



the Beluga News

Increasing our knowledge of Churchill's Beluga population

Artwork by
Agnes Kuptana



Churchill, MB. Photo credit: Alex DeVries @alexdevriesmagnifico

Studying Belugas During a Pandemic Summer

ALTHOUGH MOST RESEARCH PROJECTS were canceled last summer due to the pandemic, Oceans North was able to complete a second season of data collection on beluga-boat interactions in the Churchill River estuary. This would have not been possible without the assistance of members of the local Churchill community.

The three-year project is collecting data about how belugas interact with whale-watching vessels, as well as commercial ships arriving at the port.

Erica Gillis, a research manager at the Churchill Northern Studies Centre, led a four-member team of field technicians on behalf of Oceans North.

"It was a really interesting opportunity to observe belugas with a lot fewer vessels on the water," said Gillis, who also participated in the first year of the study.

The research team is repeating a beluga study from 2005 that found no statistical difference in how whales acted around boats

in the Churchill River. But since then, overall tourism has increased and climate change is affecting this region of Western Hudson Bay, where up to 4,000 belugas congregate each summer to shelter, shed their skin, eat capelin and birth calves.

Depending on the weather, Gillis and the team were out on the water twice a day with Sea North Tours, accompanying kayak tours at low tide, and traveling in Zodiacs with eight to 12 tourists at high tide.

The other members of the local research team include two staff from the study centre and the fourth person is a local high school student. While on the water, they worked in pairs to observe how belugas behave when they are within 150 metres of a boat. For three minutes, one researcher observes the belugas, including using a rangefinder to measure exact distances from the vessel. The other team member records the data in a waterproof notebook.

Last summer the team has also begun to observe beluga interactions with large ships

that dock at the Port of Churchill, including supply ships and grain ships. When a vessel is scheduled to arrive, the researchers record beluga behavior starting 24 hours before it docks and for a day after it leaves.

Oceans North is planning a third season of data collection for the summer of 2021.

The study will provide useful information about the healthy beluga populations near Churchill. Oceans North has asked the federal government to help conserve the crucial whale habitat in this region, as well as in the Seal River and Nelson River estuaries, by establishing a national marine conservation area.

For the past decade, Oceans North has been working to study, understand better and protect Manitoba's beluga whales and their habitat. Our overall goal is to develop science and local-knowledge based management practices that will allow the belugas and the human residents of Churchill to co-exist for generations to come. **We look forward to seeing you in Churchill this Beluga season!** •

Belugas need your help!

Contact us if you have ideas for beluga research, can share beluga stories or recent observations or would like more information.

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Worry in the water

By **Sarah Lawrynuik**



Photo credit: Trevor Gill - for Oceans North

Churchill might be known for polar bears, but the bears aren't social like these summering whales.

The estuaries in southwestern Hudson Bay are home to the largest population of belugas on Earth, which most recently was estimated to be about 54,500 animals in 2015, according to a survey conducted by Fisheries and Oceans Canada.

It seems undeniable that the western Hudson Bay belugas will have their lives upended by climate change, as their entire existence is dictated by the freeze-and-thaw cycles of sea ice in the bay — but as it turns out, exactly how climate change will impact these marine mammals is still poorly understood.

“Not a lot of studies have looked at climate change with respect to belugas. Most of the Arctic whale species, or marine mammals generally, we're still kind of at the stage of trying to understand them a bit more basically,” says Steve Ferguson, a research scientist with Fisheries and Oceans Canada.

While climate-change research has progressed with respect to animals such as seals, it is more difficult to study changes in populations of animals with longer lifespans and lower birth rates, he explains. “The population dynamics don't change very quickly because they're so long-lived.” The upper range of a beluga's lifespan has been estimated to be between 50 to 80 years.

There are a number of things that put this healthy whale population at risk for future decline, especially in a changing climate.

For one, their loyalty to their calving grounds means these animals will continue to return to this place, no matter what. That fidelity to a single spot puts them at greater risk should the area ever become less safe for them. It's something that's caused beluga populations in other parts of Canada to be particularly unresponsive to conservation efforts after population decline began.

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Dwight Allen co-owns Sea North Tours, the largest beluga tour business in Churchill. For him, longer ice-free seasons also means a longer tourism season. He says while he used to shut down towards the end of August, he can now stay open well into September. (At least in a normal year; he closed down on Aug. 24 this year, but due to low tourist traffic as a result of the pandemic, not because of the whales leaving the river.)

