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**U.S. Management Efforts to Recover North Atlantic Right Whales: 2021-2022 Updates**

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# U.S. Management Efforts to Recover North Atlantic Right Whales: 2021-2022 Updates

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## **Abstract**

NOAA's National Marine Fisheries Service (NOAA Fisheries) continues to pursue holistic approaches to protect critically endangered North Atlantic right whales. The latest preliminary estimate suggests there are fewer than 350 individuals remaining in the population, and the Unusual Mortality Event, declared in 2017, remains ongoing. The two greatest threats to North Atlantic right whales are entanglement in fishing gear and vessel strikes. While much of NOAA Fisheries' efforts focus on these two threats, we have established various initiatives to promote North Atlantic right whales and their recovery, continue transboundary collaboration with Canada, and are conducting research to assess the potential impacts offshore wind development may have on North Atlantic right whales.

## **Introduction**

The North Atlantic right whale is listed as endangered under the U.S. Endangered Species Act (ESA) and is a depleted stock under the U.S. Marine Mammal Protection Act (MMPA). Both statutes direct NOAA Fisheries to recover and conserve North Atlantic right whales. The two primary threats to North Atlantic right whale recovery are entanglement in fishing gear and vessel strikes. NOAA Fisheries has undertaken and continues to take numerous efforts to address these threats, as well as address other known or potential threats. Below we describe recent efforts from 2021 to present.

## Unusual Mortality Event

The Unusual Mortality Event (UME) that was declared for [North Atlantic right whales](#)<sup>1</sup> (*Eubalaena glacialis*) in 2017 continued through 2021 and remains ongoing. The MMPA defines a UME as "a stranding that is unexpected, involves a significant die-off of any marine mammal population, and demands immediate response." NOAA Fisheries formally declared the UME after elevated numbers of dead whales were documented along the Northwest Atlantic Ocean coast, and included serious injury cases in the scope of the UME investigation after it became clear entanglements and vessel strikes were the primary causes. This is a transboundary event given that whales strand or are found injured in either the U.S. or Canada. Therefore, there is close coordination and collaboration between U.S. and Canadian officials, Stranding and Entanglement Response Network organizations, and scientists on the UME investigation.

To date, the UME has documented 50 known cases, including 34 dead and 16 seriously injured individuals. Of the 34 confirmed dead whales, 21 were first documented in Canada (12 in 2017, 9 in 2019) and 13 were first documented in the U.S. (5 in 2017, 3 in 2018, 1 in 2019, 2 in 2020, 2 in 2021) (Table 1). Of the 24 whales that were necropsied, 20 (83%) were confirmed probable, or suspect deaths as a direct result of human activities: entanglements (9) or vessel strikes (11) (Figure 1)<sup>2,3,4</sup>. Of the 16 serious injury cases, which involve live free-swimming non-stranded whales, 14 had serious injuries from entanglements and 2 from vessel strikes (Figure 2).

Therefore, of the 40 cases examined (both live and dead), 90% (36/40) were impacted by entanglements (23) or vessel strikes (13). Given the latest preliminary estimate suggests there are fewer than 350 individual North Atlantic right whales remaining as of 2020, these 50 individuals in the UME represent, at minimum, 12.5% of the population, which is an extremely significant impact on such a critically endangered species. More information and the latest UME numbers can be found at [NOAA Fisheries UME website](#).<sup>5</sup>

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<sup>1</sup> <https://www.fisheries.noaa.gov/species/north-atlantic-right-whale>

<sup>2</sup> Daoust, P.-Y., Couture, E.L., Wimmer, T., and Bourque, L. 2017. Incident Report: North Atlantic right whale mortality event in the Gulf of St. Lawrence, 2017. Collaborative Report produced by: Canadian Wildlife Health Cooperative, Marine Animal Response Society, and Fisheries and Oceans Canada. 224 pp.

