

THE EDGE OF EXTINCTION: PROTECTING NORTH ATLANTIC RIGHT WHALES



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North Atlantic right whales are on the edge of extinction. Without intervention, they will go extinct in our lifetime. But the strength of a signature is immeasurable. Together, we can make a difference for these whales.

Please add your voice to Oceana Canada's petition at [Oceana.ca/RightWhaletoSave](https://oceana.ca/RightWhaletoSave).



Executive Summary

North Atlantic right whales are in crisis. According to the latest estimates, there are only around 360 of these creatures left. The biggest threats to their survival are vessel strikes and entanglement in fishing gear. And without continued Canadian intervention, these animals will not survive.

At least 32 right whales have died in the last four years, 21 of them in Canadian waters. To protect the remaining right whales from extinction and ensure their recovery, the federal government must develop stronger management measures to mitigate the threats they face.

In February 2020, Transport Canada announced a trial voluntary slowdown in the Cabot Strait to protect right whales from vessel strikes. From April 28 to June 15 and again from October 1 to November 15, vessels longer than 13 metres were asked to slow down to 10 knots.

Oceana Canada assessed how effective this measure was by tracking the speed of vessels during their transits through the Strait in the spring and the autumn using data from Global Fishing Watch, an independent, non-profit organization. The results were disappointing.

During the 95 days when the voluntary slowdown was in place, two-thirds of vessel transits failed to stick to the 10-knot slowdown. More than 40 per cent exceeded 12 knots, significantly increasing the risk of inflicting a potentially lethal injury to a right whale.

As critically endangered right whales are declining toward extinction, Oceana Canada is calling on Transport Canada and Fisheries and Oceans Canada to take the following actions to further protect them:

- Change the current voluntary Cabot Strait slowdown to make it a mandatory, season-long measure.
- Extend speed restrictions throughout the Gulf of St. Lawrence to all vessels, including those less than 13 metres.
- Increase transparency and understanding of fishing fleet movements by releasing all Vessel Monitoring System (VMS) data publicly and to Global Fishing Watch.
- Reduce the amount of fishing rope in the water through continued long-term support for ropeless gear.
- Expand the development and use of a comprehensive array of technologies (acoustic, satellite, infra-red, etc.) to monitor right whales — and then use the resulting data to better understand their movement and to trigger slowdowns and fisheries closures when required.
- Secure long-term funding for necropsy work so that teams can build their capacity, respond quickly and conduct the most thorough analysis possible.



Clipper's Story

Many North Atlantic right whales are named after unique features or markings on their body. Clipper's name came from a tragic incident; early in her life a vessel "clipped off" part of her tail fluke. Additionally, scarring patterns showed that she had at least two minor entanglements in fishing gear. Despite all of this trauma, Clipper gave birth to her first calf, a male, in 2016. Clipper and her son wowed crowds and made headlines in Florida when they swam close to shore for several weeks.

During the summer feeding season Clipper travelled to Canadian waters. She was seen in the Bay of Fundy in 2016 helping her calf learn to eat small crustaceans called copepods. In 2017 she began to feed in the Gulf of St. Lawrence.

In 2019 Clipper returned to the Gulf for the last time. Researchers saw her alive and swimming around on several different days in early June.

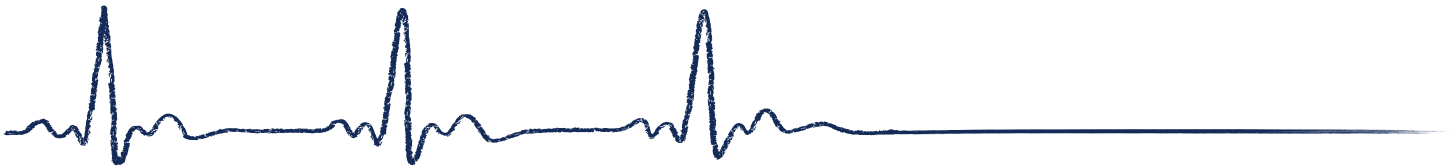
Tragically her body was found off the Gaspé Peninsula on June 27, 2019. She was the sixth of nine whales that died in the Gulf that summer. Her cause of death was blunt force trauma due to a vessel strike. Every reproductive female that is killed pushes this critically endangered species closer to extinction.¹



Photo Credit: Monica Zani/Anderson Cabot Center for Ocean Life at the New England Aquarium under permit number DFO-MAR-2007-007

On a Path to Extinction

North Atlantic right whales were once abundant, with a historical population ranging from 9,000 to 21,000 animals.² Commercial whaling decimated this species, driving their numbers down to less than 100 before a whaling ban was put in place.³