“It does bring a longer season for beluga watching,” Allen says. “So, there's a lot of potential in running a longer season. Tourism in Churchill is very important for our community and for all of Manitoba.”

Ferguson says Allen's observations that whales remain several weeks longer roughly line up with what he would expect to see, given the lengthening of the open-ice time on Hudson

Bay, however, no research has yet been done looking at changes in migration patterns.

But with longer open-water seasons for the belugas, so too is there a longer season for other species to wander into the bay which, on some occasions, brings predators to the belugas' doorstep.

“We've had killer whales come into Hudson Bay fairly regularly and attack beluga,” Ferguson says. “Even around Churchill it's been observed.”

Research using satellite telemetry has shown that when a killer whale wanders into beluga-filled waters, the white whales change their behaviour: reducing their range, moving closer to shore and away from attack sites. So, the beluga whales are safe, for now. But it's likely only a matter of time before a new pod of orcas figures out how to navigate into this easy feeding ground.

Oceans North is pursuing research because with longer ice-free seasons, there is speculation that soon there will be increased shipping through the port. What impact that could have on belugas is unknown but it is a source of great interest and concern for researchers, especially since the port is nestled along the shores of the estuary.

Their monitoring project began in 2019 and will continue through next summer. The hope is that this research can fill in the gaps of missing information about how belugas are



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influenced by increased traffic and inform policy decisions going forward, says Chris Debicki, vice-president of policy development with Oceans North.

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**-CHRIS DEBICKI,
OCEANS NORTH**

“There’s no outcome we’re certain of, we’re just looking to understand it better,” Debicki says. “We’re trying to find a responsible way to formulate recommendations on how belugas and a community can continue to coexist.”

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Two researchers from the University of Manitoba are also looking at the intersection of increased shipping and the health of the beluga population.

Emma Ausen, who is completing her masters research, is studying behaviour patterns using

aerial photos of belugas in the Churchill River estuary. “I’m hoping to see some kind of patterns in how they behave, especially connected to tide, weather conditions and boat/vessel presence,” she says.

Veronica Coppolaro, a physicist completing her PhD at the Centre for Earth Observation Science, is using hydrophones (underwater microphones) to study the vocalizations of belugas to further understanding of how they are using the estuary.

From her work she hopes to understand how the whales’ use of the area changes in the presence of the sound pollution from the commercial ships, something known to have great impact on other whale species that rely on underwater communication but never studied in the western Hudson Bay beluga population.

When a hydrophone dips beneath the surface of the Churchill River, it brings the water to life in a way that wasn’t evident moments before. Broadcast over the speaker are the squeeks, whistles, chirps, moans, moos and clicks of the plethora of belugas that dance in the water, just out of sight. Belugas are referred to as the “canaries of the sea” because of the enormous range of sounds they produce.

“They use different sounds for different reasons,” Coppolaro explains. “The socializing calls, they’re so varied, they make so many different sounds. But then they have the clicks, which are super high-frequency, and they’re used for navigation, echo location and searching for food, mainly. So, by knowing which kind of

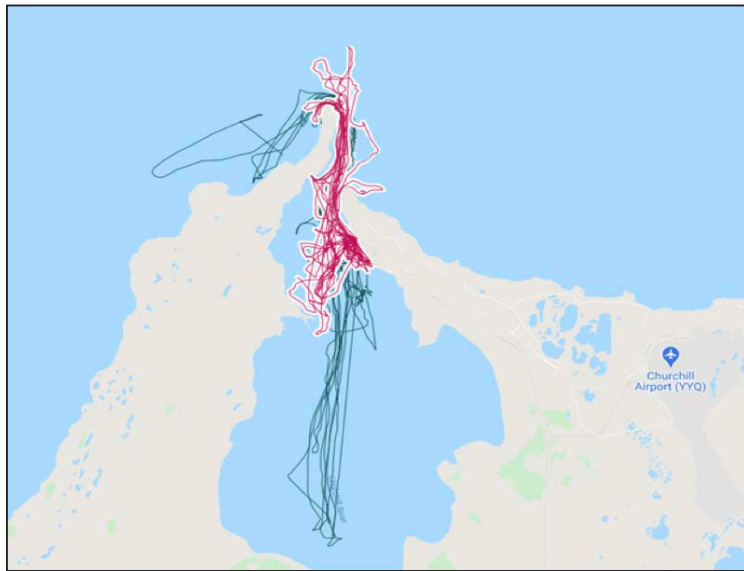
calls they’re making, we know what’s going on. (The question is) if a boat is approaching, will they stop echo locating? So you wouldn’t hear the clicks anymore, maybe you hear something else, like a call to tell the others to get out of the area, for example.”

