

ENDANGERED BELUGAS AND THE GROWING THREATS OF CLIMATE CHANGE, ARCTIC SHIPPING AND INDUSTRIALIZATION

WHY ARCTIC NATIONS SHOULD IMPLEMENT A TEN-YEAR
MORATORIUM ON INCREASED ARCTIC SHIPPING



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INTRODUCTION

Known for their expressive faces, piercing vocalizations, and distinctive white color, the beluga whale is an emblem of the northern oceans, and their survival is dependent on a healthy Arctic ecosystem.

Belugas are one of the most exploited whale species in the world today with hundreds killed in subsistence hunts each year in their range states of Canada, Greenland-Denmark, the United States, and Russia. Of the 29 recognized subpopulations of beluga whales, 15 populations are depleted or severely depleted and ten populations are thought to be currently overhunted or subjected to unsustainable catch levels, including five of the depleted populations. Another eight populations are of uncertain status due to a lack of current information. Only six populations are considered stable or increasing. For many populations, there is a distinct lack of scientific information concerning their conservation status, health, and population trends.

Belugas were commercially hunted across their entire range; and, centuries of overhunting left many populations badly depleted. Both Canada and the United States banned commercial hunting of belugas in 1972 as a conservation measure, though it remained legal in the Soviet Union and later the Russian Federation until 1999. Subsistence hunting is still permitted today, though excessive catches and a lack of current data on population health are persistent dangers that require urgent scientific input by the International Whaling Commission.

Beluga populations are also under increasing pressure from a host of other human activities, oil and natural gas operations, noise pollution,

overfishing, coastal development, water pollution and the live trade for aquariums.

By far, the greatest new threat to belugas is climate change, which has already caused significant loss of summer sea ice cover in the beluga's habitat. Industrial interests from around the world are eager to exploit the opportunities presented by a melting Arctic, including a shorter and cheaper shipping route from Europe to Asia and potentially massive reserves of oil and natural gas. Development in the fragile and hostile Arctic environment presents unprecedented environmental and safety hazards, which the international community is not yet prepared to deal with. This is bad news for the world's belugas and other Arctic marine life as well as the communities that rely on them for survival.

Currently, there are few concrete measures in place to prevent oil spills, shipping accidents, and similar crises in the Arctic. The International Maritime Organization's (IMO) Polar Code is still nearing completion. The IMO states that "The Polar Code is intended to cover the full range of shipping-related matters relevant to navigation in waters surrounding the two poles - ship design, construction and equipment; operational and training concerns; search and rescue; and, equally important, the protection of the unique environment and ecosystems of the polar regions."

The Environmental Investigation Agency (EIA) welcomes the efforts of the IMO and the Arctic Council to assess and address the impacts of climate change on the Arctic environment, though the scope of these challenges is daunting. Whether Arctic countries can agree

and enact rigorous precautionary measures to protect the Arctic environment from growing industrial activities remains to be seen.

Currently, industrial development activities are outpacing environmental protections. President Obama has already authorized Shell Oil to conduct exploratory activities in the US Arctic and Russian President Putin is actively promoting the Northern Shipping Route (NSR). The first Chinese cargo ship crossed the Arctic NSR in August 2013, followed two months later by a Korean shipping line, which transported 44,000 tons of crude oil derivative, from Russia to South Korea.

It is EIA's position that the Polar Code must be completed, agreed, and adopted into legislation at the national level by member governments before additional Arctic development proceeds. EIA is calling for a ten-year ban on any further increase in commercial shipping through the Arctic until rigorous environmental safeguards are put in place through adoption and implementation of the Polar Code. EIA also supports a moratorium on new oil and gas activities in the Arctic, as championed by Greenpeace and other groups. EIA believes there is currently no way to explore or drill for oil in the Arctic in a manner that guarantees the health and safety of its human and animal inhabitants, including the beluga whale.

Allan Thornton

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October 21, 2014

BACKGROUND

Beluga remains from the 18th and 19th centuries on Spitsbergen. From 1866 to 1961, Norwegian whalers killed more than 15,000 whales near the islands of Svalbard.

The beluga whale is a highly migratory species with major seasonal changes in its distribution. In the winter, beluga feed offshore in waters associated with pack ice around the Arctic ice cap. In spring, they migrate, often over thousands of miles, to warmer coastal estuaries, bays, and rivers where they give birth to their calves, although a few populations remain resident in defined areas.¹ They return to the same bodies of water each year to breed and hunt. It is this consistent behavior that has made them a favored target of indigenous Arctic hunters since at least the 10th Century. Traditionally, these hunters pursued the whales for their meat, oil, sinew, blubber, and skin.² The blubber especially was prized as muktuk (the traditional Inuit/Eskimo and Chukchi meal of frozen whale skin and blubber), while the meat

was often used as food for sled dogs.³ Belugas are also the only whale with skin thick enough to be tanned into leather.

Beginning in the late 18th Century, subsistence hunters were joined by commercial whalers seeking to sell beluga products on the global market. Commercial operations brought an industrial approach to hunting that involved larger ships and modern weaponry to kill large numbers of whales. Large pods of belugas were often herded into shallow waters then slaughtered, a method known as drive hunting.⁴ For example, between 1868 and 1911 20,000 beluga whales were killed in Lancaster Sound and near the Davis Strait between Greenland and Canada.⁵

Initially, commercial whalers targeted the belugas for oil that could be used in

streetlights, lamps, and lighthouses.⁶ A single large beluga could provide as much as 80-100 gallons of retrievable oil.⁷ Later, as mineral oil rose in prominence, the whales were hunted to make soap from their blubber, fertilizer from their bones, clock and industrial lubricant from oil found in their melon (an organ in their heads), as well as shoe laces, horse harnesses, gloves, and saw belts from their tanned hides.^{8/9} The centuries of high intensity hunting took its toll on the species and nearly all beluga populations around the world suffered a sharp decline.¹⁰ In spite of the global end to commercial hunting operations, many populations have yet to recover from its legacy and poorly regulated subsistence hunts and environmental dangers continue to threaten many populations.



P.T. Barnum's American Museum, home of the first captive belugas. Beluga whales are difficult to breed in captivity and wild capture of belugas in Russia remains the major source for new aquarium animals.

BELUGAS IN CAPTIVITY

Ironically, even as the species was pushed towards extinction, the white whale captured the imagination of the public. The beluga whale is considered the first cetacean maintained in captivity, beginning with six beluga whales captured in the St. Lawrence River and shipped to New York City in 1861 and 1862.¹¹ Among the leaders of this expedition was P.T. Barnum, cofounder of Barnum & Bailey's Circus. However, Barnum, "did not know how to feed and take care of the monsters," and all six died within a few days of their arrival; he immediately dispatched agents to the St. Lawrence to acquire more and created a salt water aquarium to house them.¹² By 1877, beluga whales were displayed in Westminster at the British Royal Aquarium and the industry began to grow.¹³ On a smaller scale than commercial hunting for oil and other products, these live captures contributed to the wild populations' decline, particularly that of the most accessible St. Lawrence River population. Today, only the Russian Federation permits live capture and export of beluga whales.

The International Union for the Conservation of Nature (IUCN) classifies the beluga whale as "Near Threatened" and considers it "unquestionably a conservation-dependent species."¹⁴ Without national programs in place to monitor and control hunting, the species would be vulnerable to extinction. However, the beluga's IUCN status does not accurately characterize the status of all subpopulations. The IUCN notes that the "criterion for Vulnerable is not met for some of the largest subpopulations and they have a disproportionate effect on the assessment of the species as a whole. Also, estimates of current population size for several of the larger stocks are substantially higher than previous estimates (due to better survey methods and not necessarily because of increases in numbers)."¹⁵ In other words, many beluga populations are more seriously depleted than the IUCN status suggests. While several of the larger populations appear stable, 15 of the 29 global populations are considered seriously depleted or likely depleted due to historic commercial, as well as under-regulated, subsistence whaling.¹⁶

The IUCN assesses the Cook Inlet subpopulation as "Critically Endangered" and acknowledges that other populations in Western Greenland, eastern Hudson Bay, the St. Lawrence River, and Ungava Bay "clearly qualify for threatened status."¹⁷ Moreover, there is a lack of information on the trends and conditions of many populations, in particular the 12 populations residing in Russian waters.¹⁸

BELUGA POPULATIONS¹⁹

Populations in bold font are actively hunted. Populations in green font are considered stable and in good condition. Depleted populations have been reduced below sustainable levels, either recently or from their historical numbers, and are indicated by red font. The breakdown of subpopulations is based on the International Whaling Commission's identified populations, with updated estimates where available.