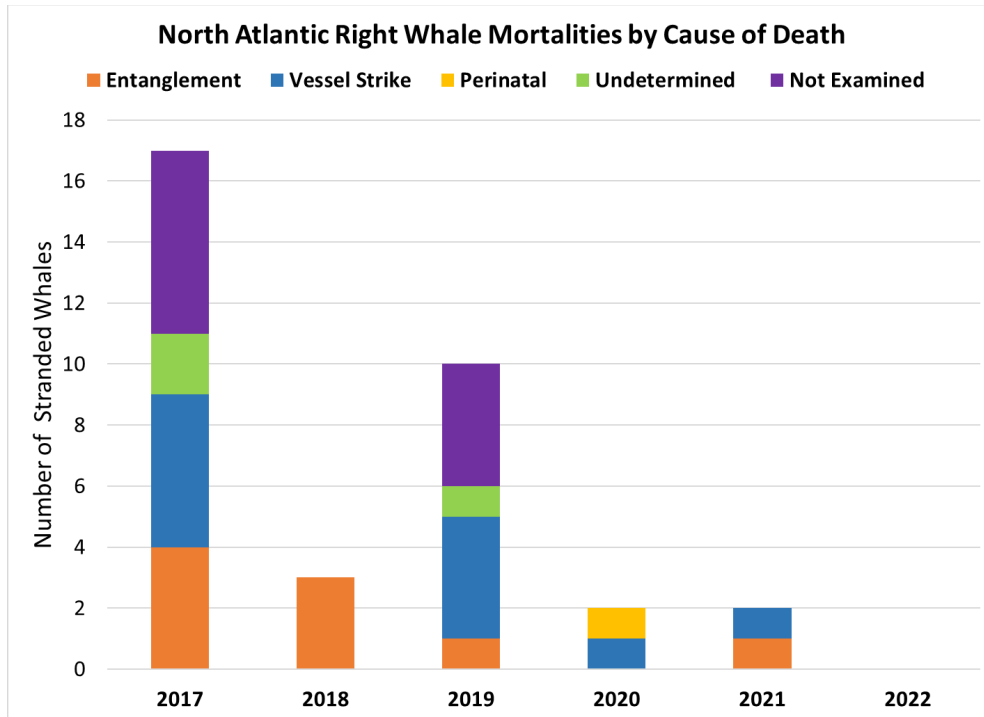
<sup>3</sup> Sharp S.M., McLellan W.A., Rotstein D.S., Costidis A.M. and others. 2019. Gross and histopathologic diagnoses from North Atlantic right whale *Eubalaena glacialis* mortalities between 2003 and 2018. *Diseases of Aquatic Organisms* 135:1-31.

<sup>4</sup> Bourque, L., Wimmer, T., Lair, S., Jones, M., Daoust, P.-Y. 2020. Incident Report: North Atlantic Right Whale Mortality Event in Eastern Canada, 2019. Collaborative Report Produced by: Canadian Wildlife Health Cooperative and Marine Animal Response Society. 210 pp.

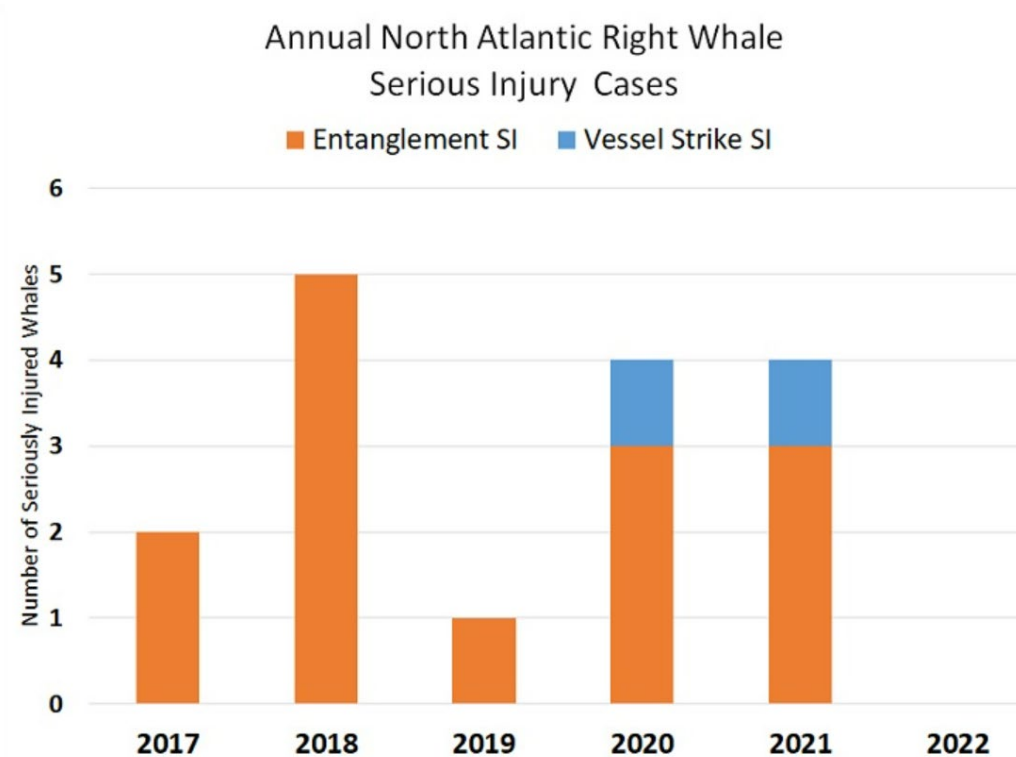
<sup>5</sup> <https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2022-north-atlantic-right-whale-unusual-mortality-event>

