakhalin Bay-Amur River beluga whales are consistent with stock separation. Beluga whales in this stock stay in or near areas of high-density sea ice for much of the winter and rarely move to areas of open water.[100] Compared to other population stocks, "beluga whales in Sakhalin Bay are characterized by a high degree of isolation from the groups inhabiting adjacent areas of the Pacific Ocean in the summer, which demonstrates their pronounced philopatry."[101]

The foregoing evidence supports the IUCN's preferred geographic boundary for the Sakhalin Bay-Amur River stock, which includes Sakhalinsky Bay (including Zotov Bank and Baikal Bay) and the Amur Estuary and River.[102] *See* Figs. 1 & 2.

Moreover, the U.S. Marine Mammal Commission (MMC) recently advised NMFS to treat the "Sakhalin-Amur summer aggregation" as a separate stock for the purposes of the MMPA, advising NMFS that such treatment is:

> more precautionary and, in the Commission's view, preferred, because it is more likely to reduce the risks to the ecosystem by ensuring that no summering aggregation (and whatever genetic differentiation it may represent) is lost.[103]

That is, the loss of this group of beluga whales likely would diminish the health and stability of the Sakhalin Bay-Amur River marine ecosystem. In cases of such uncertainty, the

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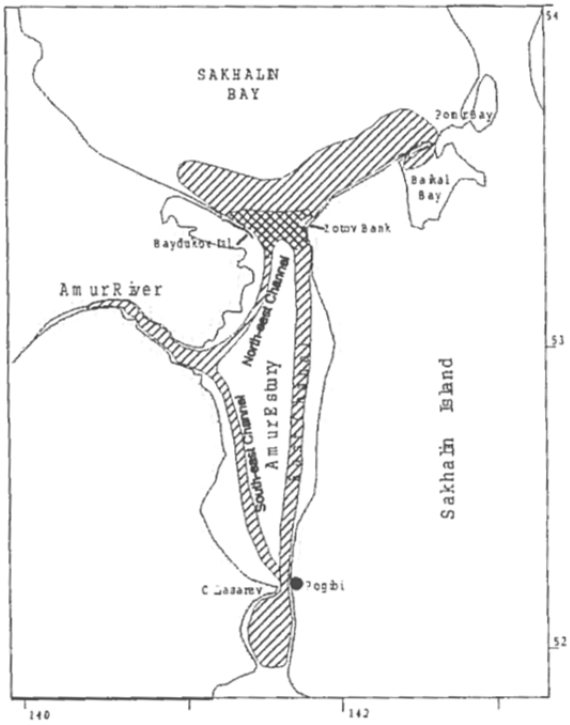
[97] *See id*.; *accord* Ilya G. Meschersky & Maria G. Yazykova, *Genetic Analysis of Belugas (*Delphinapterus leucas*) Summering in Different Regions of Western Part of the Okhotsk Sea* 3 (Mar. 2012) (unpublished Rep. of A.N. SEVERTSOV INST. OF ECOLOGY EVOLUTION, RUSSIAN ACAD. OF SCIENCES); Shpak & Glazov, *supra* note 87, at 7–9.
[98] *See* Reeves et al., *supra* note 91, at 3 (genetic samples from the southeastern Shantar region (Nikolaya and Ulbansky bays) "are too few to support any conclusions as to whether it hosts a third independent aggregation in the peak summer months (June through mid-September) or hosts whales that belong to the summering aggregations to the east or west or both (a mixed area)").
[99] Meschersky et al., *supra* note 96, at 129.
[100] Shpak et al., supra note 64, at 58–61.
[101] *Id*. at 58; *see also* A.A. Berzin, A.A., V.L. Vladimirov & N.V. Doroshenko, *Aerial Surveys to Determine the Distribution and Number of Polar Grey Whales and Beluga Whales in the Sea of Okhotsk in 1985–1989*, 112 NEWS OF THE PAC. RESEARCH INST. FOR FISHERIES & OCEANOGRAPHY 22, 26–30 (1990) (indicating boundaries of Sakhalin Bay-Amur River beluga whales during summer and noting that "once [they] finish their spring migration and fill their habitat, they occupy a rather small area limited to the southern part of the Bay of Sakhalin").
[102] *See* Reeves et al., *supra* note 91, at 4.
[103] Letter from Dr. Timothy. J. Ragen, Exec. Dir., MMC, to Mr. P. Michael Payne, Chief, Permits and Conservation Div., Office of Protected Res., NMFS (Oct. 29, 2012).

intent of Congress is clear—NMFS is to apply the MMPA in a manner that protects the affected marine mammal stock.[104]

Figure 2. Summer distribution of the Sakhalin Bay-Amur River stock of beluga whales[105]



V. THE SAKHALIN BAY-AMUR RIVER BELUGA WHALE STOCK IS DEPLETED

The second major question that NMFS must address in evaluating this petition is whether the Sakhalin Bay-Amur River beluga whale stock is depleted. The MMPA uses the term "depleted" to indicate those species or stocks that are below their OSP or have been listed as endangered or threatened under the ESA. The Sakhalin Bay-Amur River stock of beluga whales has not been listed under the ESA, so the question becomes whether it is below its OSP.