COUNTRY	POPULATION	POPULATION SIZE	STATUS
United States	Bristol Bay	3,299	Stable or Increasing
	Cook Inlet	340	Depleted
	Eastern Bering Sea	28,406	Unknown
	Eastern Chukchi Sea	3,710	Stable
US-Canada	Beaufort Sea	39,258	Stable
Canada	Cumberland Sound	Unknown	Depleted
	St. Lawrence River	1,000	Depleted
	Ungava Bay	Under 50	Possibly Extirpated
	East Hudson Bay	3,351	Depleted, Not Recovering
	West Hudson Bay	57,342	Stable?
	James Bay	14,967	Stable?
	Foxe Basin	1,000	Unknown
	Frobisher Bay	Unknown	Unknown
	South Hudson Bay	1,300	Unknown
Canada/Greenland	Eastern High Arctic/ Baffin Bay	21,213	Stable
Greenland	West Greenland	7,941	Depleted
Svalbard	Svalbard	Unknown	Likely Depleted
Russia	Franz Josef Land	Unknown	Unknown
	Ob Gulf (Kara Sea)	Unknown	Depleted
	Yenisey Gulf (Kara Sea)	Unknown	Depleted
	Onezhsky Bay (White Sea)	Unknown	Likely Depleted
	Dvinsky Bay (White Sea)	Unknown	Likely Depleted
	Mezensky Bay (White Sea)	Unknown	Depleted
	Southwest Laptev Sea	Unknown	Unknown
	West Chukchi Sea/ Eastern East Siberian Sea	Unknown	Unknown
	Anadyr Gulf	Unknown	Unknown
	Shellickov Bay	Unknown	Depleted
	Shantar Bay	Unknown	Depleted
	Sakhalin/Amur River	Unknown	Depleted

THE IMPACT OF CLIMATE CHANGE ON BELUGAS

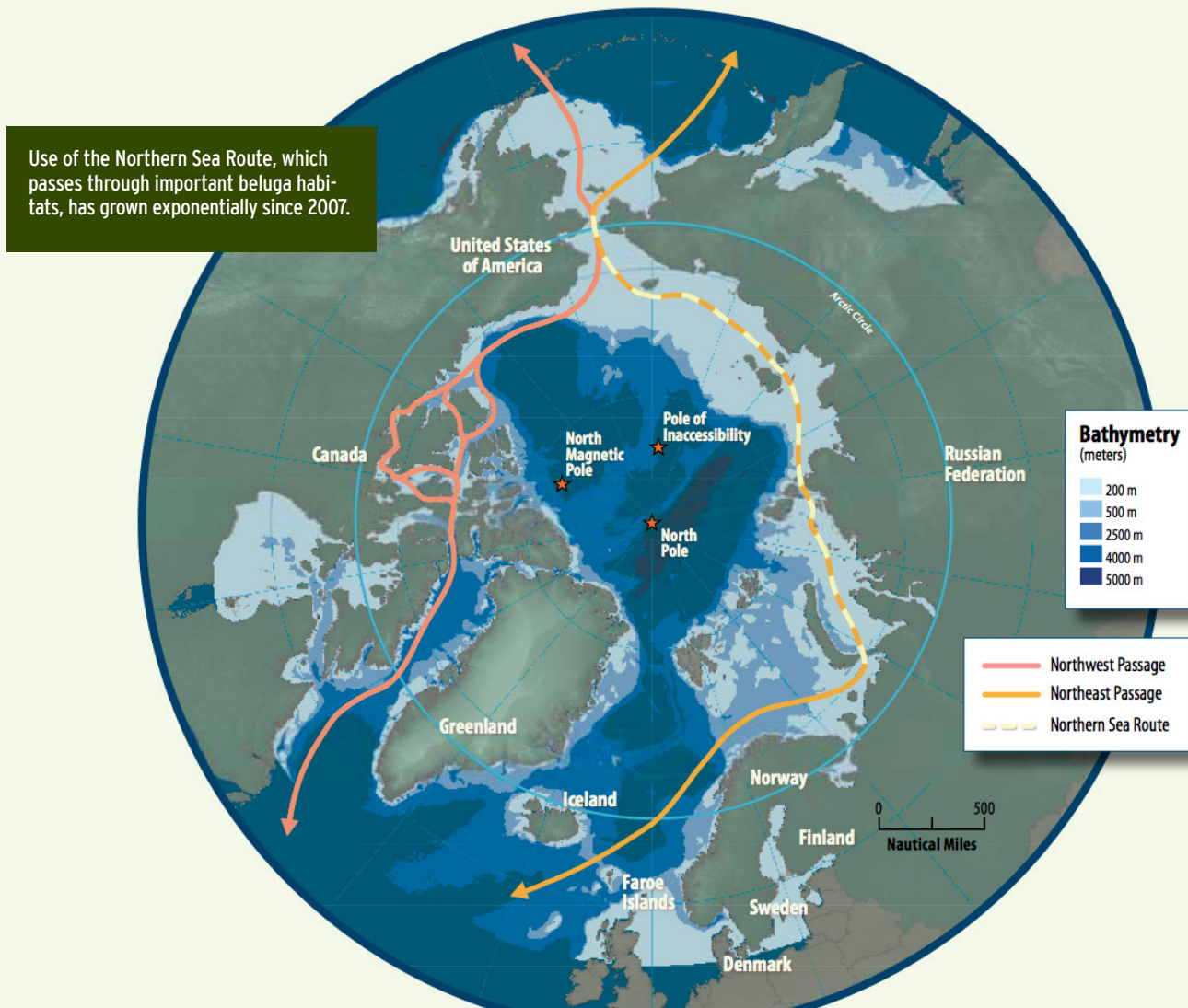
Beluga whales are highly threatened by climate change. A warmer Arctic will lead to a drastic increase in human activities, especially shipping, resource extraction, and noise pollution. Both Russia's Northern Sea Route (NSR) and Canada's fabled Northwest Passage offer faster routes past North and South America than comparable southern routes, ensuring that more global shipping traffic will begin to pass along both routes as sea ice retreats. Russian President Vladimir Putin has vowed to transform the NSR into a rival of the Suez Canal.²⁰ Maintaining these routes is still expected to require the regular use of ice breakers, drastically increasing noise pollution in the region.

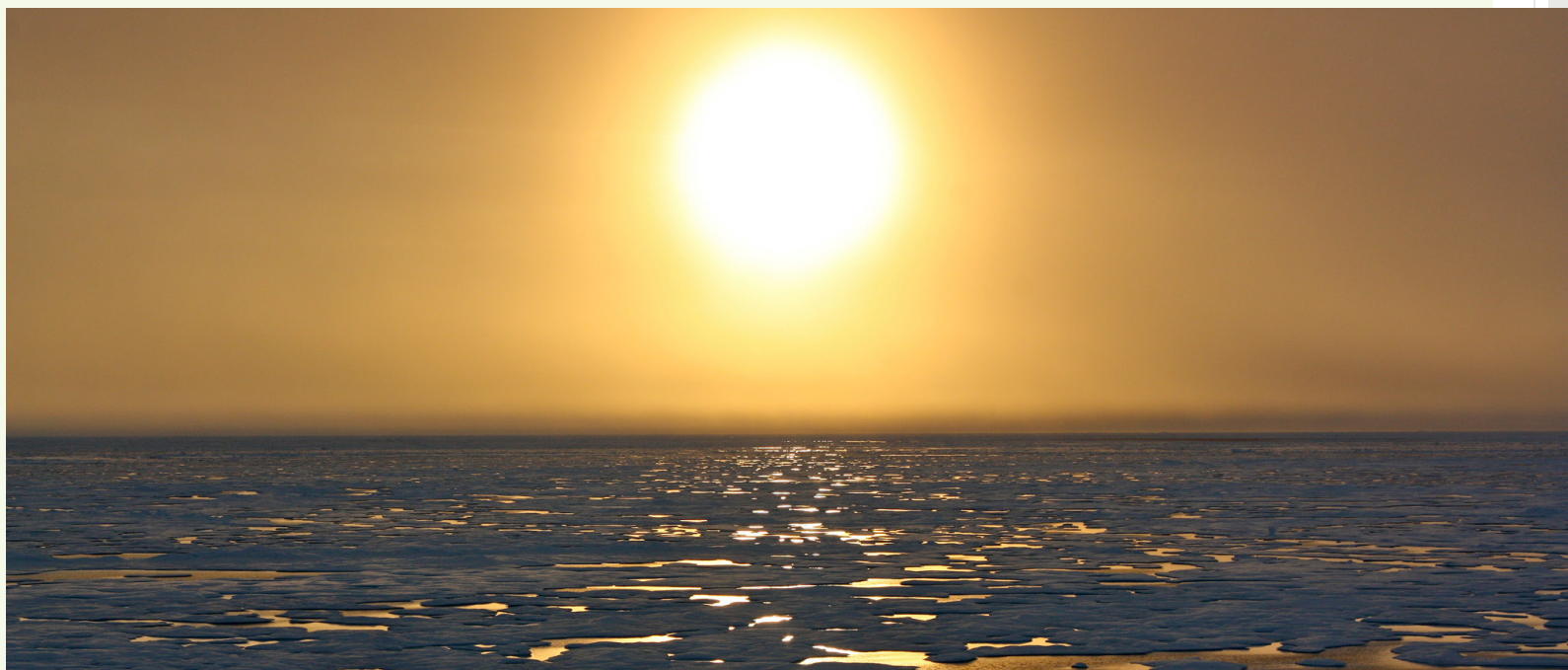
Other Shipping activities in beluga habitat are either planned or already occurring in the Beaufort and Chukchi seas of Alaska, and West Greenland.²¹