**Table 1:** North Atlantic right whale UME mortalities or serious injuries reported by year and country.

<b>Year</b>	<b>Mortalities First Observed in U.S. Waters</b>	<b>Mortalities First Observed in Canadian Waters</b>	<b>Serious Injuries First Observed in U.S. Waters</b>	<b>Serious Injuries First Observed in Canadian Waters</b>	<b>Total</b>
2017	5	12	1	1	<b>19</b>
2018	3	0	3	2	<b>8</b>
2019	1	9	0	1	<b>11</b>
2020	2	0	4	0	<b>6</b>
2021	2	0	3	1	<b>6</b>
2022	0	0	0	0	<b>0</b>
<b>Total</b>	<b>13</b>	<b>21</b>	<b>11</b>	<b>5</b>	<b>50</b>



**Figure 1:** Annual North Atlantic right whale mortalities, 2017-2022, by cause of death.

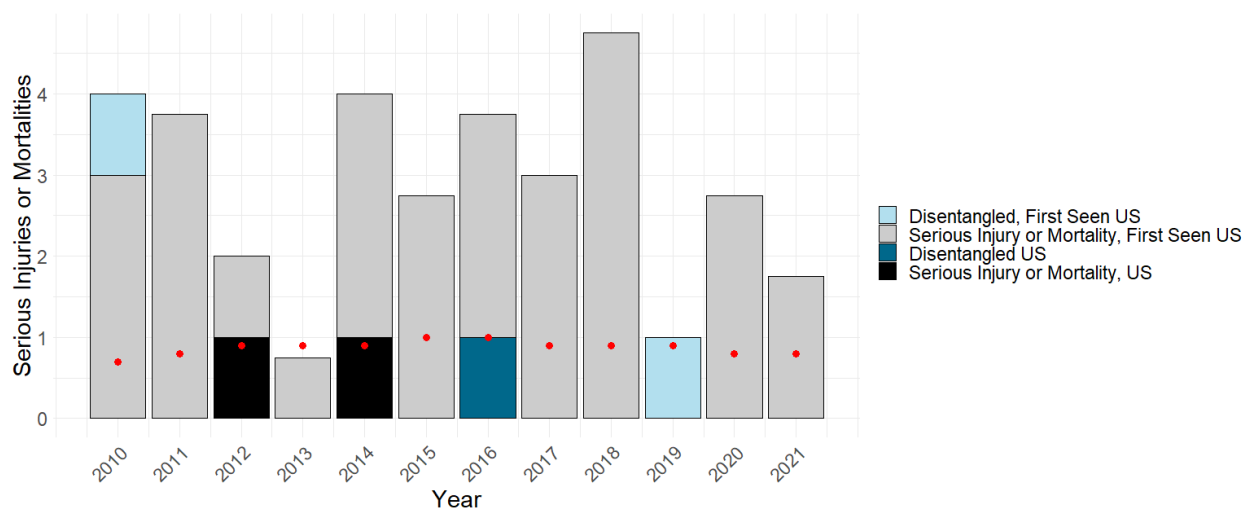


**Figure 2:** Annual North Atlantic right whale serious injury (SI) cases of whales last seen alive, 2017-2022, U.S. and Canada

### Reducing Entanglements in Fishing Gear

The MMPA mandates that NOAA Fisheries develop and implement [Take Reduction Plans](#)<sup>6</sup> to prevent the depletion and assist in the recovery of certain marine mammal stocks that are killed or seriously injured in commercial fisheries. NOAA Fisheries convenes Take Reduction Teams, composed of stakeholders, that make recommendations for reducing mortalities and serious injuries to below a biological limit reference point (i.e., potential biological removal level). NOAA Fisheries uses the recommendations to develop each Plan to reduce mortality and serious injury of particular marine mammals within a specific timeframe through regulations.