With respect to any species or population stock, the MMPA defines OSP to mean "the number of animals which will result in the maximum productivity of the population or the species, keeping in mind the carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element."[106] NMFS regulations further define OSP as a "population size that falls within a range from the population level of a given species or stock that is the largest supportable within the ecosystem [carrying capacity ("K")] to its maximum net productivity level [MNPL]."[107] MNPL, in turn, is the abundance or population level that results

[104] *See supra* p. 1.
[105] V.V. Melnikov, *The Beluga Whale (*Delphinapterus leucas*) of the Sea of Okhotsk*, INT'L WHALING COMM'N SCI. COMM. 51st Annual Mtg. 1999, at 7.
[106] 16 U.S.C. § 1362(9).
[107] 50 C.F.R. § 216.3.

in the "greatest net annual increment in population numbers or biomass resulting from additions to the population from reproduction and/or growth less losses due to natural mortality."[108]

MNPL has been difficult to estimate for most marine mammal stocks, and NMFS has chosen to use an abundance equivalent of 60 percent of K when the existing data is not sufficient to provide a more robust estimate.[109] However, K also has been difficult to assess for most marine mammal stocks and, in those cases lacking sufficient information, NMFS relies on the best estimate of historical abundance under pre-exploitation conditions.[110] Thus, any population that appears to be less than 60 percent of its best estimate of historical abundance qualifies to be designated as depleted under the MMPA.

Using commercial harvest data, NMFS recently determined that the historical maximum abundance of the Sakhalin Bay-Amur River stock of beluga whales is "at least 13,000–15,000 whales during th[e] period" of "[l]arge-scale beluga whaling [that occurred] 25–30 years prior to, and just after, World War II."[111] In contrast, the best current abundance estimate (based on 2009 and 2010 stock surveys) is 3,961 beluga whales.[112] Based on this data, the current abundance is 26.4 to 30.5 percent of the best estimate of historical abundance, well below the 60 percent standard for depleted designation used by NMFS for other stocks. Given these figures, NMFS has acknowledged that the stock is below its OSP and qualifies for designation as depleted.[113]

The U.S. Marine Mammal Commission arrived at the same conclusion, stating that:

> [T]he [Sakhalin Bay-Amur River] population's size is not known relative to its historic carrying capacity. Past hunting records indicate that the population may have been much larger at one time and those records, combined with the current abundance information indicate that the population may be well below 60 percent of its historic carrying capacity, or even below 50 percent as used by the [IUCN] panel that reviewed the effects of removal on this population.[114]

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[108] *Id.*
[109] *See* 42 Fed. Reg. 12,010 (March 1, 1977); *see also* 67 Fed. Reg. 44,132, 44,132 (July 1, 2002) (notice of proposed rulemaking regarding depleted designation for E. N. Pacific So. resident killer whales).
[110] *See* 75 Fed. Reg. 81,225, 81,226 (Dec. 27, 2010) (listing seven depleted designations that "used historical abundance as proxy for K" in which "historical abundance was the best available information allowing NMFS to estimate K").
[111] *Denial Letter & Decision Mem.*, *supra* note 12, at 39; *see also* Melnikov, *supra* note 105, at 6 (noting summer beluga whale population in Sakhalin Bay as approximately 7,000–10,000) (citing A.A. Berzin & V.L. Vladimirov, *Present-Day Distribution and Numbers of Cetaceans in the Sea of Okhotsk*, BIOLOGIYA MORIA 15 (1989); Berzin et al., *supra* note 101, at 29 (same)). Even using the lower historical abundance estimate of 7,000, the current abundance of the Sakhalin Bay-Amur River stock of beluga whales is 56.6 percent of historical abundance and still well below the 60 percent standard.
[112] *See* Reeves et al., *supra* note 91, at 5.
[113] *Denial Letter & Decision Mem.*, *supra* note 13, at 12.
[114] Letter from Dr. Timothy J. Ragen to Mr. P. Michael Payne, *supra* note 103, at 3.

Likewise, the IWC Scientific Committee has described the Sakhalin Bay-Amur River stock of beluga whales on multiple occasions as "likely depleted status relative to historical abundance."[115]

Importantly, the best available evidence in this case is not likely to change in a manner that would indicate a sudden improvement in the status of the Sakhalin Bay-Amur River stock because the main source of uncertainty with regard to the stock's status is associated with the historic abundance estimates. Despite that limitation, both NMFS and the MMC (as well as the IWC Scientific Committee) arrived at the same conclusion—the Sakhalin Bay-Amur River stock of beluga whales is well below its OSP and therefore qualifies for a depleted designation.

VI. DECLINE OF AND RISK FACTORS FOR THE SAKHALIN BAY-AMUR RIVER STOCK

A number of risk factors have contributed to the decline of the Sakhalin Bay-Amur River stock of beluga whales and, independently or cumulatively, may impede its recovery in the foreseeable future.