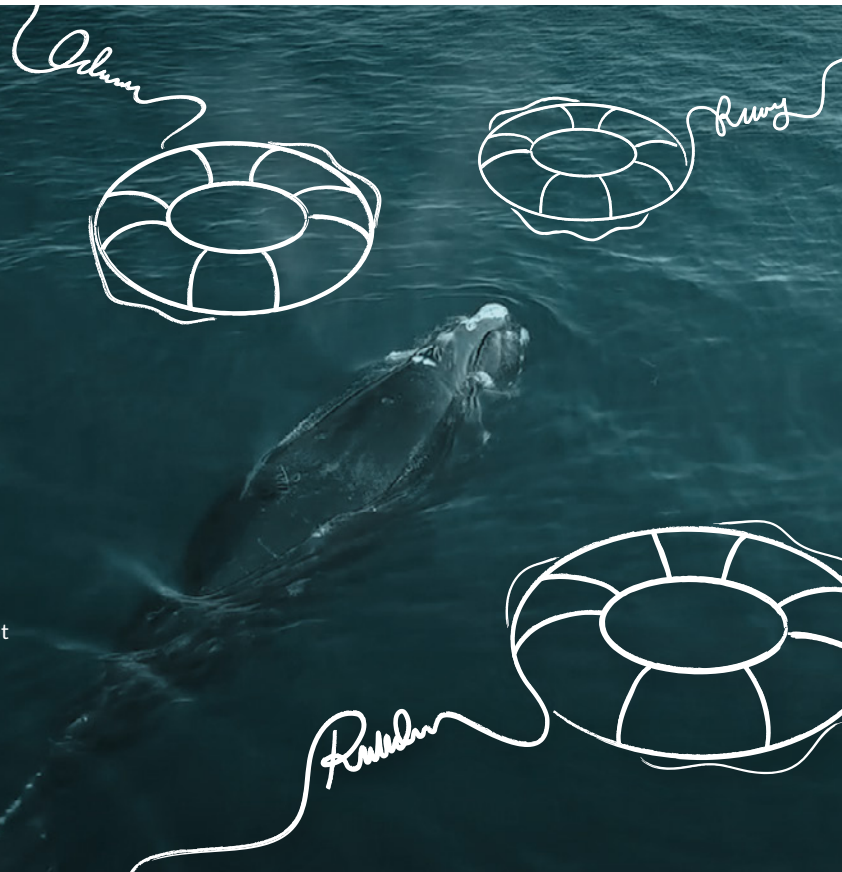
Although the population gradually grew following the 1935 ban, reaching 483 animals in 2010,⁴ recent years have been devastating. Currently, there are only around 360 North Atlantic right whales left.⁵ Between 2017 and 2020, at least 32 right whales were killed and at least another 14 were seriously injured, representing more than 10 per cent of the remaining population.⁶ And those are just the incidents that have been documented in U.S. and Canadian waters.

The two greatest threats facing North Atlantic right whales are vessel strikes and entanglement in fishing gear. When a vessel collides with a whale, the results are often fatal. In some cases, whales are sliced by propellers; in other cases, they are killed by blunt force trauma. Fishing gear also poses a serious threat. It can wrap around the whale's mouth, fins and tails, cutting into their flesh and bones. Often, the whale ends up towing this heavy gear for months. If the whale cannot free itself, it dies a slow and painful death.

Without Intervention, Right Whales Won't Survive

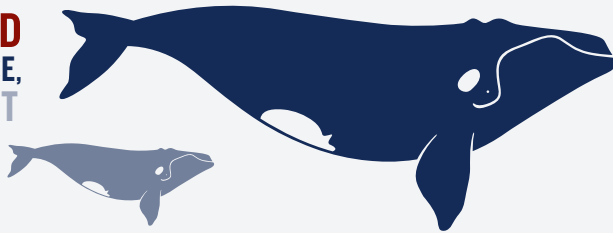
There have been 21 right whale deaths documented in Canadian waters since 2017. In the 10 cases where the cause could be determined, human actions were to blame. Eight were caused by blunt force trauma from collisions with vessels and two were caused by acute entanglement with fishing gear.⁷ To protect the remaining right whales from extinction and ensure their recovery, the federal government must develop stronger management measures to mitigate the threats they face.

Unfortunately, researchers were unable to determine the cause of 11 recent deaths. The more that is known about where, when and how these whales were killed, the better we can identify solutions that will protect them.

