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U.S. Management Efforts to Recover North Atlantic Right Whales: 2020- 2021 Updates

Eric M. Patterson, Shannon Bettridge, Diane Borggaard, Colleen Coogan, Deborah Fauquier, Caroline Good, Kristy Long, Trevor R. Spradlin, Marisa L. Trego, Sarah Wilkin, Barb Zoodsma



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U.S. Management Efforts to Recover North Atlantic Right Whales: 2020-2021 Updates

Eric M. Patterson¹, Shannon Bettridge¹, Diane Borggaard², Colleen Coogan², Deborah Fauquier¹, Caroline Good¹, Kristy Long¹, Trevor R. Spradlin¹, Marisa L. Trego², Sarah Wilkin¹, Barb Zoodsma³

¹Office of Protected Resources, U.S. National Marine Fisheries Service, Silver Spring, Maryland 20910 USA

²Greater Atlantic Regional Office, U.S. National Marine Fisheries Service, Gloucester, Massachusetts 01930 USA

³Southeast Regional Office, U.S. National Marine Fisheries Service, St. Petersburg, Florida 33701 USA

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's National Marine Fisheries Service (NOAA Fisheries) to recover and conserve the North Atlantic right whale. 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. Below we describe recent efforts from 2020 to present.

Unusual Mortality Event

NOAA Fisheries declared an Unusual Mortality Event (UME) for North Atlantic right whales in 2017, which continues to the present. As of March 2021, a total of 49 cases are included in the event from the United States and Canada: 34 dead and 15 seriously injured whales (Table 1). Of the 34 dead whales, 21 were found in Canada (12 in 2017, 9 in 2019) and 13 were found in the United States (5 in 2017, 3 in 2018, 1 in 2019, 2 in 2020, 2 in 2021) (Figure 1). The UME investigation team and partners were able to examine 23 whales and 20 were determined to have died as a direct result of human activities (either confirmed, probable, or suspect), either from entanglements (9) or vessel strikes (11)^{1,2}. Of the 15 serious injury cases, 4 were found in Canada (1 in 2017, 2 in 2018, 1 in 2019) and were all attributed to entanglements, and 11 were found in the United States (1 in 2017, 3 in 2018, 4 in 2020, 3 in 2021) and attributed to entanglements (9 cases) or vessel strike (2 cases) (Figure 2). More information and the latest UME numbers can be found at NOAA Fisheries UME website³.

¹Daoust, 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.

²Sharp 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.

³<https://www.fisheries.noaa.gov/national/marine-life-distress/2017-2020-north-atlantic-right-whale-unusual-mortality-event#causes-of-the-north-atlantic-right-whale-ume>.

Table 1: NARW UME Mortalities or Serious Injuries reported by year and country.

Year	Mortalities First Observed in U.S. Waters	Mortalities First Observed in Canadian Waters	Serious Injuries First Observed in U.S. Waters	Serious Injuries First Observed in Canadian Waters	Total
2017	5	12	1	1	19
2018	3	0	3	2	8
2019	1	9	0	1	11
2020	2	0	4	0	6
2021	2	0	3	0	5
Total	13	21	11	4	49