A. Large-scale commercial hunting from 1915 to 1963

Large-scale, targeted hunting of beluga whales, using seine nets, began around 1915 in the Amur River region and around 1925 in Sakhalinsky Bay.[116] Variable numbers of beluga whales were killed annually between 1917 and 1963, except for a break between 1918 and 1925.[117] Catch levels reached a peak of more than 2,817 in 1933, but declined thereafter, ranging from a high of 1,225 in 1934 to 11 in 1936.[118] In 1937, approximately 800 beluga whales were killed.[119] From the late 1930s until well after World War II, there is little recorded information on beluga whale catches. In the l950s, the majority of commercial hunting for beluga whales occurred in Tugursky and Udskaya bays (impacting the Shantar stock of beluga whales) with approximately 800 beluga whales taken per year between 1956 and 1961.[120]

Commercial hunting of beluga whales ended by 1963 because there were too few beluga whales left to hunt (commercial extinction) and because of the increased commercial hunting of great whales.[121] Although commercial hunting is now uncommon, Russian people still hunt beluga whales for subsistence purposes.[122] Each year, hunters may kill one to three beluga whales per village, but the number of villages that may be removing this number of whales annually is not known.[123]

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[115] 1999 IWC SCIENTIFIC COMM. REP., *supra* note 92, at 41; *accord* INT'L WHALING COMM'N, *1999 Rep. of the Subcomm. on Small Cetaceans, in* 1999 IWC SCIENTIFIC COMM. REP., *supra* note 92, at Annex I, p. 248; INT'L WHALING COMM'N, REP. OF THE 2002 SCIENTIFIC COMM. ANNUAL MTG. 59 (2003).
[116] *See* Reeves et al., supra note 91, at 7.
[117] *Id.*
[118] *See* Shpak et al., *supra* note 94, at App. 4, Table 1 (table showing commercial harvest data on annual basis).
[119] *See id*.
[120] *See id*. at App. 4, p. 5.
[121] *See* Reeves et al., supra note 91, at 7.
[122] IUCN, supra note 63.
[123] *See Denial Letter & Decision Mem., supra* note 13, at 31.

B. Unsustainable removal quotas

The first beluga whale live-capture operation for oceanaria was initiated in the Sakhalin Bay-Amur River area in 1986.[124] In 1992, Canada stopped live-capturing and exporting beluga whales, leaving Russia (and the Sakhalin Bay-Amur River area) as the sole regular supplier of beluga whales to oceanaria.[125]

Russian government scientists establish annual Total Allowable Takes (TAT) for Sea of Okhotsk beluga whale stocks. Russian management authorities then set beluga whale quotas that cannot exceed the TATs. For the Sea of Okhotsk, TATs are set for beluga whales in the western Okhotsk region (Sakhalin Bay-Amur River and Shantar aggregations) and for the northeastern Okhotsk region (West Kamchatka aggregation). *See* Table 1. Each TAT includes limits for both harvest and live capture.[126] Live capture limits are separated further into catch and release for scientific research and live capture/permanent removal for public display. In the summer of 2012, Russian authorities increased the TAT for the "north-Okhotsk subzone" (which refers to the western Okhotsk region that includes the Sakhalin Bay-Amur River and Shantar areas) from 150 to 360 beluga whales, and the live-capture limit (primarily for public display) from 50 to 212 beluga whales.[127] For 2013, the authorities set the same TAT, with a live capture limit for the western Okhotsk region of 245 for public display.[128] These significant increases in both TAT and live-capture limits are likely the result of perceived and real demand from buyers for wild-caught beluga whales, including Asian facilities, most notably in China.[129]

Table 1. Total Allowable Takes for western Okhotsk region (WO) and northeastern Okhotsk region (NEO) and actual permanent removals by live-capture (LC) from Sakhalinsky Bay for export and domestic use (not including animals temporarily removed and released to the wild).[130]

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
TAT WO	N/A	N/A	N/A	N/A	N/A	N/A	1000	400	100	300	300	150	360	360	150
TAT NEO	N/A	N/A	N/A	N/A	N/A	N/A	0	400	100	300	300	150	50	50	N/A
LC	10	22	10	26	25	31	20	0	25	24	30	33	44	N/A	N/A

[124] *See* Reeves et al., supra note 91, at 7.
[125] *Id.*
[126] Shpak & Glazov, *supra* note 87, at 11.
[127] *Id.* at 12.
[128] *Id.*
[129] *See 2013 IWC Small Cetacean Subcomm. Rep.*, *supra* note 94, at 8; *see also* Susan J. Fisher & Randall R. Reeves, *The Global Trade in Live Cetaceans: Implications for Conservation*, 8 J. INT'L WILDLIFE LAW & POL'Y 315, 336 (2005) ("The demand for wild-caught cetaceans . . . has increased dramatically in many other parts of the world, notably Latin America (including Mexico and the West Indies), the Middle East, China, and Southeast Asia."); *see also* Gross Exports Report for Beluga Whale: 1989–2013, U.N. ENVIRONMENT PROGRAMME CITES TRADE DATABASE (last visited Apr. 16, 2014), http://www.cites.org/eng/resources/trade.shtml (showing an increase in live, wild-caught beluga whale exports from Russia, with 135 exported from 2008–2012).
[130] Shpak & Glazov, *supra* note 87, at 12.