The [Atlantic Large Whale Take Reduction Team](#)<sup>7</sup> and the associated Plan addresses North Atlantic right, humpback, and fin whales incidentally killed or seriously injured in commercial trap/pot and gillnet fisheries along the U.S. East Coast. Although it has been in existence since 1997, the Atlantic Large Whale Take Reduction Plan has not been successful at consistently reducing mortalities and serious injuries below each stock’s potential biological removal level (e.g., Figure 3).



**Figure 3.** Serious injuries and mortalities from documented North Atlantic right whale entanglements compared to the stock’s potential biological removal (PBR) level (in red).  
\*The results shown for 2021 are preliminary.

Given the current decline in North Atlantic right whales, NOAA Fisheries continues to work with the Team, which is composed of approximately 60 fishermen, scientists, conservationists, and state and federal officials. NOAA Fisheries finalized regulations to amend the Plan in September 2021 ([86 FR 51970](#)).<sup>8</sup> The amendment includes various mitigation measures to reduce risk in

<sup>6</sup><https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-take-reduction-plans-and-teams>

<sup>7</sup><https://www.fisheries.noaa.gov/new-england-mid-atlantic/marine-mammal-protection/atlantic-large-whale-take-reduction-plan>

<sup>8</sup><https://www.federalregister.gov/documents/2021/09/17/2021-19040/taking-of-marine-mammals-incident-to-commercial-fishing-operations-atlantic-large-whale-take>

Northeast lobster and Jonah crab trap/pot fisheries, which represent about 93% of the buoy lines in all fisheries addressed by the Plan. Specifically, the amendment:

1. Increases the minimum number of traps per trawl to reduce the number of buoy lines
2. Modifies existing restricted areas from seasonal fishing closures to seasonal closures to fishing with persistent buoy lines to accelerate ropeless fishing research
3. Expands the geographic extent of the Massachusetts Restricted Area to include Massachusetts state waters north to the New Hampshire border and establishes two new restricted areas that are seasonally closed to fishing for lobster or Jonah crab with persistent buoy lines to reduce the co occurrence of right whales and buoy lines
4. Requires modified buoy lines to incorporate rope engineered to break at no more than 1,700 pounds (771.1 kilograms) or weak insertion configurations that break at no more than 1,700 pounds (771.1 kilograms) so right whales can break free before the entanglement causes a serious injury and mortality
5. Requires a greater quantity of marks and one longer mark on buoy lines to better differentiate vertical buoy lines by principal port state, to distinguish between State and Federal waters, and to expand marking requirements into areas previously exempt from gear marking

To address additional entanglement risk, NOAA Fisheries will reconvene the Team in May 2022 to discuss additional risk reduction measures for the other trap/pot and gillnet fisheries along the U.S. East Coast.

In addition to working with the Atlantic Large Whale Take Reduction Team, NOAA Fisheries is working to develop innovative [fishing technologies](#)<sup>9</sup> (often called “ropeless” or “on-demand” fishing) that eliminate persistent buoy lines.<sup>10</sup>

NOAA Fisheries oversees the [Large Whale Entanglement Response Network](#)<sup>11</sup> in the U.S. and authorizes highly trained professional responders to assist whales entangled in fishing gear or marine debris. There are 8 responders in the U.S. (in addition to 1 responder from Canada) authorized to lead the disentangling of a North Atlantic right whale in U.S. waters. From 2020-2021, there were 7 cases of entangled North Atlantic right whales in the U.S.; 6 alive and 1 dead.<sup>12</sup> Over the same time period, a minimum of 4 entanglement responses were mounted for North Atlantic right whales; all resulted in improved documentation, and 3 resulted in improvements to the animal’s entanglement. NOAA Fisheries provides funds for network members to purchase equipment and maintains an ARGOS (Advanced Research and Global Observation Satellite) account for tracking telemetry tags that can be placed on entangled whales for multiple-day response efforts. Finally, NOAA Fisheries provides and supports training

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<sup>9</sup> <https://www.fisheries.noaa.gov/new-england-mid-atlantic/science-data/protected-species-gear-research>

<sup>10</sup> Gahm, M., Good, C., Hayes, S., Long, K., Matzen, E., Milliken, H. U.S. Efforts to Develop Ropeless Fishing Gear Technology. Paper Submission to the 2022 IWC Annual Scientific Committee Meeting.