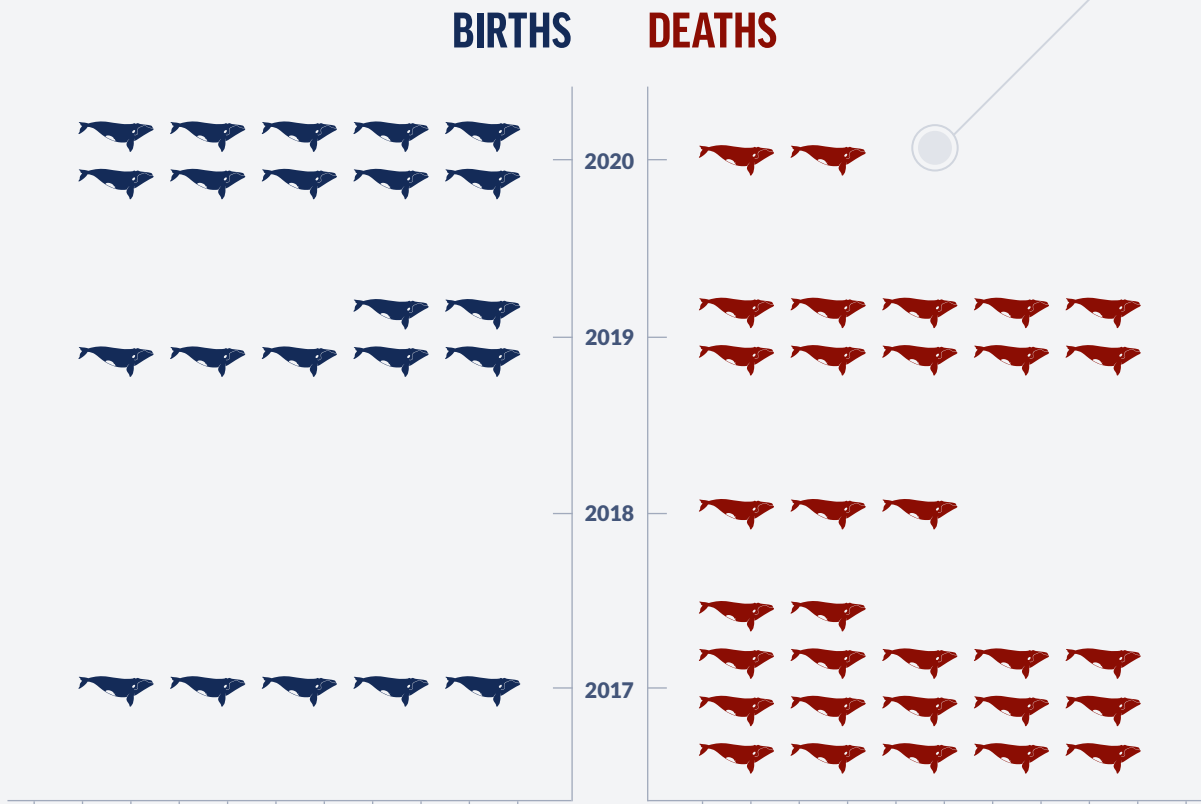


Deaths Outpacing Births

RIGHT WHALES ARE BEING KILLED BEFORE THEY HAVE A CHANCE TO REPRODUCE, WITH LESS THAN 100 FEMALES LEFT



2 CALVES STRUCK BY VESSELS IN 2020



ZERO CALVES BORN IN 2018

**IN THE LAST FOUR CALVING SEASONS
22 BIRTHS
32 DEATHS**



A HOPEFUL 39 CALVES WERE BORN IN 2009, BUT THE NUMBERS HAVE BEEN TRAILING OFF EVER SINCE⁸



In a 2021 study, researchers found that vessels of all sizes have the potential to cause lethal injuries to whales and that this risk increased significantly as the size and weight of the vessel increased. Even when travelling at the recommended reduced speed of 10 knots, smaller vessels (45 tonnes or less) have a 70 per cent chance of killing a whale upon collision. That's especially true if the whale was in poor condition (for example, stressed from being entangled). The slower and smaller the vessel is, the higher the likelihood of the whale surviving the collision.⁹