As indicated in Table 1, from 2000 through 2012, 300 beluga whales were captured live from the Sakhalin Bay-Amur River stock, ranging from a high of 44 whales in 2012 to a low of zero whales in 2007.[131]

Neither the TAT nor the subsequent capture limits set pursuant to the TAT are sustainable. Indeed, the IWC Scientific Committee, in its 2013 meeting report, concluded that the 2013 live capture limit of 263 for the western Okhotsk region is at least six to eight times higher than what would likely be sustainable for the Sakhalin Bay-Amur River stock.[132] The recent increase in the quotas and the number of organizations applying for permits (from 3–5 to 14), has led to an increase in the number of capture operations (from 1 to 3).[133] Because the live captures occur at a single site within the Sakhalin Bay-Amur River area, they target not only the Sakhalin Bay-Amur River stock but potentially a limited number of matrilines. This pattern of removal heightens concern about local-depletion.[134]

C. Hunting permits

In 1999, Russian fisheries officials issued a permit for the commercial hunting of 200 beluga whales in the Sea of Okhotsk with the intention of exporting beluga whale meat to Japan for human consumption.[135] Thirty-one beluga whales from the Sakhalin Bay-Amur River stock were hunted and their meat exported before Russian authorities withdrew the hunting permit and the CITES export permit.[136] The removals for export of beluga whale meat in 1999 were in addition to approximately 26 live beluga whales captured that year from the Sakhalin Bay-Amur River stock for oceanaria. Thus, the total 1999 removal of Sakhalin Bay-Amur River beluga whales was 57.[137]

In 2002, the Russian government established a combined "catch quota" of 1,000 beluga whales for the western Bering Sea, Sea of Okhotsk, Barents Sea, and White Sea, despite precautionary recommendations from the IWC Scientific Committee of the need for separate population assessments and the evaluation of the likely impacts of such hunts before they occur.[138] The IWC Scientific Committee had also expressed its concern that "some of the stocks from which these harvests were planned, particularly those in the Sea of Okhotsk, were depleted or of unknown status."[139]

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[131] *Id*.
[132] 2013 IWC SCIENTIFIC COMM. REP., *supra* note 92, at 63; *2013 IWC Small Cetacean Subcomm. Rep., supra* note 94, at 9.
[133] Shpak & Glazov, *supra* note 87, at 12–13; *2013 IWC Small Cetacean Subcomm. Rep., supra* note 94, at 8 ("Two new capture teams, in addition to the one that has been operating in Sakhalinsky Bay since [sic] 1980s, have announced plans to operate in this same area.").
[134] 2013 IWC SCIENTIFIC COMM. REP., *supra* note 93, at 63; *2013 IWC Small Cetacean Subcomm. Rep., supra* note 94, at 9.
[135] *See* Reeves et al., supra note 87, at 8.
[136] *Id*.
[137] *Id.*
[138] INT'L WHALING COMM'N, *2002 Rep. of the Subcomm. on Small Cetaceans*, *in* REP. OF THE 2002 SCIENTIFIC COMM. ANNUAL MTG. Annex K, at 372–73 (2003); *accord* INT'L WHALING COMM'N, *2003 Rep. of the Subcomm. on Small Cetaceans*, *in* REP. OF THE 2003 SCIENTIFIC COMM. ANNUAL MTG. Annex L, at 323 (2004).
[139] INT'L WHALING COMM'N, REP. OF THE 2002 SCIENTIFIC COMM. ANNUAL MTG., at 59 (2003).

D. Incidental mortality from fishing operations

The available evidence suggests that incidental mortality of beluga whales from fishing operations in the Sea of Okhotsk is limited. Beluga whales, "particularly neonates, may be incidentally caught in gill nets,"[140] nets used by the salmon fishery in the Sea of Okhotsk.[141] In fact, fishermen in the western Okhotsk region have indicated that beluga whales become entangled in fishing gear and drown in illegal nets set for sturgeon, although they also report that such incidents are rare.[142] Authorities, however, do not require reporting of unintentional deaths and fishermen have no incentive to report such incidental takes,[143] and self-reporting data underestimates mortality rates as compared to observer data.[144] The IUCN review panel found no evidence, e.g., scarring, of beluga whales incidentally captured in the coastal salmon fisheries along the west coast of Kamchatka, but monitoring of these areas is minimal and more data are needed to adequately assess this threat.[145]

E. Accidental drowning during live-capture operations

Accidental drowning during live-capture operations is a possible source of mortality for beluga whales of the Sakhalin Bay-Amur River stock, but the evidence for such occurrences is limited. Between 2007 and 2010, reports indicate at least one beluga whale calf died during live-capture operations.[146]