<sup>11</sup> <https://www.fisheries.noaa.gov/insight/entanglement-marine-life-risks-and-response>

<sup>12</sup> Note: the one dead North Atlantic right whale was first seen entangled while alive. It was confirmed dead a few months later.

opportunities for network members, including enhanced safety measures following the tragic death of an experienced entanglement response team member in Canada in 2017.

### **Vessel Speed Rule and Report**

The U.S. continues to employ a suite of measures aimed at [reducing lethal vessel interactions](#)<sup>13</sup> with North Atlantic right whales. NOAA Fisheries continues to implement mandatory speed restrictions of 10 knots or less for most vessels greater than or equal to 65 feet in length in Seasonal Management Areas (SMAs) along the U.S. East Coast at certain times of the year when whales are likely to be present. The agency also continues to request that vessel operators voluntarily reduce their speed in designated Dynamic Management Areas (DMAs) and Right Whale Slow Zones. The State of Massachusetts continues to implement [mandatory speed limits in Cape Cod Bay](#)<sup>14</sup> (state waters) for most vessels less than 65 feet in length during March and April to protect North Atlantic right whales foraging in the Bay. The state has also extended the mandatory protections (for the past two years) into the month of May based on the continued presence of right whales in the area.

In light of findings from the 2020 [Right Whale Speed Rule Assessment](#)<sup>15</sup> (released in January 2021) and the continued decline of the species, which has been exacerbated by the ongoing UME, NOAA fisheries is investigating options to modify the current right whale vessel speed regulations and anticipates release of a proposed rule in late Spring 2022.

NOAA Fisheries continues to explore avenues to more effectively communicate with the mariner community about the problem of vessel strike and how mariners can help. In March 2022, NOAA fisheries released a [webstory](#)<sup>16</sup> requesting boaters operating vessels less than 65 feet in length to reduce their transit speeds in areas where right whales are likely present. The site makes clear that collisions with boats as small as 30 feet in length can be lethal to right whales and that vessel strikes involving large ocean-going ships are not the only source of collision risk to whales along the U.S. coast.

### **U.S. Recovery Planning and Implementation**

The ESA authorizes NOAA Fisheries to appoint recovery teams to assist with the development and implementation of recovery plans. NOAA Fisheries has convened two implementation teams (the [Northeast Implementation Team](#)<sup>17</sup> (NEIT), and the [Southeast Implementation Team](#)<sup>18</sup> (SEIT)) to assist with issues related to the status and conservation of North Atlantic right

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<sup>13</sup><https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales>

<sup>14</sup><https://www.mass.gov/news/division-of-marine-fisheries-extends-small-vessel-speed-restriction-in-cape-cod-bay-to-protect-right-whales>

<sup>15</sup><https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales>

<sup>16</sup><https://www.fisheries.noaa.gov/feature-story/all-boaters-should-reduce-their-speed-protect-north-atlantic-right-whales>

<sup>17</sup><https://www.fisheries.noaa.gov/new-england-mid-atlantic/endangered-species-conservation/north-atlantic-right-whale-recovery-plan-northeast-us-implementation-team>

<sup>18</sup><https://www.fisheries.noaa.gov/southeast/endangered-species-conservation/north-atlantic-right-whale-recovery-plan-southeast-us-implementation-team>



whales. The objectives include, but are not limited to, identifying and prioritizing information needs that can be best addressed through enhanced partnerships. For example, the NEIT and SEIT provided input to NOAA Fisheries on coast-wide priorities to inform the development of NOAA Fisheries' Species in the Spotlight (SIS) Priority Action Plan for North Atlantic right whales. NOAA Fisheries also continued to support the efforts of the Implementation Teams' Population Evaluation Tool Subgroup to develop a population viability analysis that will allow the agency to characterize the North Atlantic right whale extinction risk, taking into account current and future threats. This modeling effort is underway and a final report is expected in 2022, which will help identify demographic benchmarks useful to inform management and gaps in research.