Photo Credit: Nick Hawkins



Photo Credit: FWC



Photo Credit: Nick Hawkins



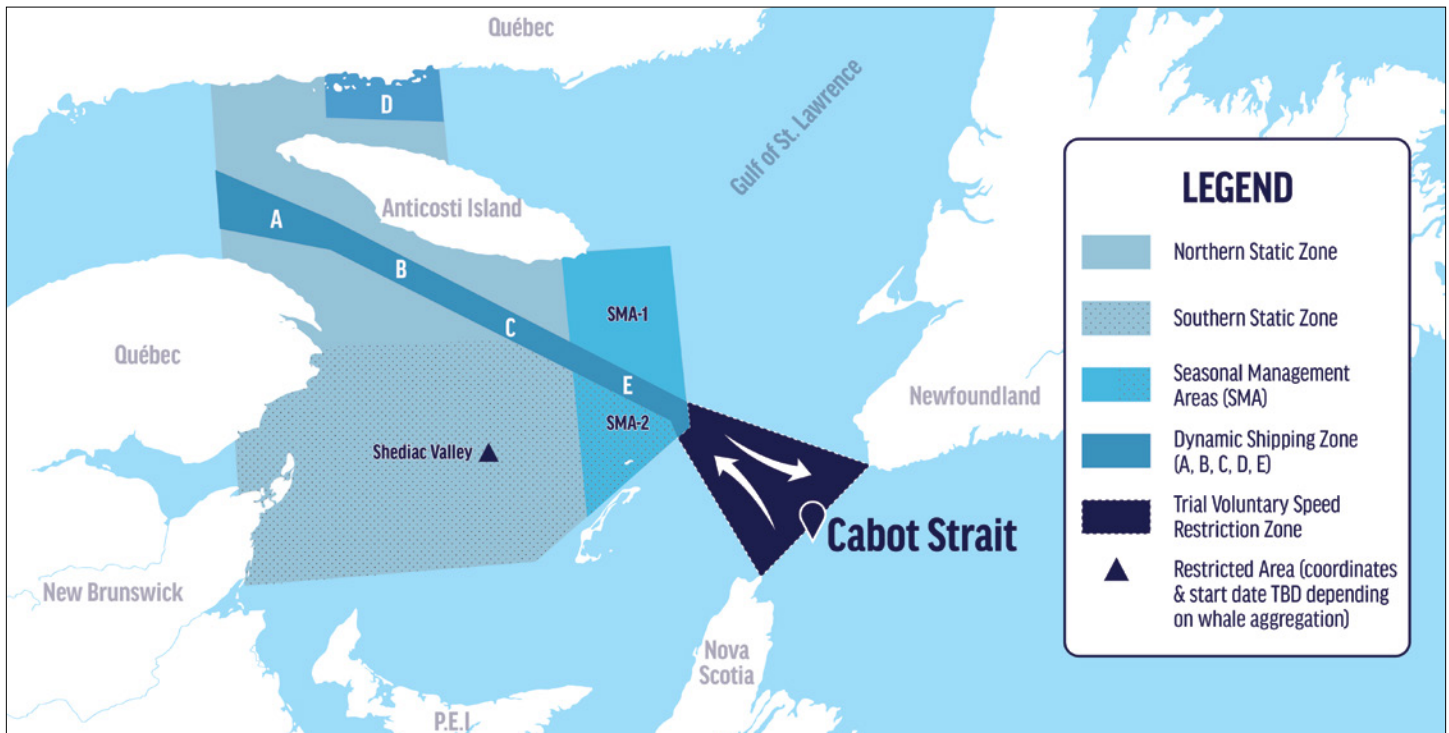
Dangerous Passage —

Tracking Vessel Speeds in the Cabot Strait

The busy Cabot Strait between Nova Scotia and Newfoundland is the primary gateway to the Gulf of St. Lawrence, the St. Lawrence River and major ports such as the Port of Montreal. Many right whales travel through the Cabot Strait to spend the summer feeding in the Gulf. In fact, recent acoustic data has found that they enter and exit the Gulf of St. Lawrence multiple times throughout the season, which stretches from April to November.¹⁰

However, usage peaks during their migrations in the early spring and late autumn. In February 2020, Transport Canada announced a trial voluntary slowdown in the Cabot Strait as one of several measures introduced to protect right whales from vessel strikes. From April 28 to June 15, 2020, and again from October 1 to November 15, 2020, vessels longer than 13 metres were asked to slow down to 10 knots.¹¹

Transport Canada's 2020 right whale migration measures in the Gulf of St Lawrence



The Cabot Strait is a narrow passage between Nova Scotia and Newfoundland. Because it provides a critical route for both vessels and whales in and out of the Gulf of St. Lawrence, the risk of vessel strikes is high. In 2020, Transport Canada enacted a trial voluntary slowdown in the Strait during spring and autumn whale migration.

To determine if vessels were complying with the voluntary slowdown, Oceana Canada analyzed their speeds in near-real time through the Cabot Strait before, during and after the two periods. The analysis used data from Ship Speed Watch, a public mapping tool available at oceana.ca/Cabot-Strait. Created by Global Fishing Watch — an independent non-profit founded by Oceana in partnership with Google and SkyTruth — this tool collects signals emitted from the Automatic Identification Systems on board most vessels. (For further details, see the Methodology section at the end of this report.)



Research suggests that a significantly higher number of vessels comply with slowdowns in areas with **mandatory** measures compared to areas with voluntary measures.^{12, 13}

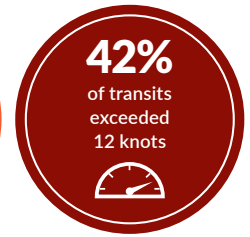
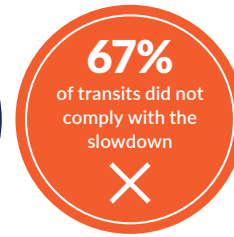
Results

The data told a disappointing story.

In the 14 weeks when the voluntary slowdown was in effect, two-thirds of transits (1,055 out of 1,565) through the Cabot Strait did not comply with the 10-knot slowdown.