Analysts have noted that the Northwest Passage represents a more challenging route for shipping, but this area is likely to see a drastic increase in traffic as well. There are currently no deepwater ports on the northern slope of Alaska along the Northwest Passage, though this may change as sea ice recedes.²² In the immediate future, the port of Churchill in the western Hudson Bay is likely to receive the most attention. Planning for an international "Arctic Bridge" between the ports of Murmansk and Churchill has already begun.²³ Increasing ship traffic will pass through both the range of the endangered East Hudson Bay beluga whale population and the more stable West Hudson Bay population.²⁴ Inuit living along the Hudson Bay have already documented beluga whales abandoning areas with increased motor traffic.²⁵

The United States Geological Survey estimates that 30 percent of the world's undiscovered gas and 13 percent of the world's undiscovered

oil is located north of the Arctic Circle.²⁶ Approximately 84 percent of these reserves are located offshore and thus require seismic exploration.²⁷ The beluga whale's range extends across much of the Arctic Circle, and as a result many of these reserves are almost certainly within their range. Much of it likely resides within the population ranges of beluga whales in the waters north of the Russian Federation for which there is little current data. Arctic conditions will make any potential spills near impossible to clean up, yet the beluga's fidelity to specific bodies of water may lead them to return to contaminated areas on a yearly basis. Cold weather, thick ice cover, and a lack of sunlight will all slow the breakdown of spilt oil.²⁸ Clean up or rescue vehicles and workers will be hampered by extreme conditions which is expected to decrease emergency response times. In the Beaufort Sea, it can take as long as three open seasons to drill a well, suggesting





Belugas require sea ice to search for prey and hide from predators, such as killer whales. In 2013, sea ice in the Arctic was 700,000 square miles smaller than the historical average measured between 1979-2000

that any relief well drilled to take pressure off of a major blowout could potentially take years to complete.²⁹

Increased human activity will invariably lead to greater chemical pollution in the Arctic as well. Butyltin has recently been found in the livers of beluga whales residing in the St. Lawrence Estuary.³⁰ Butyltin is an active compound in the antifouling paints used to protect ship hulls from corrosion and is toxic to mammals.³¹ In beluga whales it disrupts the functions of the immune system and causes liver lesions.³² As more ships traverse the northern shipping routes, beluga populations living in Canadian, Russian, and United States waters will likely be exposed to these toxins on a regular basis. Fish from south of the Arctic are also more likely to have higher internal levels of polychlorinated biphenyls (PCBs) and mercury.³³ As these species migrate further north they will bring more of these pollutants into the diet of predators like the beluga.³⁴ High mercury levels have already been recorded in the Beaufort Sea's beluga population at a rate which corresponds to high levels in their local prey.³⁵

Sea ice, which is declining throughout the Arctic due to warming polar regions, is a critical feature of the beluga whale's habitat.³⁶ Algae that grow on sea ice serve as the foundation of the Arctic food chain, supporting a tight web of marine life including key beluga prey species, such as Arctic Cod.³⁷ As the climate warms and sea ice decreases, algae is also expected to decrease which could stress the Arctic ecosystem.³⁸ In addition, receding sea ice may force belugas to travel further afield in search of their preferred prey.

Declining sea ice also opens the beluga's Arctic habitat to other marine mammals, which may compete with beluga for food and expose them to increased predation. Belugas lack a dorsal fin. This allows them to navigate safely under sea ice. Without consistent sea ice coverage, other cetaceans such as minke and humpback whales may migrate north and begin to compete directly with belugas for food.³⁹ Killer whales will also have more opportunities to target beluga whales without this sea ice protection.⁴⁰ Additionally, warmer weather will make sea ice coverage more variable and increase the likelihood of beluga pods becoming

trapped under the ice.⁴¹ Whales may drown before they can find a place to surface for air.

There is also the possibility that the shifting climate will bring belugas into more frequent contact with their closest genetic relative, the narwhal. Interbreeding between narwhals and beluga has been documented, resulting in a hybrid currently dubbed the "narluga."⁴² While this interbreeding might result in a temporary boost to the cumulative numbers of both species, in the long term it weakens their genetic distinctiveness and physical fitness in a phenomenon known as outbreeding depression.⁴³

The Arctic sea ice has also formed a continent sized barrier to parasites and disease, a defense for beluga whales that is now breaking down and exposing the species to unfamiliar contagions. New research has shown that one in ten of whales hunted in the Beaufort Sea were host to a parasite known as toxoplasmosis.⁴⁴ This is of special concern to the hunters themselves as it is infectious to humans and can cause blindness if the meat is consumed without proper cleaning.⁴⁵

OTHER ENVIRONMENTAL THREATS

Icebreakers are necessary for Arctic shipping and their use in beluga habitat will only increase as the Arctic warms presenting serious risks to the well-being of the whales.

Belugas are under threat from a wide range of anthropogenic sources. Though they do have natural predators, such as the killer whale and polar bear, human activities pose the greatest danger to the species. Beluga whales are highly social creatures that travel in groups to the same bodies of water to hunt and breed each year.⁴⁶ This allegiance to certain locations divides the species into different subpopulations, each facing its own unique mix of dangers.⁴⁷ Overhunting for commercial and subsistence purposes has historically been, and for many populations continues to be, the greatest threat to beluga whales (see separate population discussions for more detail). In addition to hunting, beluga populations are threatened by pollution, noise from shipping, competition with human fishing operations, and the effects of climate change. The dangers belugas face are compounded by their social behavior and fidelity to hunting and breeding grounds. If a population is wiped out, it is unlikely that other belugas will recolonize the area.

NOISE POLLUTION

Noise pollution is disruptive to belugas and a threat to their health. Nicknamed the “Sea Canary,” beluga whales are the loudest of the toothed whales and they use their voices to hunt and communicate.⁴⁸ Shipping and other acoustic disturbances can drown out their songs and the whales will attempt to avoid them where possible.⁴⁹ Researchers watching the Saguenay River in Canada found that the number of belugas passing through each hour dropped by 60 percent over just four years, corresponding with a sharp rise in motorized boat traffic.⁵⁰

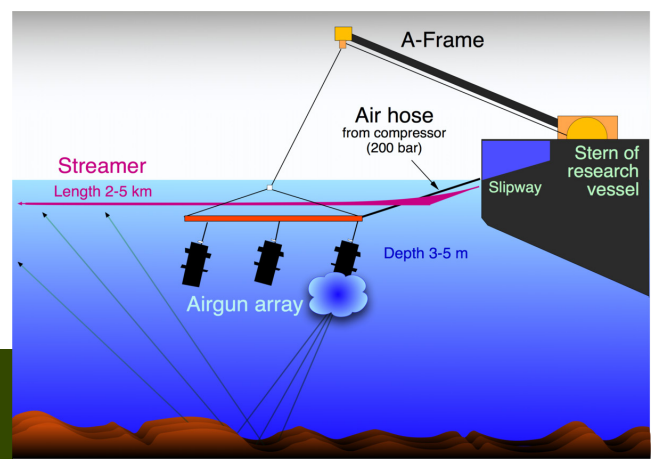
Ice breaker vessels designed to open passages in sea ice can be especially disruptive to belugas, and the whales will detect and respond to their presence at a distance of up to 50 kilometers.⁵¹ The sound of ice breakers and other loud vessels can trigger a flight response in beluga herds, causing them to panic and flee. Not only does this force the whales to expend more energy to avoid noise sources, noise can also cause permanent hearing damage.⁵² These disruptions are also likely to increase as the Arctic warms and the region becomes more open to shipping and oil exploration. In 2011, 34 vessels moved 820,000 tonnes of cargo through the Northern Sea Route (NSR), an Arctic shipping lane maintained by ice breakers that passes through multiple beluga population ranges north of Russia’s Arctic coastline as well as the Bering Sea.⁵³ By 2020, this route is expected to ship 64 million tonnes of cargo.⁵⁴

OIL AND GAS PROJECTS

Seismic testing is used in oil and natural gas exploration and involves firing an underwater air gun once every ten seconds, producing a sound 100,000 times as loud as a jet engine.⁵⁵ The sounds are designed to bounce off the sea floor, returning to audio monitors on the surface with information about potential oil and gas deposits.⁵⁶ Though the impacts of seismic testing are not yet fully understood, recent observations of some whale species found an effect similar to decompression sickness in humans, a condition that can cause temporary or permanent hearing loss, as well as muscle

cramps, paralysis and death.⁵⁷ In 2012 and 2014, following seismic testing in the waters near the village of San Jose in northern Peru, two of the largest mass strandings of cetaceans occurred:⁵⁸ 747 and 1063 cetaceans were recovered, over 90 percent of them long-beaked common dolphins.⁵⁹ Necropsies on their remains confirmed the symptoms of decompression sickness in both incidents.⁶⁰ Seismic testing can also cause whales to abandon their established habitats and disrupt their efforts to find mates and breed.⁶¹

In addition to the noise pollution caused by seismic testing, oil spills are a constant risk associated with oil and gas projects. Recent studies on killer whales suggest that whales are unable to see or avoid oil slicks and run a risk of inhaling the toxic vapors in oil.⁶² Furthermore, because beluga whales are toothed whales and predators that feed at the top of the food chain, much of what they eat is likely to become contaminated in the event of an oil spill. The resulting toxins can poison the whales, damaging their health or killing them outright.⁶³ For example, as a result of the Exxon Valdez Spill, the resident population of killer whales in Prince William Sound lost 33 percent of its population.⁶⁴ Two decades after the spill, this population has still not recovered.⁶⁵



Seismic testing is highly disruptive and potentially deadly to marine mammals, including belugas.