NOAA Fisheries added North Atlantic right whales to the SIS initiative in [2019](#)<sup>19</sup> and completed a 5-year Priority Action Plan for the species in 2021. The plan builds off the North Atlantic right whale recovery plan and identifies the following urgent actions we can take in the next 5 years to halt the decline of this species:

- Protect North Atlantic Right Whales from Entanglement in Fishing Gear
- Protect North Atlantic Right Whales from Vessel Strikes
- Investigate North Atlantic Right Whale Population Abundance, Status, Distribution and Health
- Collaborate with Canada on North Atlantic Right Whale Recovery
- Improve our Knowledge of Additional Factors Limiting Right Whale Recovery

A major part of the SIS initiative is to expand partnerships and motivate individuals to work with us to get species such as North Atlantic right whales on the road to recovery. In 2022, NOAA Fisheries announced the availability of the latest [Recovering Threatened and Endangered Species Report to Congress \(FY 2019-2020\)](#)<sup>20</sup> which includes highlights of recovery progress for the Species in the Spotlight. For the North Atlantic right whale, the Report to Congress focused on progress towards reducing entanglement in fishing gear and reducing vessel strikes.

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<sup>19</sup><https://www.fisheries.noaa.gov/feature-story/recovering-threatened-and-endangered-species-report-congress-2017-2018>

<sup>20</sup><https://www.fisheries.noaa.gov/feature-story/recovering-threatened-and-endangered-species-report-congress-2019-2020>

### **North Atlantic Right Whale Five-Year Review**

NOAA Fisheries initiated a 5-year review for North Atlantic right whales, which is required under the ESA to ensure that the listing classification of the species is accurate. Section 4(c)(2)(A) of the ESA requires that we conduct a review of listed species at least once every 5 years to ensure that the listing classification of a species remains accurate. On the basis of such reviews, NOAA Fisheries determines whether the species should be delisted, reclassified, or if no change in classification is warranted. Any change in Federal classification would require a separate rulemaking process.

The review will be based on the best scientific and commercial data available at the time of the review. Two previous 5-year reviews were released in [August 2012](#)<sup>21</sup> and [October 2017](#).<sup>22</sup> Both reviews concluded that no change was needed to the endangered status. The results of the 5-year review will be posted on the NOAA Fisheries website.

### **Transboundary Collaboration on North Atlantic Right Whale Recovery**

NOAA Fisheries, Fisheries and Oceans Canada, and Transport Canada continue to work together as part of the United States-Canada Bilateral North Atlantic Right Whale Working Group. The Working Group shares lessons learned and explores collaborations on North Atlantic right whale research and management.

The Working Group typically meets twice yearly, including most recently in June 2021, to review past management practices aimed at preventing entanglements and vessel strikes, and also to coordinate on the development of future measures. The Working Group has aligned scientific research across borders, including the sharing of methods and data on aerial surveys, passive acoustic monitoring, and the analysis of gear recovered from entangled North Atlantic right whales to attribute it to specific fisheries. The Working Group also cooperates on best practices for at-sea disentanglement of North Atlantic right whales. Future work will focus on coordinating aerial and passive acoustic detection of North Atlantic right whales, assessing human-caused risk to North Atlantic right whales throughout their range, and continuing to coordinate on analyzing gear recovered from entangled North Atlantic right whales. NOAA Fisheries, Fisheries and Oceans Canada, and Transport Canada continue to coordinate through the Bilateral North Atlantic Right Whale Working Group between meetings.

In June, 2021, NOAA Fisheries held its biannual meeting with senior leadership from NOAA Fisheries, Department of Fisheries Oceans Canada and Transport Canada. Both countries agreed to continue to share innovative techniques and solutions that foster healthy fisheries, reduce the risk of entanglements, and create whale-safe maritime practices. They also agreed to continue to provide updates on current and future risk reduction measures. In December 2021, NOAA Fisheries and Fisheries and Oceans Canada continued bilateral discussions with senior leadership on risk reduction and protection measures for North Atlantic right whales. This

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<sup>21</sup><https://www.fisheries.noaa.gov/resource/document/north-atlantic-right-whale-eubalaena-glacialis-5-year-review-2012>

<sup>22</sup> <https://www.fisheries.noaa.gov/resource/document/5-year-review-north-atlantic-right-whale-eubalaena-glacialis>

included further discussion on both countries' efforts towards reducing the risk of entanglements and vessel speeds, as well as risk assessments.