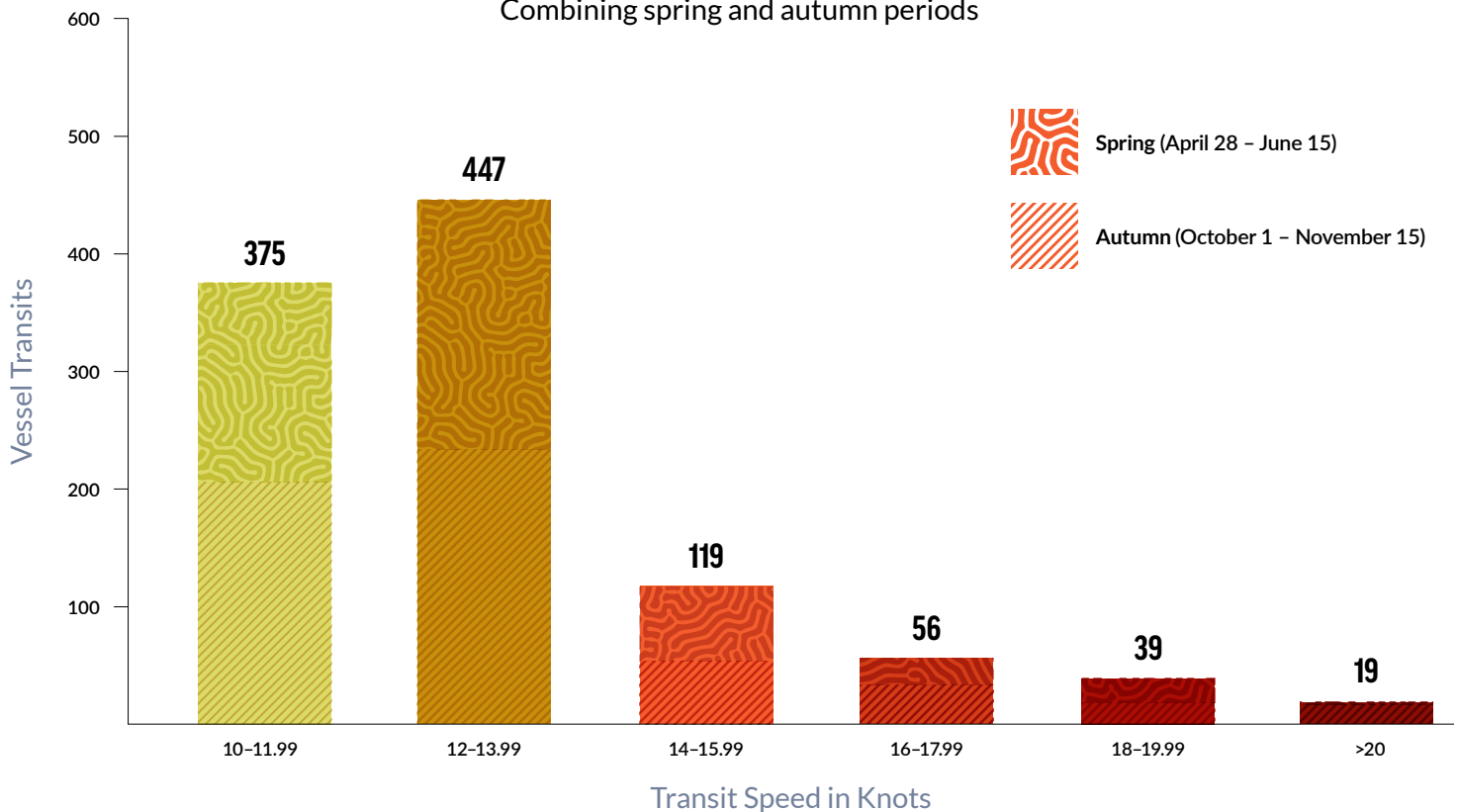
A total of 643 vessels made 1,565 transits through the Strait during the slowdowns. Approximately one-quarter (26 per cent) of those transits occurred at speeds between 10 and 12 knots. Forty-two per cent exceeded 12 knots, significantly increasing the risk of inflicting a potentially lethal injury to a right whale.

Overall, there was greater compliance with speed restrictions in the spring period compared to the autumn, with a 10-percentage-point difference between the two. This may be due in part to more intense weather in the autumn (see the Impact of Weather on page 11).