F. Vessel strikes

Large ship and barge traffic is limited in the area between Sakhalin Island and the mainland because of the area's physical characteristics. Smaller fishing boats are active in the area, but the existing information is not sufficient to judge whether these vessels have struck beluga whales.[147] The lack of reporting requirements, however, makes it impossible to fully understand the severity of vessel strike impacts to the Sakhalin Bay-Amur River stock of beluga whales. In addition, within the entire Sea of Okhotsk, "shipping routes are experiencing increasing intensity of use,"[148] which may adversely impact Sea of Okhotsk beluga whale stocks due to the known effects of noise pollution on beluga whale behavior and communication.[149]

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[140] O'Corry-Crowe, supra note 37, at 111.
[141] A.V. Alekseev et al., U.N. ENVIRONMENT PROGRAMME, *Sea of Okhotsk Global Int'l Waters Assessment, Regional Assessment 30*, at 21 (2006).
[142] *See* Reeves et al., supra note 91, at 8.
[143] Shpak & Glazov, *supra* note 87, at 13.
[144] *See, e.g.*, Victoria R. Credle et al., NMFS-OPR-94-1, *NMFS Observer Programs: Minutes and Recommendations from a Workshop Held in Galveston, Texas*, at 37 (July 1994).
[145] *See* Reeves et al., supra note 91, at 9.
[146] *Id*. at 9.
[147] *Id.*
[148] Randall R. Reeves et al., *Distribution of Endemic Cetaceans in Relation to Hydrocarbon Development and Commercial Shipping in a Warming Arctic*, 440 MARINE POLICY 375, 381–82 (2014).
[149] *See, e.g.*, Veronique Lesage et al., *The Effect of Vessel Noise on the Vocal Behavior of Belugas in the St. Lawrence River Estuary, Canada*, 15 MARINE MAMMAL SCIENCE 65 (1999); P.M. Scheifele et al., *Indication of a Lombard Vocal Response in the St. Lawrence River Beluga*, 117 J. ACCOUST. SOC. AM. 1486 (2004); Lindsey S. Kendall, *Construction Impacts on the Cook Inlet Beluga Whale* (May 2010) (unpublished M.S. thesis, Alaska Pac. Univ.).

G. Other anthropogenic threats

Finally, beluga whales in the western Okhotsk region are likely subject to a number of other anthropogenic threats, including "oil and gas development, expansion of fisheries (with possible implications for bycatch and resource depletion) . . . and industrial and urban pollution."[150] Climate change "will likely increase the scale and distribution of these [oil and gas exploration and development] activities,"[151] exacerbating their impacts while also potentially causing "climate-induced geographic shifts or altered reproductive success due to persistent changes in the extent of sea ice."[152] Notably, "[a] comparison of the winter maximum (March) sea ice coverage over the period in which satellite-based records are available (since 1979) indicates a substantial retreat in the Sea of Okhotsk."[153]

Oil and gas development includes such activities as seismic surveys, offshore drilling, and artificial island construction that would increase lethal and sub-lethal threats related to vessel strikes, noise disturbance, changes in behavior, and harassment.[154]

With regard to fisheries, the "Okhotsk Sea sub-system is regarded as the richest fishery region in the world," but overfishing affects most of the major fish stocks in the Sea of Okhotsk, with "overexploitation ha[ving] a severe impact in the Amur River Basin sub-system, and a moderate impact in the Okhotsk Sea sub-system."[155] Specifically, in the Amur River Basin, "stocks of salmon and sturgeon have declined as a result of overfishing and the degradation of spawning habitats. The problem is exacerbated by inappropriate fishing practices as well as adverse natural conditions."[156] Additionally, "[v]ery large catches of pollock . . . already occur in the Sea of Okhotsk."[157] While pollock biomass in the western Okhotsk region has "almost recovered from an historical low around 2000–01 . . . recruitment in [this region] had been decreasing since the 1980s."[158] This data raises beluga whale prey depletion concerns.

The beluga whale habitat in the Sakhalin Bay-Amur River area is under some threat from pollution. "Regional experts consider pollution to have slight impacts [on the Sea of Okhotsk

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[150] IUCN, *supra* note 63; Reeves et al., *supra* note 148, at 381–82 (showing distribution of oil and gas leases in Sea of Okhotsk, including those near Sakhalin Island).
[151] IUCN, *supra* note 63.
[152] *Id*.; *see also* Kristin L. Laidre et al., *Quantifying the Sensitivity of Arctic Marine Mammals to Climate-Induced Habitat Change*, 18 ECOLOGICAL APPS. 97, 113 (2008) (classifying the beluga whale as "moderately sensitive" to climate change impacts); Cynthia T. Tynan & Douglas P. DeMaster, *Observations and Predictions of Arctic Climatic Change: Potential Effects on Marine Mammals*, 50 ARCTIC 308, 308 (1997)
[153] Reeves et al., *supra* note 148, at 385–86 ("A comparison of the winter maximum (March) sea ice coverage over the period in which satellite-based records are available (since 1979) indicates a substantial retreat in the Sea of Okhotsk").
[154] *Id*. at 381–82; *see generally* Lesage, *supra* note 149; Scheifele, *supra* note 149; Kendall, *supra* note 149.
[155] Alekseev et al., *supra* note 142, at 21, 30.
[156] *Id*. at 10.
[157] Reeves et al., *supra* note 149, at 381.
[158] *Alaska Pollock–Sea of Okhotsk*, FISHSOURCE (last updated Feb. 11, 2014), http://www.fishsource.com.