WATER POLLUTION

Other forms of human pollution also pose a serious risk to some belugas. As large predators, belugas are not only exposed to chemicals externally as they swim through an estuary or river, but are also exposed through the consumption of contaminated prey.⁶⁶ Due to their high fat content, belugas store pollutants for longer periods of time. Unlike many other cetaceans, belugas are opportunistic predators, feeding on a combination of fish and invertebrates living in estuary sediments.⁶⁷ As a result, their diet exposes belugas to pollutants that may have settled in the sediment of the water body, in addition to pollutants their prey contains.⁶⁸

Most notably, studies of the beluga population based in the mouth of the St. Lawrence Estuary in Canada found that cancer was the cause of death in 27 percent of adult whales due to the high level of industrial pollution the whales were contaminated with, including high levels of toxins such as polychlorinated biphenyls (PCBs), and carcinogens, such as polycyclic aromatic hydrocarbons.⁶⁹ Even long banned pollutants, such as dichlorodiphenyltrichloroethane (DDT), have been found in the West Hudson Bay and St. Lawrence Estuary's belugas where they caused lesions in individuals in both populations.⁷⁰ A study of 566 belugas taken from the Beaufort Sea and Canadian Arctic found that virtually all of the whales had mercury levels higher than the $0.5 \mu\text{g g}^{-1}$ considered safe for human consumption.⁷¹

OVERFISHING OF PREY RESOURCES AND ENTANGLEMENT

Overfishing of important beluga prey, such as salmon and herring, forces belugas to range farther for food which impairs the recovery of smaller beluga populations.⁷² Belugas have also become ensnared and killed while chasing their prey into fishing nets.⁷³ While snared in the nets, belugas may drown before they can surface for air, or be struck by ships that they are unable to avoid. In 1983, 12 belugas in Bristol Bay were found dead in fishermen's nets.⁷⁴ Though the number of beluga whales reported dead have declined in recent years, entanglements in Alaska are self-reported, and no major changes have been made to reduce chances of incidental take by fisheries.⁷⁵

DEVELOPMENT

Human construction, such as dams along rivers, can also disrupt beluga habitat, though the extent of the impacts are still being studied.⁷⁶ The excess water that dams expel at peak output can alter an estuary's hydrological flow, including the distribution of sea ice in beluga habitat.⁷⁷ The dams change both the level of flow from a river and can alter the temperature of estuaries. Both of these make conditions that can affect the availability of Arctic Cod, an important beluga prey species. After dams were built upriver from the Manicouagan Bank on the St. Lawrence Estuary, researchers found that the beluga whales quickly abandoned the area.⁷⁸



The Robert-Brouass Dam on the La Grande River. This project altered water flow to James Bay and the Hudson Bay, both of which are home to beluga populations.

Coastal development also causes noise pollution that can harm belugas. Researchers assessing the impact of a bridge across Knik Arm in Alaska's Cook Inlet found that belugas could hear vibratory pile drivers from one to two miles away and could suffer permanent damage if they came in close proximity to the drivers.⁷⁹ U.S. Army Corps Engineers dredging a portion of Cook Inlet's Knik Shoal also found that marine mammals like belugas avoided the site, though these activities appear to be less disruptive than large vessel traffic.⁸⁰

MODERN SUBSISTENCE WHALING

Though commercial hunting for the purposes of meat or animal byproducts is currently banned in all of the beluga's range states, subsistence hunting has in many cases expanded and now employs motorized boats and rifles, as opposed to harpoons. This has increased the whalers' range and capabilities. Subsistence hunting operations target 17 populations, including five that are already seriously depleted.⁸¹ (See following discussion of each subpopulation for more detail). Poor regulation of these hunts in many locations, combined with a lack of basic population information, means that many beluga populations are hunted at unsustainable levels.

Additionally, the official quotas often mask the actual number of whales killed every year, which is frequently much higher. The catch limits set for many populations are regularly exceeded and many of these quotas do not account for whales that are killed but not recovered by hunters. Defined as the struck-and-lost rate, the number of whales lost in a season can be as high as 200 percent of the hunted quota.⁸² Beluga whales lack the buoyancy of other cetaceans like the Right Whale and sink quickly when injured or killed.⁸³ Unless hunters are in close proximity to the whale, they are likely to lose the carcass before it can be recovered, resulting in a loss that is not reflected in the quota. For example, though the quota for hunted beluga whales in Cook Inlet was set at 49 for 1996, the rate that were struck and lost was estimated between 49 and 98.⁸⁴ Struck and loss rates are also not always reported, or are not accurately reported, by communities involved in the hunts, particularly in Canada and Greenland.

Known as muktuk, beluga blubber is still considered a delicacy in some communities.





BELUGA POPULATIONS WITHIN THE UNITED STATES

Beluga surfacing in Cook Inlet. The Cook Inlet's population is endangered due to historic overhunting and the population has shown no signs of recovery.

The United States is home to several of the world's healthy beluga populations, but these whales still face threats from human development, climate change, and a legacy of unsustainably high subsistence hunting rates. A reliance on old population surveys also calls the health of several U.S. beluga populations into question and makes it difficult to determine population trends. The critically endangered population of Cook Inlet shows no signs of recovery despite an end to all hunting.

The U.S. populations of beluga reside in Bristol Bay, Cook Inlet, the East Bering Sea, and East Chukchi off the coast of Alaska. A fifth population in the Beaufort Sea straddles the U.S. and Canadian border and is hunted by both Alaskan and Canadian hunters. Within the waters of the United States, beluga whales are protected by the 1972 Marine Mammal Protection Act (MMPA).⁸⁵ This act prohibits all takes with exceptions for subsistence hunts, scientific research, and accidental kills by commercial fishers hunting other species.⁸⁶ The law also makes it illegal to kill, hunt, collect, injure or harass the species, or to destroy their habitat in any way.⁸⁷ If a population is particularly at risk, it will be labeled endangered under the Endangered Species Act, though only Cook Inlet's belugas are classified as such.⁸⁸ Locally, four of the five stocks of beluga whales are co-managed by the Alaska Beluga Whale Committee (ABWC), and the US National Marine Fisheries Service (NMFS).⁸⁹ The ABWC currently reports the whales taken from each population as well as the struck and lost rate to the NMFS on an annual basis. Cook Inlet's population is managed jointly by NMFS and the Cook Inlet Marine Mammal Council.

BRISTOL BAY (U.S.): Population Stable and Increasing, Threatened by Human Development

Bristol Bay represents a rare success story for the beluga whale. The population was never overly exploited or targeted by commercial hunters to the extent that it seriously depleted the whales' numbers.⁹⁰ From 1993-2005, the population increased from an estimated 1,000-1,500 to 3,299.⁹¹ Subsistence hunting is still permitted in Bristol Bay, but the average take is 20 whales, which is considered within safe limits.⁹² Human development poses a threat to the population, as Bristol Bay is a prospective target for both oil and mining developments. Oil development has been postponed until 2017 by the U.S. government, though this does not categorically rule out development at a later date.⁹³ Similarly, a proposed open-pit gold and copper mine, known as Pebble Mine, has also been blocked in its current form because the U.S. Environmental Protection Agency determined it would be too destructive to nearby waters.⁹⁴ However, a lawsuit challenging this decision has been filed by the mine's developers.⁹⁵ Both projects could have a catastrophic effect on Bristol Bay's beluga whales if permitted to proceed. Oil exploration would expose the bay to seismic testing and the potential for an oil spill. If any version of Pebble Mine is created, the resulting mine and its facilities would cover an area the size of Manhattan.⁹⁶ Even its smallest estimated size could destroy 24 miles of streams in the area.⁹⁷ This would devastate the local populations of salmon, which are vital to the beluga as a prey species.