5 knots	=	9.3 km/hr
10 knots	=	18.5 km/hr
15 knots	=	27.8 km/hr
20 knots	=	37 km/hr
25 knots	=	46.3 km/hr

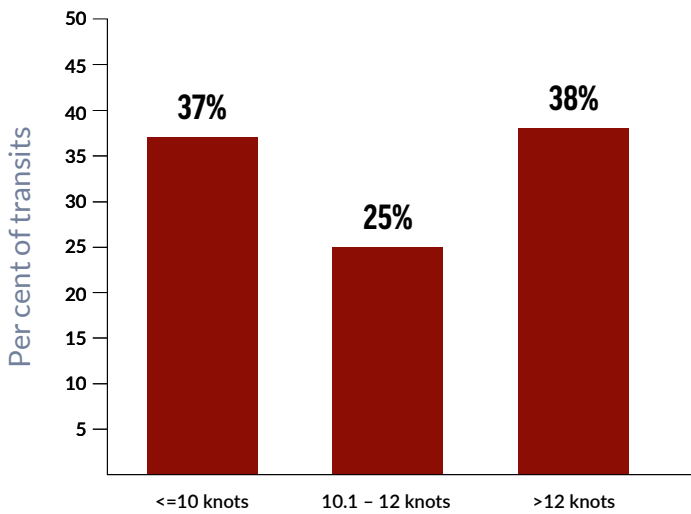
Number of non-compliant transits:
Combining spring and autumn periods



During the 2020 slowdowns in spring and autumn, 643 unique vessels travelled through the Cabot Strait for a total of 1,565 transits. Two-thirds (67 per cent) of those transits were above the voluntary 10-knot slowdown.

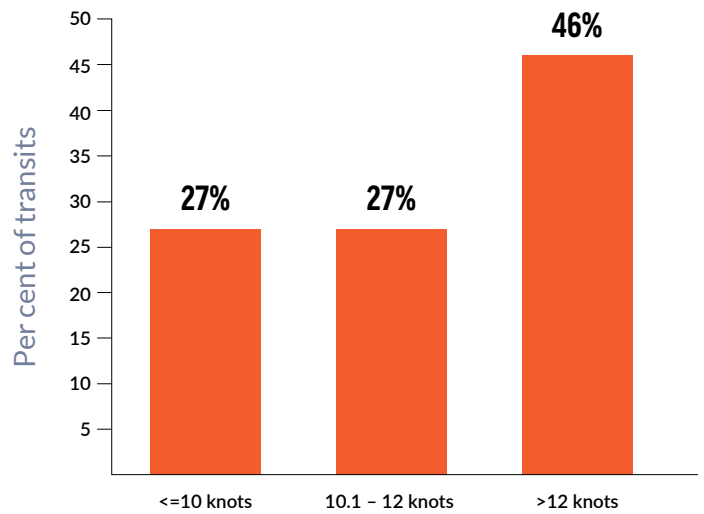


**Vessel transits in each compliance category:
April 28 – June 15, 2020**



During the spring slowdown, 397 unique vessels travelled through the Cabot Strait for a total of 884 transits. More than 60 per cent of these transits were above the voluntary 10-knot slowdown.

**Vessel transits in each compliance category:
October 1 – November 15, 2020**



During the autumn slowdown, 374 unique vessels travelled through the Cabot Strait for a total of 681 transits. More than 70 per cent of these transits were above the voluntary 10-knot slowdown.

A note on the spring numbers

The numbers presented here are slightly different from those presented in Oceana Canada’s *Dangerous Passage* report, released in July 2020. In *Dangerous Passage*, each unique vessel and its average speed were counted once per week, and these weekly averages were aggregated to determine vessel speeds over the course of the seven-week period. This analysis found that 67 per cent of vessels (466 out of 697) were travelling faster than the 10-knot voluntary slowdown in the Cabot Strait.¹⁴

However, some vessels made more than one transit. To reflect that fact, the current report analyzes the speed of each transit. Using this approach, the non-compliance dropped slightly to 63 per cent (561 out of 884 total transits) – still, a clearly unacceptable compliance rate. This could indicate several vessels that made more than one trip consistently complied with the voluntary slowdown.



Photo Credit: Nick Hawkins

However, Slowdowns Helped

Although compliance with the voluntary slowdown was very low across both periods, the measure did reduce vessel speeds. In the two weeks before and after it took effect in the spring, 87 per cent of vessels travelled at speeds greater than 10 knots. In the autumn, 92 per cent were above 10 knots. During the slowdowns, however, that number dropped to 67 per cent. This improvement demonstrates that voluntary measures do reduce vessel speed – just not enough to save right whales.

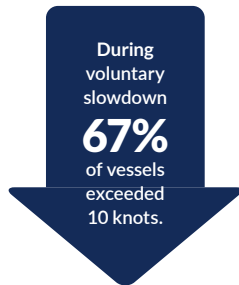
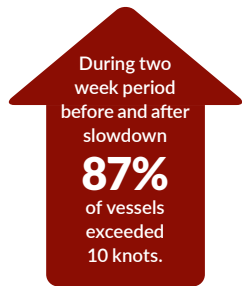
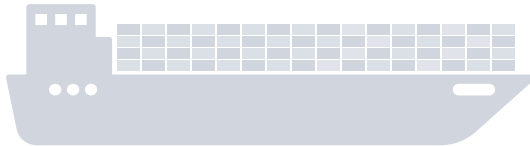


Photo Credit: Nick Hawkins

The Impact of Weather

There are several reasons why Transport Canada might temporarily lift speed restrictions, despite the risk of a lethal collision with a whale.