ecosystem. The most significant issues [for the Amur River Basin are] indentified as eutrophication, chemical pollution, and oil spills."[159] The Amur River drains the Amur Oblast in Russia and most of northeastern China's Heilongjiang Province, which is an area with a dynamic economy and diverse industry.[160] The Amur River and its tributaries flood episodically, polluting coastal habitat used by beluga whales. For example, in 2005, a chemical plant explosion in Jilin, China, released an estimated 100 tons of a toxic mixture of benzene, aniline, and nitrobenzene into a tributary of the Amur River.[161] Furthermore, the lower reaches of the Amur River are contaminated by organic and inorganic pollutants as a result of surface flow from urban areas, agricultural runoff, and forest fires.[162] Studies of beluga whales in the St. Lawrence River suggest that documented increase~~s~~ in bacterial infections, parasitic infections, gastric ulcers, and other disorders are linked to immune system dysfunction and persistent organic pollutant exposure.[163] The impact of pollutants on Sakhalin Bay-Amur River beluga whales is unknown, as fat-soluble contaminants in beluga whale blubber or toxins in beluga whale blood require further study, which has been recommended for this overexploited stock.[164]

Reviewing the foregoing decline of and risk factors for the Sakhalin Bay-Amur River stock of beluga whales, NMFS recently concluded that "total removals from the Sakhalin-Amur stock have exceeded . . . likely the total net production, on a regular basis resulting in a small, but steady and significant decline over the past two decades."[165]

VII. CONCLUSION

When viewed under the legal framework set forth in the MMPA, the foregoing best scientific evidence available provides compelling support for the designation of the Sakhalin Bay-Amur River stock of beluga whales as depleted. Indeed, the clear weight of scientific opinion is that the beluga whales in the Sakhalin Bay-Amur River area warrant management as a separate stock. Similarly, the clear weight of best available scientific evidence indicates that the stock's current abundance is well below 60 percent of its historical abundance. It is, therefore, below its OSP and, in accordance with the MMPA and NMFS implementing regulations, warrants designation as depleted.

Considering the depleted status of the Sakhalin Bay-Amur River stock of beluga whales, evidence of its ongoing decline, the numerous risk factors (past, present, and future) for this stock, and the marked lack of strong recovery in heavily exploited beluga whale populations (perhaps due to disruption of behavior and social systems),[166] it is unlikely to recover without

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[159] Alekseev et al, *supra* note 141, at 28.
[160] *See Denial Letter & Decision Mem.*, *supra* note 13, at 32.
[161] U.N. ENVT. PROGRAMME, *The Songhua River Spill, China, Dec. 2005: Field Mission Rep*. (Dec. 2005).
[162] *See Denial Letter & Decision Mem.*, *supra* note 13, at 32; *see generally* V. L. Rapoport & L. M. Kondrat'eva, *Pollution of the Amur River with Anthropogenic and Natural Organic Substrates*, 1 CONTEMP. PROBLEMS OF ECOLOGY 377 (2008).
[163] IUCN, supra note 63; D. Martineau et al., *Pathology and Toxicology of Beluga Whales from the St. Lawrence Estuary, Quebec, Canada*, 154 SCI. OF THE TOTAL ENVT. 201, 201(1994).
[164] *See* Reeves et al., supra note 91, at 10.
[165] *Denial Letter & Decision Mem.*, *supra* note 13, at 34.
[166] *See* Paul R. Wade, Randall R. Reeves & Sarah L. Mesnick, *Social and Behavioural Factors in Cetacean Responses to Overexploitation: Are Odontocetes Less "Resilient" Than Mysticetes?*, 2012 J. OF MARINE BIO. 1, 4–5 (2012). In this article, the authors noted:

increased protection. Among other things, a depleted designation under the MMPA may provide the incentive for the Russian government, other governments, international and non-governmental organizations, scientists and scientific bodies (including the IWC Scientific Committee and the IUCN Cetacean Specialist Group), and funding institutions to improve the conservation and protection of the Sakhalin Bay-Amur River beluga whales and their habitat. Perhaps most importantly, a depleted designation under the MMPA will prevent importations of wild-caught beluga whales from this stock into the United States until such time that the stock recovers to its OSP. Such a constraint is entirely consistent with Congress' intent when it passed the MMPA.