COOK INLET (U.S.): Critically Endangered and Not Recovering

Genetically distinct and geographically isolated from other beluga populations, Cook Inlet's population has plummeted to critical levels and shows no signs of recovering. Native Alaskans have likely hunted Cook Inlet's belugas since the area was first settled and they were later joined by commercial operations in the 20th century.⁹⁸ Though commercial hunting ended in 1972, subsistence hunts began to increase sharply in

the 1980s.⁹⁹ As equipment improved and local human populations grew, the number of belugas killed each year increased.¹⁰⁰ By the mid-1990s, an average of 20 percent of Cook Inlet's belugas were being harvested each year.¹⁰¹ This high hunting level sent the population into a tailspin, declining 75 percent from 1980 to 2006.¹⁰² In 1999, the Federal government announced a total ban on hunting, suspending any subsistence whaling entirely when the population dropped below 350 whales.¹⁰³ In 2008, the Cook Inlet belugas were listed as an endangered species under the Endangered Species Act and it is likely that the population will continue to decline.¹⁰⁴ Exactly why Cook Inlet's belugas have failed to recover is still being studied. Possible overfishing of prey species, natural threats such as predation by killer whales, and potential social disruption brought on by overhunting may all play a role in the population's beleaguered status.¹⁰⁵ Cook Inlet's close proximity to the proposed site for Pebble Mine also exposes the belugas to many of the same potential hazards facing Bristol Bay's population. The mine includes plans for a slurry pipe to transport ore to a deepwater port within Cook Inlet, along with new roads to connect the mine to the area.¹⁰⁶

EASTERN BERING SEA (U.S.): Status Unknown

The beluga whale population of the Eastern Bering Sea is likely the largest population in the United States, with an estimated 28,406 individuals.¹⁰⁷ However, the last survey of this population was conducted more than eight years ago.¹⁰⁸ Since no data was collected on these whales prior to 1992, researchers are unable to map trends in the population. Despite a lack of information on population status, the number of whales taken in subsistence hunts has risen in recent years, from an annual average of 130 in 1994-1998 to 193 in 2005-2009.¹⁰⁹ Without a new survey, there is no way of determining whether removing almost 200 whales each year is sustainable.

EASTERN CHUKCHI SEA (U.S.): Probably Stable, Possibly Overexploited

Though there has been difficulty in determining the size of population or trends for the Eastern Chukchi Sea belugas, they are thought to be in a stable condition.¹¹⁰ The last estimate placed the population around 3,710, though this survey was conducted eight years ago.¹¹¹ Subsistence takes from 2005-2009, which averaged 94 per year, were 27% higher than safe limits, and in some years (e.g. 2007 when takes peaked at 270 animals), annual takes have been up to 3.6 times the sustainable level.¹¹² Moreover, these figures do not account for whales struck by boats or those killed but not taken by hunters.¹¹³ Considering these factors, the actual number of whales killed each year is likely to be much higher. Without new surveys, there is no way of knowing the trends in this population or how hunting has affected them.

SHARED U.S.-CANADIAN BELUGA POPULATIONS

BEAUFORT SEA (SHARED U.S.-CANADA): Questionably Stable, Updated Survey Needed

Beluga Whales living in the Beaufort Sea are the target of both Canadian and Alaskan subsistence hunters. The last population estimate dates back to 1992 and, based on this estimate, the Beaufort Sea beluga population is thought to be 39,258.¹¹⁴ Each year Canadian and U.S. hunters take a combined average of 126 whales, which is considered within safe limits; however, without current population data it is not possible to be certain and abundance trends are unclear.¹¹⁵

STATUS

UNKNOWN**

STABLE

POSSIBLY DEPLETED

DEPLETED*

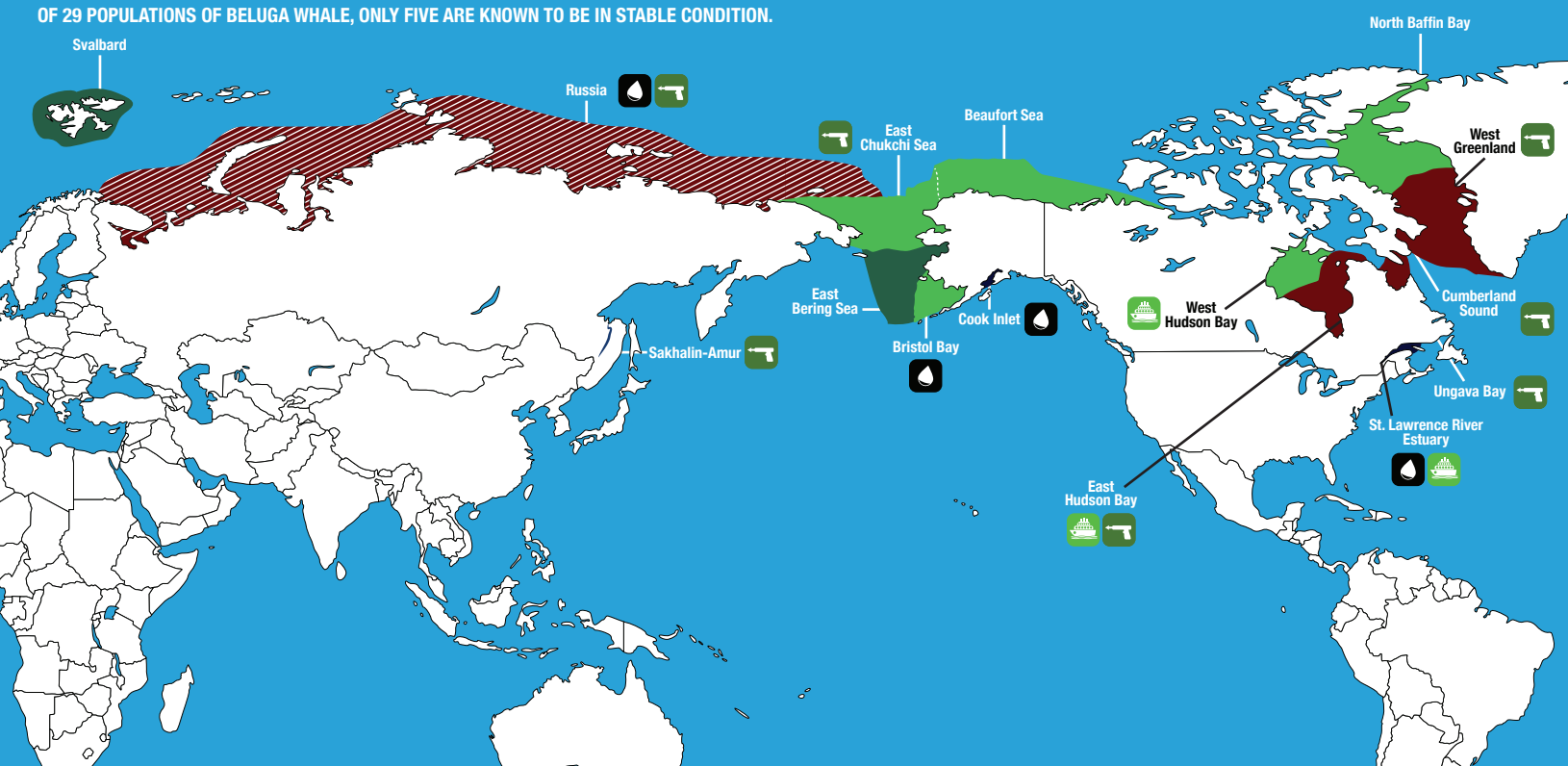
THREATS

POLLUTION

OVERHUNTING

NOISE POLLUTION

OF 29 POPULATIONS OF BELUGA WHALE, ONLY FIVE ARE KNOWN TO BE IN STABLE CONDITION.



*THIS BELUGA POPULATION HAS DROPPED BELOW ITS SUSTAINABLE LEVEL.

**POPULATION HAS NOT BEEN SURVEYED FOR AT LEAST EIGHT YEARS, THERE IS CONCERN THAT ANY HUNTING IN THE REGION MAY BE AT UNSUSTAINABLE LEVELS.

CANADA

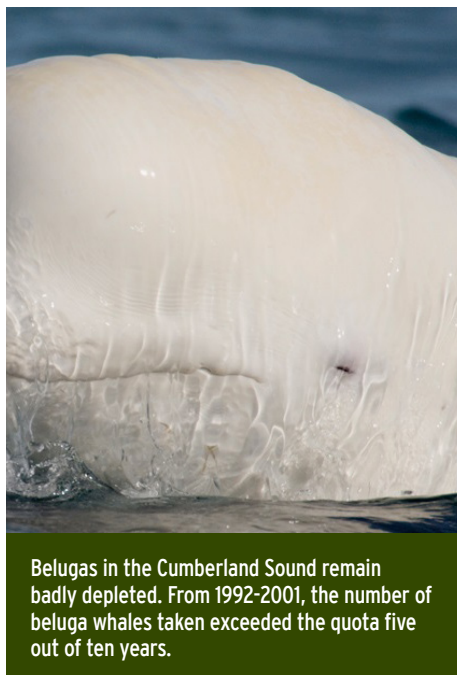
Canada's beluga whales are threatened by unsustainable subsistence hunting. Though regulated through a quota system, local hunters regularly exceed the number of whales allotted for each population. In the case of East Hudson Bay, the quota was only followed for three years out of a 26 year period. Though most belugas are only targeted in the summer, several Canadian populations such as Ungava Bay and Baffin Bay, are hunted across multiple seasons as they migrate. Better enforcement of quotas and more updated population surveys are needed.