Annual North Atlantic Right Whale Mortalities

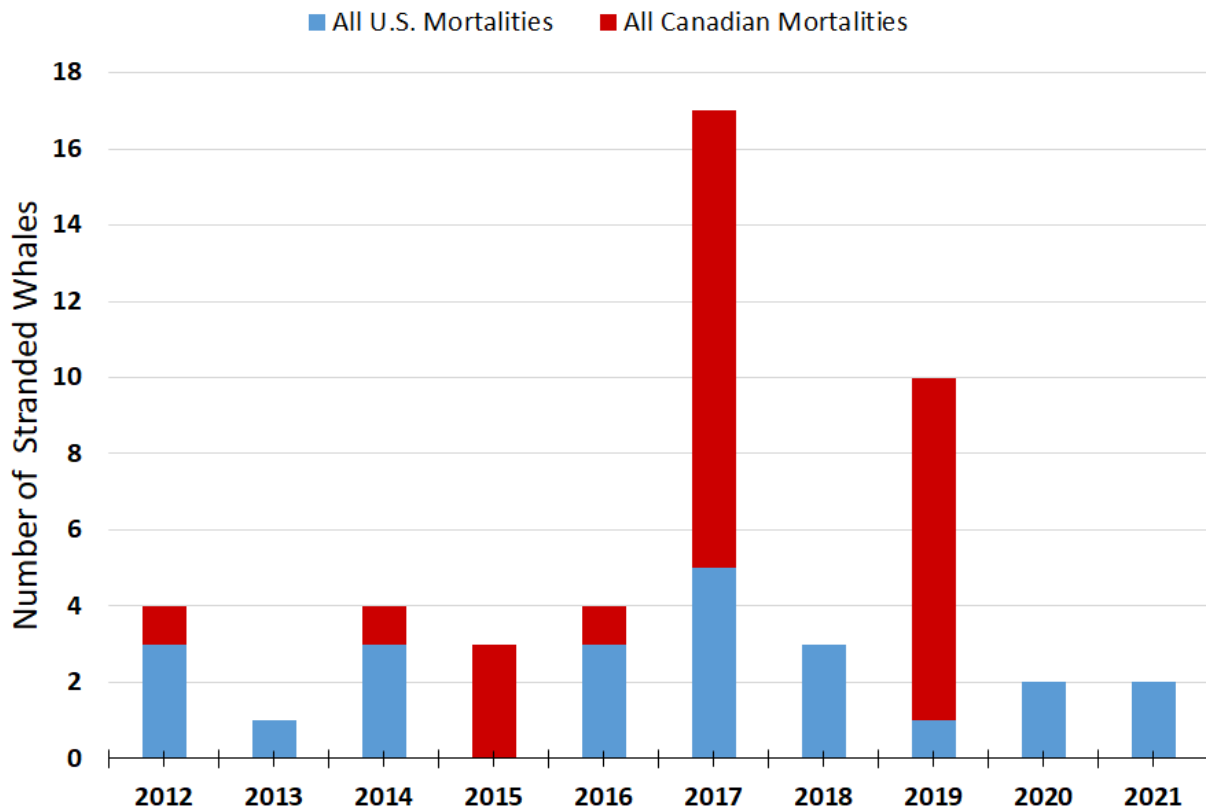


Figure 1: Annual North Atlantic Right Whale Mortalities, 2012-2021, United States and Canada.

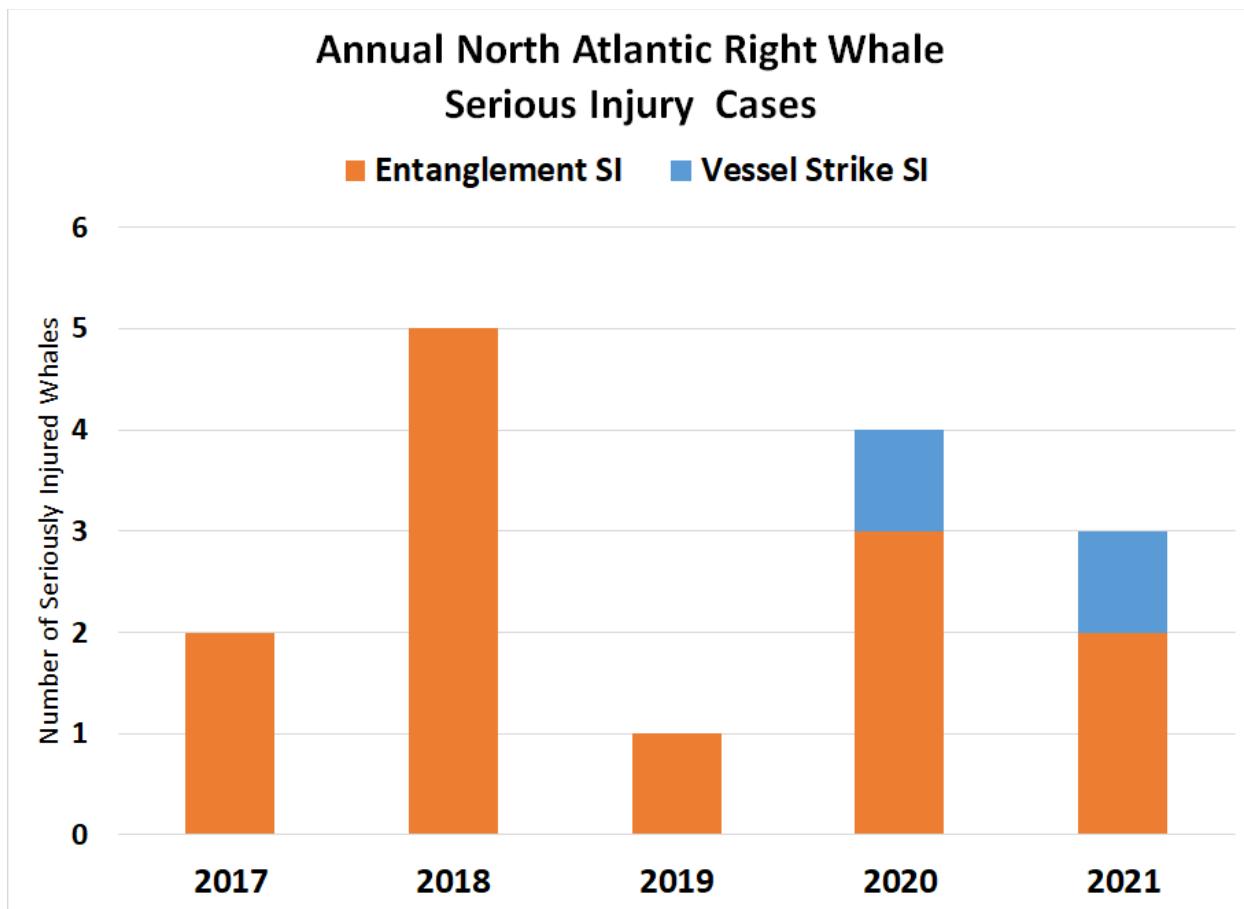


Figure 2: Annual North Atlantic Right Whale Serious Injury (SI) Cases of whales last seen alive, 2017-2021, United States and Canada