The most common one is to preserve the safety of the vessel and its crew during adverse weather conditions. The Cabot Strait can experience severe weather and sea state, especially in the autumn. During the 2020

slowdown period, there were 40 days out of 95 when weather conditions likely would have forced Transport Canada to lift a mandatory speed restriction.¹⁵

This unavoidable necessity means strong, mandatory measures are even more important to protect whales when vessels can safely slow down.

Recommendations

As critically endangered right whales are heading toward extinction, Oceana Canada is calling on Transport Canada and Fisheries and Oceans Canada to take the following actions to further protect them:



- Change the current voluntary Cabot Strait slowdown to make it a mandatory, season-long measure.
- Extend speed restrictions throughout the Gulf of St. Lawrence to all vessels, including those less than 13 metres.
- Increase transparency and understanding of fishing fleet movements by releasing all Vessel Monitoring System (VMS) data publicly and to Global Fishing Watch.
- Reduce the amount of fishing rope in the water through continued long-term support for ropeless gear.
- Expand the development and use of a comprehensive array of technologies (acoustic, satellite, infra-red, etc.) to monitor right whales — and then use the resulting data to better understand their movement and to trigger slowdowns and fisheries closures when required.
- Secure long-term funding for necropsy work so that teams can build their capacity, respond quickly and conduct the most thorough analysis possible.

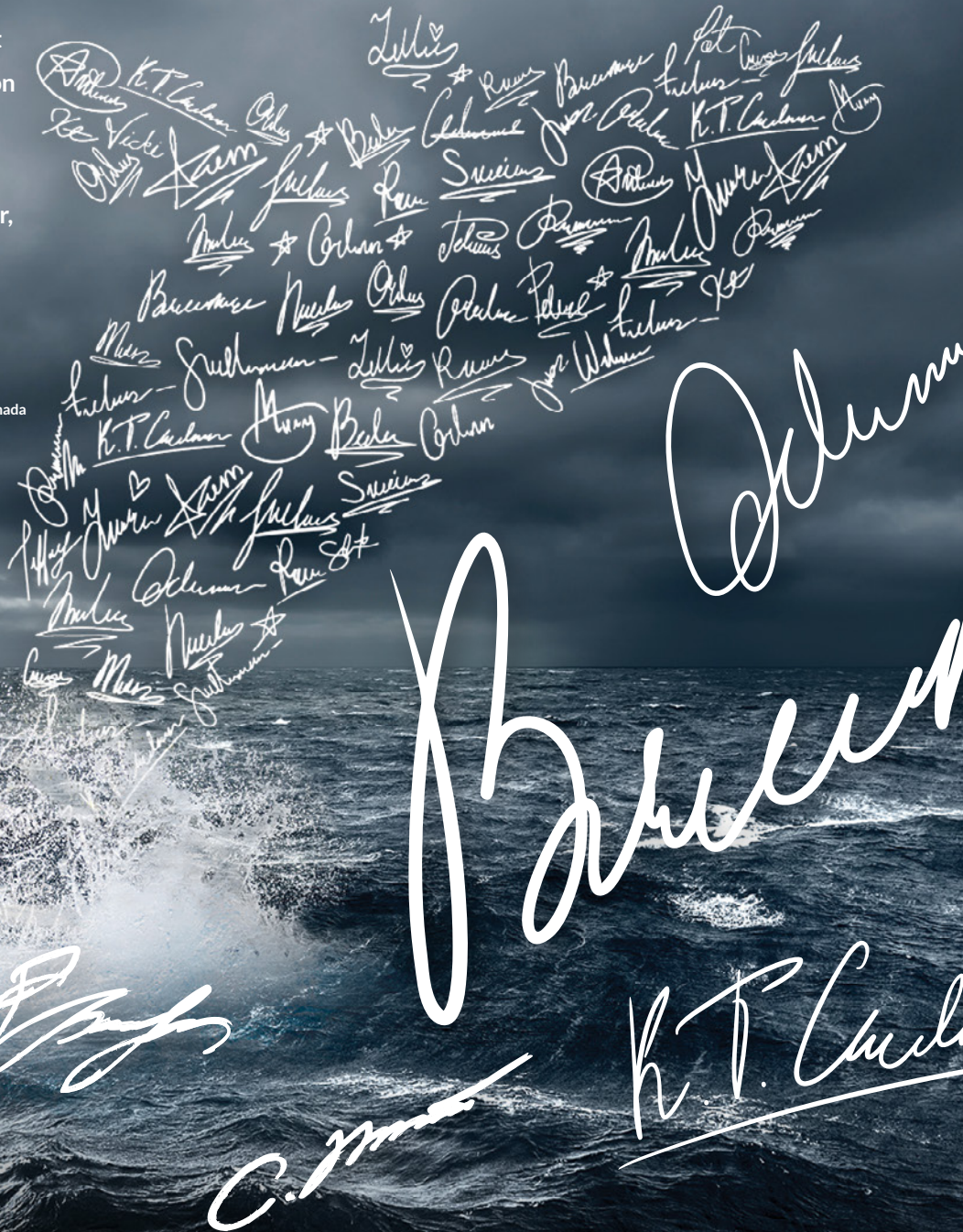
The Canadian government must take every measure required to save these whales. Without action now, North Atlantic right whales could go extinct within our lifetime.