Beluga whales in Canada are managed by the Department of Fisheries and Oceans (DFO) and protected by the Regulations Respecting Marine Mammals and the Species at Risk Act. The Species at Risk Act established the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which reports on each population and classifies their condition.¹¹⁶ These regulations ban commercial hunting and limit the length of time and geographic area of subsistence hunts. Taking mother or calf belugas is also prohibited, as is hunting any animals that would hamper the recovery of an endangered population.¹¹⁷ While DFO is the overall management authority for beluga whales, day-to-day operations are conducted by regional organizations. These organizations help measure population size and establish the number of whales that can be taken in a given season.

CUMBERLAND SOUND (CANADA): Depleted by Overhunting, threatened by Noise Pollution, Trend Unknown

Targeted by commercial hunters since at least 1868, Cumberland Sound's beluga whale population collapsed in the late 1930s. Commercial hunting combined with unregulated subsistence hunts reduced populations from over 5,000 in 1922 to just 500-700 by 1981.¹¹⁸ Since then, subsistence hunts in the Cumberland Sound have been regulated, but the overall trend is difficult to ascertain. In 1999, aerial surveys estimated a population of 1,960, while a 2009 estimate placed the total number of belugas at 788.¹¹⁹ As there is no reason to account for such a sharp decline,

the 2009 survey is considered flawed, and a more updated survey is needed for comparison. However, even under ideal conditions, Cumberland Sound's beluga whales will not be at 70 percent of their historical numbers for another 90 years.¹²⁰



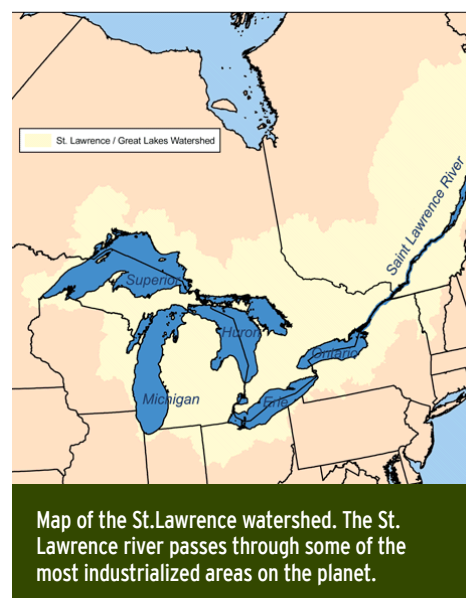
Belugas in the Cumberland Sound remain badly depleted. From 1992-2001, the number of beluga whales taken exceeded the quota five out of ten years.

From 1992-2001, the number of beluga whales taken exceeded the quota five out of ten years.¹²¹ Additionally, though the quota itself is set at a sustainable level, it has encouraged competition among the hunters, who disproportionately outnumber the amount of whales that can be legally taken. This has resulted in rushed hunts with killed or wounded animals not recovered or counted towards the regulated catch.¹²² Whalers report a decrease in the blubber content of the whales caught which experts attribute to the effort of escaping from increasing motorboat traffic.¹²³

ST. LAWRENCE ESTUARY (CANADA): Depleted by Overhunting, Threatened by Pollution, Development, and Noise Pollution

The St. Lawrence River is home to the most southern population of beluga whales in the world. St. Lawrence belugas were first targeted commercially by residents of Basque Island in the St. Lawrence Estuary in 1580.¹²⁴ In response to concerns by 20th century fishermen that

beluga were consuming fish, the Government of Quebec enacted a 15 dollar per beluga bounty in 1928, and subsidized the use of bombs to exterminate the population.¹²⁵ From 1932-38 alone, 2,233 bounties were paid, each hunter providing a set of beluga tail flukes as proof of their kill.¹²⁶ Following a 1946 study which proved the belugas' impact on fish populations was negligible, the bounty was removed.¹²⁷ However, whalers continued to target the beluga population until 1979. Though the population has since rebounded from a low of 500 belugas to nearly 1,000 today, this is a fraction of its estimated original population of 10,000.¹²⁸ The entire population remains threatened by pollution in the St. Lawrence Estuary.¹²⁹



Map of the St. Lawrence watershed. The St. Lawrence river passes through some of the most industrialized areas on the planet.

One of the most industrialized regions on the planet, the St. Lawrence estuary is heavily contaminated by nearby aluminum smelters which has had a devastating effect on its belugas. From 1983 to 1999, 263 belugas beached or were found drifting in the estuary.¹³⁰ Researchers examining the remains found that 27 percent had some form of cancer.¹³¹ The source was found to be local aluminum smelter, which had contaminated the river with carcinogens known as polycyclic aromatic hydrocarbons (PAHs).¹³² Though a recovery plan has been enacted, and there are signs that pollution levels in the beluga population are dropping, the situation remains critical.¹³³ Other toxins such as Polychlorinated Biphenyl (PCBs) have also been found.¹³⁴ PCBs are associated with runoff from the Great Lakes Region, and disrupt the belugas' thyroid glands, damaging

their ability to maintain their own body temperature in the cold waters of the estuary.¹³⁵ Since 2008, the number of dead beluga calves found in the St. Lawrence has increased sharply. A record 17 were found drifting in the water or washed up on shore in 2012.¹³⁶ Recent budget cuts have closed the DFO's ecotoxicology lab, barring researchers from examining the impact that pollutants may be having on calves.¹³⁷

The St. Lawrence Estuary's belugas are also threatened by other types of human development in the region. Most recently, the energy company TransCanada proposed building an oil pipeline known as Energy East through the estuary, as well as constructing a deepwater port at Cacouna to export oil and natural gas.¹³⁸ The proposed 4,600 kilometer pipeline would be the largest in North America, transporting 1.1 million barrels of oil each day, more than the proposed Keystone XL pipeline across the United States.¹³⁹ If the proposed pipeline and port are constructed, drilling and shipping activity would drastically increase the level of noise pollution in the region.¹⁴⁰

Though the St. Lawrence beluga population's status was downgraded from endangered to threatened under Canada's Species at Risk Act, marine scientists have urged a return to endangered status.¹⁴¹ The species' existing protections may be threatened by political expediency in the name of the Energy East pipeline. When a similar project by Enbridge Inc., known as Northern Gateway, was proposed earlier this year to link Alberta with northern British Columbia's port Kitimat, the area's coastal population of humpback whales were downgraded from "threatened" to a "species of special concern."¹⁴² Though the population has increased to a tenth of its historic size, the timing of its downgrade coincided with a federal panel's approval for the 525,000 barrel pipeline.

On October 15, 2014, Quebec's environment ministry blocked Transcanada from conducting exploratory drilling for the project in the St. Lawrence Estuary, citing their concerns for the project's noise pollution.¹⁴³ The ministry also mandated that the company do more to restrict boat traffic in the port area to limit any disturbance to the local beluga population.¹⁴⁴ Drilling had previously been suspended by the Quebec Superior Court until a critical breeding period for the belugas had passed.¹⁴⁵

UNGAVA BAY (CANADA):
Possibly Extirpated by
Commercial and Subsistence
Hunting, Threatened by
Ongoing Subsistence Hunting,
Development and Noise
Pollution

The beluga whales of Ungava Bay are so few in number they cannot be detected from the air and it is possible the population is completely extirpated (locally extinct). The most recent assessment suggests there could be just 32 whales left in Ungava Bay.¹⁴⁶ Reduced to just a few hundred by commercial hunting by the 1970s, subsistence hunters continued to freely target Ungava Bay's belugas until 1986.¹⁴⁷ Although a quota system was established, it was regularly disregarded. Other regulations protecting certain areas, as well as mother and calf belugas from hunting, were also ignored.¹⁴⁸ Based on the most recent population estimates, taking one whale is now considered unsustainable for Ungava Bay. In spite of this, in 2014, the DFO approved a quota of 10 belugas for the year.¹⁴⁹ Overhunting is not the only threat facing Ungava Bay's beluga whales. New hydroelectric dams along the La Grande

River may impact the rivers feeding these estuaries. An increasing number of vessels also contribute more noise pollution.^{150/151} Designated as “endangered,” it is unclear whether the population will ever recover.