### **Offshore Wind Development and Ocean Noise**

Offshore wind energy development is rapidly ramping up in U.S. waters in order to meet renewable energy goals. The Biden Administration has set a goal of [significantly increasing the nation's offshore wind energy capacity](#)<sup>23</sup> to 30 gigawatts by 2030. Many states have set similar ambitious goals. Currently, the vast majority of development to date is focused on the Atlantic Outer Continental Shelf (OCS) from southern New England to North Carolina, with construction anticipated to start in 2022, and there are 17 active leases on the Atlantic OCS. Additional lease areas in the Central Atlantic, Gulf of Mexico, Gulf of Maine, and west coast are in various stages of the area identification process. Most recently, in March 2022, six additional leases comprising more than 488,000 acres in the New York Bight were awarded to developers. The [Bureau of Ocean Energy Management](#)<sup>24</sup> (BOEM) is the lead federal agency responsible for offshore energy exploration and development in the U.S. NOAA Fisheries is the lead federal agency charged with stewardship of marine life. Building, operating, and decommissioning offshore wind facilities affects a number of our key mission areas, including fisheries, protected species (including North Atlantic right whales), seabirds, and marine habitats.

NOAA Fisheries' primary roles in offshore wind include providing scientific information and analyses, conducting section 7 ESA consultations, processing requests for incidental take authorizations pursuant to the MMPA, and acting as a cooperating and adopting agency under the National Environmental Policy Act. Potential environmental stressors from offshore wind development that NOAA Fisheries is evaluating under these statutes, with respect to North Atlantic right whales and their habitat (including prey), include noise associated with construction (e.g., installation of turbine foundations, site characterization surveys, unexploded ordnance detonation, etc.) and operation of the wind farm, vessel strike risk during construction and operation, electromagnetic fields, habitat effects from turbine presence and water withdrawals and discharge from open-looped cooling systems, and entanglement risk (primarily associated with floating turbines). Through the ESA Section 7 and MMPA incidental take authorization processes, NOAA Fisheries uses the best available science to inform mitigation and monitoring requirements for offshore wind developers that both minimize impacts to North Atlantic right whales and other protected species, and increase our understanding of the impacts from these stressors. In addition, vessel traffic associated with the operation and construction of wind facilities will increase the noise levels in coastal and deep water soundscapes. Given the anticipated U.S. vessel buildout associated with offshore wind, there is a unique opportunity to include vessel quieting technology early in the vessel design phase. Building quieter vessels is the most effective way to comprehensively decrease chronic noise impacts from vessels to marine species, and NOAA Fisheries is working with partner federal agencies to support and encourage the inclusion of quieting technologies, many of which overlap with fuel efficiency and greenhouse gas reduction technologies, in the design phase.

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<sup>23</sup><https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/>

<sup>24</sup><https://www.boem.gov/renewable-energy>

While an individual project, alone, may or may not have significant consequences to North Atlantic right whales, full build out of the Atlantic OCS will impact North Atlantic right whales throughout the range. In order to fully and accurately understand the range-wide and population-level impacts of these activities on right whales, and to design effective mitigation, we must understand the changing spatial and temporal distribution of the right whales, as well as the activities that impact them. Long-term, large-scale passive acoustic monitoring, such as is conducted through the Northeast Fisheries Science Center coordinated array, the NOAA reference stations, and the SanctSound project, is key to effectively accomplishing this. NOAA Fisheries is working closely with wind developers, BOEM, and other partners, including regional science entities, to monitor and mitigate the potential impacts of offshore wind development and other stressors on North Atlantic right whales. NOAA's website includes more information on NOAA's [Ocean Noise Strategy](https://oceannoise.noaa.gov/)<sup>25</sup> and our role in [offshore wind energy development](https://www.fisheries.noaa.gov/topic/offshore-wind-energy).<sup>26</sup>

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<sup>25</sup> <https://oceannoise.noaa.gov/>

<sup>26</sup> <https://www.fisheries.noaa.gov/topic/offshore-wind-energy>