Add Your Voice

Oceana Canada is committed to protecting North Atlantic right whales from extinction. Alongside other non-governmental organizations, right whale experts, scientists, industry allies and ocean advocates, Oceana Canada is working to address this urgent issue with the Canadian government.

Visit Oceana.ca/RightWhaletoSave to get involved and add your name to our petition urging the government of Canada to act swiftly to stop these needless deaths. Right whales deserve protection. Together, we can turn the tide for right whales and build a strong future for their recovery.



Methodology

Oceana's Ship Speed Watch is a public mapping tool that allows users to monitor vessel speeds in slowdown zones established to protect marine mammals like North Atlantic right whales along the East Coast of Canada and the U.S. in near-real time. The tool uses self-reported data to show ship speeds within the active voluntary and mandatory speed restriction zones. The tool also provides additional information about speed restrictions in place to protect this critically endangered species.

When mandatory and enforced, speed restriction zones can help prevent collisions with vessels. Ship Speed Watch was created based on Automatic Identification System (AIS) data from Global Fishing Watch, an independent non-profit organization founded by Oceana in partnership with Google and SkyTruth, which uses cutting-edge technology to interpret data from various vessel-tracking resources.

Oceana Canada used Global Fishing Watch to compile a list of vessel transits that exhibited speeds exceeding the voluntary 10-knot limit in Cabot Strait. This data is limited to vessels that have AIS, so this study did not capture all vessels. For instance, fishing vessels are not required to broadcast AIS data in Canada, although many do. Meanwhile, due to COVID-19 restrictions, cruise ships with more than 500 people were not allowed to dock in Canada during the study period, meaning there was a reduced amount of vessel activity.

Oceana Canada tracked the number of distinct AIS signals above the 10-knot speed limit that were transmitted by vessels inside the speed-restriction zone on a given day. It also tracked the highest speed attained by each vessel on that particular day. If a vessel travelled faster than 10 knots on separate days, it will appear in the data more than once. However, the weekly summary statistics treat these as one distinct vessel. Its highest speed over the weekly observation period is used in the summary statistics, and weekly statistics are then summed over the entire period.

Data for the report was pulled from Global Fishing Watch's vessel database. It was filtered to include only vessels that recorded at least two AIS signals during a transit within the Cabot Strait in the timeframes of April 28 to June 15, 2020, and October 1 to November 15, 2020, when the voluntary Cabot Strait slowdowns were in place.

Any speeds that seemed erroneously high were removed from the data. For example, if a vessel's AIS recorded consecutive speeds of 11, 12, 11, 11, 38 and 12 knots, the outlier was removed. In some cases, a vessel's highest-recorded AIS signal was discounted as an error if researchers found a large discrepancy between the signal and the maximum attainable speed of that vessel, based on online resources. To calculate compliance rates in the slowdown zone, the number of distinct transits with at least two AIS signals and at least one AIS signal exceeding 10 knots was divided by the total number of distinct vessels with at least two AIS signals.

Photo Credit: Nick Hawkins



Acknowledgements

The authors would like to thank the many people, including several Oceana Canada team members, who contributed to this report, specifically Jennifer Whyte, Josh Laughren, Lesley Wilmot, Marla Valentine, Dr. Robert Rangeley, Sarah Cameron and William Markowski.

Note: All photos of living North Atlantic right whales were taken under permits from Fisheries and Oceans Canada or NOAA.

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- ³ Marine Mammal Commission (2020). "North Atlantic Right Whale." <https://www.mmc.gov/priority-topics/species-of-concern/north-atlantic-right-whale>
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- ¹⁴ Oceana Canada (2020). Dangerous Passage: Make 10 knots mandatory for ships in the Cabot Strait. <https://oceana.ca/en/publications/reports/dangerous-passage-make-10-knots-mandatory-ships-cabot-strait>
- ¹⁵ Personal communication with Transport Canada.



Oceana Canada was established as an independent charity in 2015 and is part of the largest international advocacy group dedicated solely to ocean conservation. Oceana Canada has successfully campaigned to end the shark fin trade, make rebuilding depleted fish populations the law, improve the way fisheries are managed and protect marine habitat. We work with civil society, academics, fishers, Indigenous Peoples and the federal government to return Canada's formerly vibrant oceans to health and abundance. By restoring Canada's oceans, we can strengthen our communities, reap greater economic and nutritional benefits and protect our future.