EAST HUDSON BAY (CANADA):
Depleted by Commercial
and Subsistence Hunting,
Threatened by Ongoing
Subsistence Hunting, Noise
Pollution and increased
Commercial Fishing, Not
Recovering 🚢 🔫

With a population of around 3,000, East Hudson Bay's beluga whales are in danger of following neighboring Ungava Bay's population into near extirpation.¹⁵² As with many other populations, commercial hunting from the 1860s to the early 1900s played a role in depleting the stock. However, unlike Cumberland Sound or Ungava Bay, takes by subsistence hunters remain very high. Though there has been a quota system in place for East Hudson Bay since 1986, it is almost never followed. There is record of subsistence hunters taking more than four times the quota. For example, in 2001 when quotas were reduced to 30, local hunters took 130.¹⁵³ Though catches have declined in the past decade, from 1986 to 2012, the legal number of hunted whales was only adhered to three times.¹⁵⁴ Moreover, these figures do not include all of the beluga whales taken from East Hudson Bay's population. Many communities refuse to report their catch and underreporting by others is a distinct possibility.¹⁵⁵ Additionally, the belugas in East Hudson Bay migrate through other hunting grounds including Ungava Bay, the Hudson Strait, and other parts of the



Hudson Bay. Tallied together, it is likely the total number of East Hudson Bay belugas hunted each year is more than double the allotted quota.¹⁵⁶ The population was assessed as endangered in 2004. The population also faces threats from competing commercial fisheries and noise pollution from vessel traffic.¹⁵⁷

JAMES BAY (CANADA): Status Unknown, Hunting Poorly Documented

James Bay is home to a number of beluga whales during the summer, but it is unclear what portion of this population is genetically distinct. COSEWIC attributes at least some of the population's movement to the whales' migration in and out of James Bay.¹⁵⁸ At least part of the population does reside in James Bay full time, as researchers for the Department of Fisheries found that some whales tagged in the summer remained in the bay until December.¹⁵⁹ Aerial surveys conducted in 2004, 2008, and 2011 returned estimates of 8,364, 19,439, and 14,967 belugas respectively.¹⁶⁰ Though these rates vary, the 2011 survey is considered accurate and consistent with the expected rate of growth for a healthy population. Though the belugas are not hunted in the summer, the beluga's spring and fall migrations take them through hunting grounds for the local Nunavut and Nunavik communities.¹⁶¹ More data is needed to distinguish between belugas traveling from the West Hudson Bay and those that reside within the James Bay.

WEST HUDSON BAY (CANADA): Stable and Abundant, but Hunting Poorly Documented, Threatened by Noise Pollution and Development

With an estimated 57,300 whales, West Hudson Bay's beluga population is one of the largest in Canada.¹⁶² Moreover, the population has remained relatively stable since 1987. Nevertheless there is still cause for concern. The beluga population in West Hudson Bay is highly migratory, traveling across much of the bay and into the Hudson Strait.¹⁶³ This wide geographic area encompasses multiple hunting communities and takes from the whale population occur not only during summer (as is the case with most beluga hunts),

but spring and fall as well.¹⁶⁴ This process is poorly documented, with an estimated 764 whales taken in 2003 by just a portion of the communities.¹⁶⁵ Without better information from all hunters, it is impossible to know whether these takes are sustainable. In 2004, the West Hudson Bay population was labeled as a population of Special Concern, in part due to wide-scale hunting, as well as the impact of increasing noise from shipping traffic and development of a series of hydroelectric dams constructed in the region along the La Grande River.¹⁶⁶ Future expansion of the Western Hudson Bay port of Churchill may also pose a long term threat to the West Hudson Bay belugas. The port's operator, Omnitrac Canada, has proposed year round shipping with the use of ice breakers, including millions of gallons of crude oil brought in by rail to the port.¹⁶⁷ This move has been opposed by the province of Manitoba's Conservation Minister.¹⁶⁸

FOXES BASIN (CANADA): Status Unknown

For management purposes, the Foxe Basin population is grouped with the larger West Hudson Bay's beluga whales. The population was identified as a separate group by the IWC in 2000, with an estimated 1,000 belugas.¹⁶⁹ Foxe Basin's resident belugas may comprise different migrations from both the West Hudson Bay and High Arctic populations.¹⁷⁰

SOUTH HUDSON BAY (CANADA): Status Unknown

As with Foxe Basin, the IWC classified the South Hudson Bay as a separate population of beluga whales with an estimated population of 1,299.¹⁷¹ The population is also grouped as part of West Hudson Bay's population by COSEWIC, and its status as a genetically distinct stock is unclear. The population is currently hunted by subsistence hunters and further studies are needed to verify whether it qualifies as distinct or in need of separate protection.

FROBISHER BAY (CANADA): Status Unknown

Like Foxe Basin and the South Hudson Bay, the beluga whales of Frobisher Bay were classified as a separate population by the IWC on a precautionary basis. The number of belugas in this population is unknown. For the purposes of management, they are grouped with the West Hudson Bay by COSEWIC, and it is unclear if they are actually distinct from this much larger population. Genetic analysis suggests their similarity to the West Hudson Bay's population, however this has not been completely verified.



Though abundant, belugas in the West Hudson Bay are threatened by future shipping development.



Though Greenland has instituted a quota system, the local population remains badly depleted and the sustainability of the quotas is not clear.

SHARED CANADIAN/ GREENLAND BELUGA POPULATIONS

**NORTH BAFFIN BAY/EASTERN
HIGH ARCTIC: Stable**

One large population of beluga whales spends its summers in the Canadian High Arctic and then splits into two smaller groups to winter in Baffin Bay and off the western coast of Greenland. With a combined estimate of 21,213 animals, the belugas that remain in the Canadian High Arctic are mostly thriving.¹⁷² Subsistence hunters targeting the whales' summer range take less than a 100 whales a year, within sustainable levels for the population.¹⁷³ The population that remains within Canadian waters are seemingly safe from other negative human impacts, though climate change may pose a threat in the long term. The population of whales that migrate to Greenland each winter faces greater pressures.

GREENLAND BELUGA POPULATIONS

**WEST GREENLAND: Depleted
by Overhunting, Threatened
by Ongoing Subsistence
Hunting and Commercial
Fishing**

The Canadian High Arctic belugas are one of several populations that winter off the coast of west Greenland which face pressure from overhunting. Subsistence hunts are not limited by season in Greenland and many populations along the southern coast may have been wiped out entirely. From 1954-2011, 35,339 whales were reported taken from Greenland's west coast. However, due to underreporting and a lack of accounting for the hunt's struck and lost rate, this figure does not account for all of the whales killed.¹⁷⁴ In the early 1990s, Greenland began to slowly introduce a regulatory structure to manage the beluga whale populations. Drive hunts, a method of hunting that herds the mammals into a small cove for slaughter, were finally banned in 1995.¹⁷⁵ In 2004, Greenland implemented a quota system, though both its introduction and changes to its legal limits have been a slow process. While this delay allowed for years of unsustainable levels of hunting, the new regulations have been mostly followed.¹⁷⁶ Currently, Greenland works with the North Atlantic Marine Mammal Council (NAMMCO) to establish its quotas,

though until recently the resulting quota was higher than that suggested through NAMMCO. However, though NAMMCO has suggested these quotas are sustainable and that populations are recovering, a 2013 Joint Working Group assessing the population admitted that its estimated growth rate of five percent may be "overly optimistic".¹⁷⁷ In addition to overhunting, western Greenland's beluga population may be threatened by commercial fishing for Greenland halibut.¹⁷⁸ Impacts from ship traffic and competition for prey resources in this area have also not been fully studied.

SVALBARD

**SVALBARD: Status Unknown,
Possibly Depleted by
Commercial Hunting**

The islands of Svalbard are 500 miles north of Norway, and are home to a beluga population of unknown size. Beginning in the early 18th century, Russian whalers hunted Svalbard's belugas. There is little consistent data on the size of the hunts, though in 1818 an overwintering crew caught 1,200 belugas.¹⁷⁹ In 1866 Norwegian whalers joined the hunt, taking more than 15,000 belugas until hunting was banned in 1961.¹⁸⁰ The IWC estimates that there are between several hundred and several thousand belugas near Svalbard at present, though there is little survey data and no information on the population's trend.¹⁸¹

BELUGA POPULATIONS IN THE RUSSIAN FEDERATION

Eight Populations Depleted by Overhunting, Four Unknown-Threatened by Pollution and other Human Activities

Of the 29 global populations of beluga whales, 12 reside within the waters of the Russian Federation: Franz Josef Land, the Ob and Yenisey Gulfs of the Kara Sea, Oneshsky Bay (White Sea), Dvinsky Bay (White Sea), Mezensky Bay (White Sea), Southwest Laptev Sea, West Chukchi Sea, the Anadyr Gulf, Shelikov Bay, Shantar Bay, and the Sakhalin/Amur River near the Okhotsk Sea.¹⁸² Historically the Svalbard belugas have also been closely associated with Russian whaling as well.

Like other populations of belugas across the world, those in Russian waters were historically targeted by both commercial and subsistence hunters. Commercial harvests peaked around 1933, with a catch of 2,800 whales before declining and finally ceasing altogether in 1963. However, commercial whaling was not banned in Russia until 1999.¹⁸³ Though data on these commercial hunts is incomplete, they took a



Russia was the last range state to ban commercial hunting of beluga whales.

toll on Russia's beluga whale populations. Eight of the 12 stocks are now considered likely to be depleted, with the status of the remaining four unknown.¹⁸⁴ There is not enough survey data to determine whether they are continuing to decline.