> We are aware of only one example where there is direct evidence for a beluga population increase [Bristol Bay (Alaska)]. . . . In this instance, however, there was no history of intensive exploitation, no tradition of using drive or net techniques leading to mass removals, and no reason to believe the population had been seriously depleted prior to 1993.

Id. at 5.

VIII. REFERENCES[167]

Alaska Pollock–Sea of Okhotsk, FishSource (last updated Feb. 11, 2014), http://www.fishsource.com.

Alekseev, A.V., et al., U.N. ENVT. PROGRAMME, *Sea of Okhotsk Global Int'l Waters Assessment, Regional Assessment 30* (2006).

Bel'kovitch, V. M. & Sh'ekotov, M. N., *The Belukha Whale: Natural Behavior and Bioacoustics* (J. Christopher Haney & Cheri Recchia eds., Marina A. Svanidze trans., WOODS HOLE OCEANOGRAPHIC INST. 1993)

Berzin, A.A., Vladimirov, V.L. & Doroshenko, N.V., *Aerial Surveys to Determine the Distribution and Number of Polar Grey Whales and Beluga Whales in the Sea of Okhotsk in 1985–1989*, 112 NEWS OF THE PAC. RESEARCH INST. FOR FISHERIES & OCEANOGRAPHY 22 (1990)

Berzin A.A. & Vladimirov V.L., *Present-Day Distribution and Numbers of Cetaceans in the Sea of Okhotsk*, BIOLOGIYA MORIA 15 (1989)

Credle, Victoria R. et al., NMFS-OPR-94-1, *NMFS Observer Programs: Minutes and Recommendations from a Workshop Held in Galveston, Texas*, at 37 (July 1994).

Culik, Boris, *Odontocetes, The Toothed Whales:* "Delphinapterus leucas" (U.N. ENVT. PROGRAMME/CONVENTION ON MIGRATORY SPECIES, 2010)

Fisher, Susan J. & Reeves, Randall R., *The Global Trade in Live Cetaceans: Implications for Conservation*, 8 J. INT'L WILDLIFE LAW & POL'Y 315 (2005)

Friedman, Whitney R., *Envtl. Adaptations of the Beluga Whale* (Delphinapterus leucas), 143 COGNITIVE SCIENCE 1 (2006)

INT'L WHALING COMM'N, REP. OF THE 2013 SCIENTIFIC COMM. ANNUAL MTG. (2013)

INT'L WHALING COMM'N, *2013 Rep. of the Subcomm. on Small Cetaceans, in* REP. OF THE 2013 SCIENTIFIC COMM. ANNUAL MTG. Annex L (June 2013)

INT'L WHALING COMM'N, *2003 Rep. of the Subcomm. on Small Cetaceans, in* REP. OF THE 2003 SCIENTIFIC COMM. ANNUAL MTG. Annex L (2004)

INT'L WHALING COMM'N, REP. OF THE 2002 SCIENTIFIC COMM. ANNUAL MTG. (2003)

[167] All references are provided in .pdf format on the accompanying compact disk.

INT'L WHALING COMM'N, *2002 Rep. of the Subcomm. on Small Cetaceans, in* REP. OF THE 2002 SCIENTIFIC COMM. ANNUAL MTG. Annex K (2003)

INT'L WHALING COMM'N, REP. OF THE 1999 SCIENTIFIC COMM. ANNUAL MTG. (2000)

INT'L WHALING COMM'N, *1999 Rep. of the Subcomm. on Small Cetaceans, in* REP. OF THE SCIENTIFIC COMM. ANNUAL MTG. Annex I (2000)

Jefferson, Thomas A. et al., Delphinapterus leucas, *in* MARINE MAMMALS OF THE WORLD 76 (1993)

Kendall, Lindsey S., *Construction Impacts on the Cook Inlet Beluga Whale* (May 2010) (unpublished M.S. thesis, Alaska Pac. Univ.)

Laidre, Kristin L. et al., *Quantifying the Sensitivity of Arctic Marine Mammals to Climate-Induced Habitat Change*, 18 ECOLOGICAL APPS. 97 (2008)

Lesage, Veronique et al., *The Effect of Vessel Noise on the Vocal Behavior of Belugas in the St. Lawrence River Estuary, Canada*, 15 MARINE MAMMAL SCIENCE 65 (1999)

Letter from Dr. Timothy. J. Ragen, Exec. Dir., MMC, to Mr. P. Michael Payne, Chief, Permits and Conservation Div., Office of Protected Res., NMFS (Oct. 29, 2012)

Martineau, D. et al., *Pathology and Toxicology of Beluga Whales from the St. Lawrence Estuary, Quebec, Canada*, 154 SCI. OF THE TOTAL ENVT. 201 (1994)

Melnikov, V. V., *The Beluga Whale (*Delphinapterus leucas*) of the Sea of Okhotsk*, INT'L WHALING COMM'N SCI. COMM. 51st Annual Mtg. 1999