Marianne Marcoux is supervising Coppolaro’s research and works as a research scientist with Fisheries and Oceans Canada at the Freshwater Institute in Winnipeg. Marcoux says similar research to Coppolaro’s was conducted in the St. Lawrence River, and there it was observed that the belugas shifted the frequency in which they communicated in response to noise pollution.

“We’re working together with (Fisheries and Oceans Canada) to see if this could give us an idea of how ships should behave when they come in,” Coppolaro says. “It could be as easy as slowing down when they come into the estuary, or only using a certain part — though there is already a channel that they mostly use — or just coming in at different times of day, when belugas are less active.”

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Advocates for Churchill’s belugas aren’t keen to wait around until the population is in decline before conservation actions are taken. These whales have been “understudied and a little bit neglected” by federal scientists, says Debicki. A lack of federal funding has meant research programs have been cut and, as a result, the scientific evidence needed to make proper policy decisions is incomplete, he says.



Tracking Belugas in the Churchill Estuary

Tracks of the 2019 and 2020 beluga focal follows in and near the Churchill River estuary (**blue** tracks 2019; **red** tracks 2020).

Note: The Sea North II was able to cover a greater area in 2019.

"It's the highest-density beluga population in the world and they're not protected, so that's certainly something we're working on," Debicki says.

Oceans North is specifically advocating for a national marine conservation area to be established along the shores of Hudson Bay, which would essentially create a water-based national park with tailored restrictions and protections created.

Creating a protected marine area wouldn't prohibit commercial or economic activity (such as tourism or fishing) within the area, however activities would have to prove to be ecologically sustainable and they could potentially be restricted in specific zones. National marine conservation areas do not impact traditional harvesting rights for Indigenous people.

"The establishment of an NMCA in this region will provide for more detailed studies of habitat use, as well as ongoing monitoring programs to detect changes and impacts," a 2018 report penned by Oceans North on the proposed conservation area reads.

"The NMCA would establish a management plan designed to mitigate threats with adaptive mechanisms to respond to changes, while working with the Port of Churchill and shipping industry to design preferred minimal-impact shipping routes

and prohibit ocean dumping of hazardous pollutants. Furthermore, an NMCA could ensure that future actions by Manitoba Hydro are co-ordinated and consistent with the NMCA management plan and that Manitoba Hydro is directly engaged as a partner in the conservation and management of beluga habitat in the area."

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**-MARIANNE MARCOUX,
RESEARCH SCIENTIST,
FISHERIES AND
OCEANS CANADA**

A spokesperson for Minister of Environment and Climate Change Jonathan Wilkinson confirms that Parks Canada is in "an ongoing dialogue" with the province, local Indigenous communities and other stakeholders regarding the marine conservation area.

With the potential threats to the whales mounting, Sea North Tour's Allen says

he's not opposed to measures being taken to try to protect them before a problem announces itself, but he is weary of the area being controlled by bureaucrats "down south" who don't understand how the area is used by residents.

"We've already lost so much control of our land and it's so important to start regaining control of the land around our community, for the wellness of our community and for our sustainable future," Allen says.

Manitoba's 2016 beluga habitat sustainability plan ranks noise pollution and climate change as presenting a "medium" level of concern for the whales, while listing pollution as an issue that presents a "high" level of concern.

Marcoux says that at this point there are no indications that this population is in decline, but that doesn't mean conservation initiatives shouldn't be taken. "I think we should protect what we have. This is the biggest population in the world, we should protect it. We know changes are coming, but I don't know if I would worry," she says. "I think we should just be proactive in protection mode." •

(Abridged from the Oct. 24, 2020 Winnipeg Free Press, edited for space)

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Take action to help protect Hudson Bay and Churchill's Belugas!

Visit the CPAWS - Manitoba webpage to learn how: <http://cpawsemb.org/get-involved/take-action>



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Oceans North is a registered charity that supports marine conservation in partnership with Indigenous and coastal communities.

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