Determining the status of Russian beluga populations is further complicated by subsistence hunts which have continued but are poorly monitored. Subsistence hunts are managed under a quota system. In 2005, the last time that information was made available about these hunts, an estimated 1,220-1,550 whales could be legally taken.¹⁸⁵ While anecdotal evidence from Russian officials suggests that this quota is never met and that the number of whales taken are "dozens, not hundreds," these hunts still target depleted populations and may interfere with their recovery.¹⁸⁶ The health of Russia's beluga populations is poorly understood at best and the International Whaling Commission has called on Russia to report catch data and to construct an accurate picture of beluga whale population sizes. The Russian government founded the White Whale Programme in 2008 to address this lack of data, which the Programme admits is a "serious obstacle" to any suggestion that Russian quotas are sustainable.¹⁸⁷

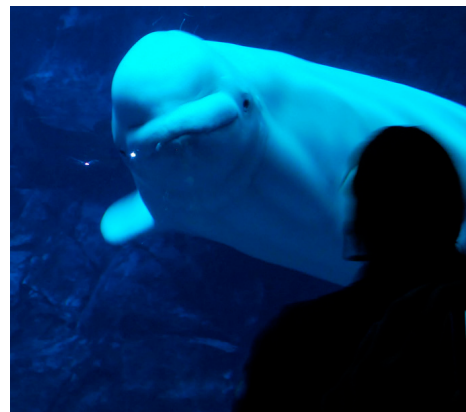
Beluga whales have also been targeted for non-subsistence reasons as well. In at least one instance, permits were issued to hunt 200 beluga whales in the Okhotsk Sea with the meat from 31 whales sold and exported for human consumption in Japan. Following international outcry, the permits were revoked and the hunt ended.¹⁸⁸

Starting in 1986, Russia also became the sole provider of live belugas for aquariums, taking an average of 20 each year since 2000.¹⁸⁹ These live captures come mostly from the Sakhalin-Amur River Delta Region.¹⁹⁰ Through four separate hunts a group of 18 belugas were taken from the Sea of Okhotsk to be sold to the Georgia Aquarium in 2012.¹⁹¹ However, as belugas are a protected species under the U.S. Marine Mammal Protection Act (MMPA), the aquarium had to apply for a permit to import the whales. This permit was denied by the U.S. National Oceans and Atmospheric Administration (NOAA) in 2013.¹⁹² The Georgia Aquarium is currently suing to appeal the decision.¹⁹³ A population survey conducted by the Russian Beluga Project was

assessed by the IUCN at the behest of the Ocean Park Corporation, one of the Interested Parties.¹⁹⁴ A minimum abundance of 2,891 was established by three aerial surveys, but the report cast doubts on the validity of this figure.¹⁹⁵ It was not clear what survey method was utilized, and the panel also noted that the analysis software used was "not described in a way that inspires complete confidence in its methods."¹⁹⁶ In 2013, Russia set a capture limit of 263 belugas for the population, a figure the IWC considers six to eight times higher than sustainable removal levels of either 29 or 42 whales.¹⁹⁷ Over the course of the year, three Russian teams captured 81 belugas.¹⁹⁸ At least 34 belugas were also believed to have died as a result of a rushed season and competition between the teams.¹⁹⁹ The researchers observing the capture also believe this number is conservative, as an unknown number of whales failed to adjust to captivity and were released and "replaced" with new captives.²⁰⁰ The Amur River is also the world's tenth longest river, spanning a number of heavily industrialized regions similar to the St. Lawrence Estuary. Like the St. Lawrence, chemical pollution has been repeatedly documented in the river.²⁰¹

All of Russia's beluga populations have to contend with some of the most heavily polluted waters on earth; 75 percent of surface water is polluted in Russia with untreated wastewater and carcinogens such as dioxins.²⁰²

Currently, beluga hunts and populations are managed by the range state nations: the United



A beluga whale in the Georgia Aquarium. In 2013, Russia set a capture limit of 263 belugas for the population, a figure the IWC considers six to eight times higher than sustainable removal levels of either 29 or 42 whales.

INTERNATIONAL MANAGEMENT

The IWC has repeatedly called on range states to ensure hunting is properly monitored.

States, Canada, Greenland, and the Russian Federation. Internationally, several bodies play a role in research, analysis, or provide recommendations on safe quotas for the range states.

The most prominent of these bodies is the International Whaling Commission (IWC), which is the only international body recognized for its work on small cetaceans by the United Nations.²⁰³ Founded in 1946, the IWC was created to manage one of the first global agreements managing threatened species, the International Convention for the Regulation of Whaling. In 1981, 1992, and 1998, the IWC adopted resolutions calling for beluga range states to ensure that catches are properly monitored and requesting its Scientific Committee to conduct population research. Beluga whales have been periodically reviewed by the IWC's small cetacean sub-committee and the Scientific Committee has consistently voiced its concern for populations in west Greenland, East Hudson Bay, and

the Russian Arctic.^{204/205} In addition to offering recommendations, the IWC also maintains a voluntary fund for small cetacean conservation research that could support new studies on the beluga whale.²⁰⁶ However, the IWC remains a voluntary body with no means of enforcing its recommendations.²⁰⁷ Following the 1982 moratorium on whaling, Canada renounced the International Convention on Whaling and left the body entirely.²⁰⁸ Currently the Russian Federation, Greenland as represented by the Kingdom of Denmark, and the United States are all members of the IWC, but only the United States submits information on any beluga catches with its national progress reports.

The North Atlantic Marine Mammal Commission (NAMMCO) and the Canada-Greenland Joint Commission on Belugas and Narwhals (JCBN) were formed by Canada, Greenland and Norway to review data on beluga whales and narwhals. However, neither NAMMCO nor JNCB is widely recognized within the international community as a legitimate forum for whale management issues.

One potential international body that could offer a venue for coordinated beluga research and management is the Arctic Council. The Council was established in 1996 as a forum for high level discussions between the Arctic States and also with the indigenous communities on issues common to the region.²⁰⁹ Of particular concern has been the issue of sustainable development and environmental protection for the Arctic. To this end, the Conservation of Arctic Flora and Fauna (CAFF) Working Group was established to help coordinate common responses to species and habitat management and conservation.²¹⁰ The Council has already called for a joint monitoring plan for beluga whales in their assessment of Arctic mammals and belugas were included in the Council's comprehensive Arctic Biodiversity Assessment where it noted the serious effects of climate change on belugas and their habitat.²¹¹ Given that all four of the beluga whale's range nations are currently permanent members of the Arctic Council, and that the Arctic Council has the available expertise and interest in protecting Arctic marine species, including the beluga, the Arctic Council represents a viable option for expanding beluga conservation efforts.

CONCLUSION AND RECOMMENDATIONS

The world's beluga range states must enact precautionary policies and actions to ensure populations recover to stable numbers.

To ensure the recovery and survival of the world's beluga populations, EIA respectfully makes the following recommendations:

- EIA is calling for a ten-year moratorium on any further increase in commercial shipping through the Arctic until rigorous environmental safeguards are put in place. These should be required both by all Arctic range states, and states wishing to participate in industrial activities in the Arctic, through adoption of national legislation enshrining the Polar Code and demonstrable allocation of resources and infrastructure to guarantee their full implementation.
- EIA joins the call for a ban on all additional oil and gas activities in the Arctic.
- EIA applauds and supports the major policy recommendations of the Council's Arctic Biodiversity Assessment to continue to study and to protect Arctic biodiversity, but believes the recommendations may be at odds with the ambitious Arctic development plans of its member nations. Thus, EIA recommends that the Arctic Council expand the mandate of its working group on Conservation of Arctic Flora and Fauna to specifically study the impacts of climate change on beluga whales and to make recommendations to support their conservation, including the establishment of sanctuaries in the habitats of particularly at-risk populations and the protection of critical breeding and hunting grounds and migration routes in each of the four range states.
- For beluga populations in the United States, strict environmental impact assessments should be conducted for any oil and natural gas operations, port or shipping expansion, and mining development near beluga populations, particularly for the Cook Inlet, Bristol Bay, and Hudson Bay populations.
- EIA recommends that beluga range states work with the IWC and its Scientific Committee to update population assessments including the East Chukchi Sea and Beaufort Sea populations, and all Russian populations.
- The sustainability of quotas, particularly in Greenland, but also in Russia, should be examined and subject to transparent international review and agreement.
- Reporting on the numbers of beluga whales that are struck or lost during hunts, especially in Canada and Greenland, should be made mandatory and transparent.
- Hunting quotas must be rigorously enforced, particularly in Canada's Cumberland Sound, Ungava Bay, and East Hudson Bay, and for all Greenlandic and Russian populations.
- The capture, export and import of live belugas for commercial purposes should be universally banned.

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