Melnikov, V.V., PAC. INST. OF FISHERY & OCEANOGRAPHY, *Recommendations for Harvest and Utilization of Belugas* (Vladimir Burkanov & Lloyd Lowry, trans., 1984) (1994)

Meschersky, I. G. et al., *A Genetic Analysis of Beluga Whale* Delphinapterus leucas *(Cetacea: Monodontidae) from Summer Aggregations in the Russian Far East*, 39 RUSSIAN J. OF MARINE BIO. (2013)

Meschersky, I G. & Yazykova, Maria G., *Genetic Analysis of Belugas (*Delphinapterus leucas*) Summering in Different Regions of Western Part of the Okhotsk Sea* 3 (Mar. 2012) (unpublished Rep. of A.N. SEVERTSOV INST. OF ECOLOGY EVOLUTION, RUSSIAN ACAD. OF SCIENCES)

Meschersky, I. G. et al., *Molecular Genetic Study of the Beluga* (Delphinapterus leucas: *Cetacea, Monodontidea*) *Summering in the Southern Sea of Okhotsk as Compared to North American Populations*, 44 RUSSIAN J. OF GENETICS 1105 (2008)

NMFS, *Denial Letter & Decision Mem.* (Aug. 5, 2013), http://www.nmfs.noaa.gov/pr/permits/sci_res_pdfs/17324_denial_letter_final.pdf

O'Corry-Crowe, Gregory M., *Beluga Whale (*Delphinapterus leucas*), in* ENCYCLOPEDIA OF MARINE MAMMALS 108 (2d ed. 2008)

O'Corry-Crowe, Gregory M. & Lowry, L. F., *A Review of the Status and Stock structure of Beluga Whales,* Delphinapterus leucas, INT'L WHALING COMM'N SCI. COMM. 51st Annual Mtg. 1999

Panova, E. M. et al., *The Relationship Between the Behavioral Activity and the Underwater Vocalization of the Beluga Whale (*Delphinapterus leucas), 52 OCEANOLOGY 79 (2012)

Rapoport, V. L. & Kondrat'eva, L. M., *Pollution of the Amur River with Anthropogenic and Natural Organic Substrates*, 1 CONTEMP. PROBLEMS OF ECOLOGY 377 (2008)

Reeves, Randall R. et al., *Distribution of Endemic Cetaceans in Relation to Hydrocarbon Development and Commercial Shipping in a Warming Arctic*, 440 MARINE POLICY 375 (2014)

Reeves, Randall R. et al. *Sustainability Assessment of Beluga (*Delphinapterus leucas*) Live-capture Removals in the Sakhalin-Amur Region, Okhotsk Sea, Russia* (Occasional Paper of the IUCN Species Survival Comm'n No. 44 2011)

Reeves, Randall R. et al., *Beluga*, *in* GUIDE TO MARINE MAMMALS OF THE WORLD 318 (1st ed. 2002)

Scheifele, P.M. et al., *Indication of a Lombard Vocal Response in the St. Lawrence River Beluga*, 117 J. ACCOUST. SOC. AM. 1486 (2004)

Shpak, Olga V. & Glazov, Dmitri, *Review of the Recent Scientific Data on the Okhotsk Sea White Whale (*Delphinapterus leucas*) Population Structure and Its Application to Management*, J. CETACEAN RES. MGMT, INT'L WHALING COMM'N SCI. COMM. 65th Annual Mtg. 2013

Shpak, Olga V. et al., *Current Status of the Sakhalin-Amur Beluga Aggregation (the Okhotsk Sea, Russia): Sustainability Assessment, Report for 2007–2010 Stages: Results of 4 Years of Study and Preliminary Conclusions* (IUCN Independent Sci. Review Panel, Working Paper, March 2011)

Shpak, Olga V. et al., *Seasonal Migrations of Sea of Okhotsk Beluga Whales* (Delphinapterus leucas) *of the Sakhalin-Amur Summer Aggregation*, 36 RUSSIAN J. MARINE BIO. 56 (2010)

Stewart, R.E.A. et al., *Bomb Radiocarbon Dating Calibrates Beluga (Delphinapterus leucas) Age Estimates*, 84 CANADIAN J. OF ZOOLOGY 1840 (2007)

Tynan, Cynthia T. & DeMaster, Douglas P., *Observations and Predictions of Arctic Climatic Change: Potential Effects on Marine Mammals*, 50 ARCTIC 308 (1997)

U.N. ENVIRONMENT PROGRAMME CITES TRADE DATABASE, Gross Exports Report for Beluga Whale: 1989–2013, (last visisted Apr. 16, 2014), http://www.cites.org/eng/resources/trade.shtml

U.N. ENVIRONMENT PROGRAMME, *The Songhua River Spill, China, Dec. 2005: Field Mission Rep.* (Dec. 2005)

Wade, Paul R., Reeves, Randall R. & Mesnick, Sarah L., *Social and Behavioural Factors in Cetacean Responses to Overexploitation: Are Odontocetes Less "Resilient" Than Mysticetes?*, 2012 J. OF MARINE BIO. 1 (2012)