Health Assessment Workshop Report and Publication

From June 24-26, 2019, NOAA Fisheries convened a workshop to improve knowledge of North Atlantic right whale health and advance recovery. The workshop goals were to: (1) assess current health information data, including associated data gaps, and (2) identify appropriate available and needed tools and techniques for collecting standardized health data that can be used to understand health effects of environmental and human impacts (e.g., entanglement), and inform fecundity and survivorship models to ultimately guide population recovery of North Atlantic right whales. At the workshop, participants:

- Helped NOAA Fisheries summarize North Atlantic right whale population status and existing health-assessment information;
- Identified several ways to prioritize health data collection, tools and methods; and
- Prioritized ways to increase the use of health data to aid in monitoring individual health, informing population health, and identifying the population consequences of multiple stressors, including the connection between human activities and health.

A summary of the workshop is available as a NOAA Technical Memorandum⁴. In addition, a peer-reviewed paper was recently published detailing the findings from the workshop.⁵

NOAA Fisheries is using the information from the workshop and related publications to guide long-term plans to monitor individual and population health, including the connection between human activities and health.

Monitoring and Surveillance Workshop Report and Recommendations

From October 22-24, 2019, NOAA Fisheries convened a workshop to address two objectives related to monitoring North Atlantic right whales: (1) improving our understanding of population status by identifying and tracking essential population metrics, and (2) improving our understanding of distribution and habitat use. The workshop convened an Expert Working Group consisting of five NOAA Fisheries researchers with considerable expertise in marine mammal monitoring, but not directly in North Atlantic right whale monitoring so as to provide an objective, independent review of ways to improve current monitoring efforts.

As summarized in the workshop report⁶, the Expert Working Group reviewed information on management needs for monitoring data, using mark-recapture analysis to estimate abundance and evaluate trends, current monitoring efforts in the United States and Canada using planes, vessels, and passive acoustics, and current funding levels. Based on this information, the Expert Working Group developed recommendations for a comprehensive strategy to: (1) monitor population status, including estimates of abundance, trends, survival and birth rates, and other demographic metrics, (2) monitor distribution shifts and habitat use range-wide, and (3) assess health of individuals and the population (e.g., identify causation/threats, assess sublethal effects) through biological sampling.

NOAA Fisheries is evaluating the Expert Working Group's recommendations as detailed in the report, and, along with partner organizations, considering how to modify current surveillance efforts where appropriate to optimize North Atlantic right whale population monitoring and improve our understanding of distribution and habitat use.

Reducing Entanglements in Fishing Gear

The MMPA mandates that NOAA Fisheries develop and implement Take Reduction Plans 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.

⁴<https://repository.library.noaa.gov/view/noaa/27432>

⁵ Moore M.J., Rowles T.K., Fauquier D.A., Baker J.D. and others. 2021. REVIEW Assessing North Atlantic right whale health: threats, and development of tools critical for conservation of the species. *Disease of Aquatic Organisms* 143:205-226.

⁶ <https://repository.library.noaa.gov/view/noaa/25910>

The Atlantic Large Whale Take Reduction Team 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 consistently reduced mortalities and serious injuries below each stock’s potential biological removal level (e.g., Figure 3).

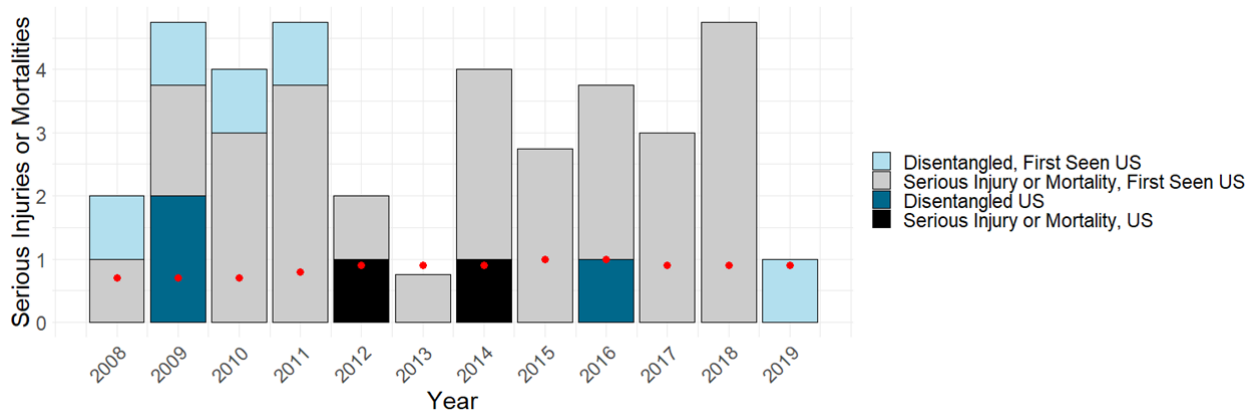


Figure 3. Serious injuries and mortalities from documented North Atlantic right whale entanglements compared to the stock’s potential biological removal (PBR) level (in red).

Given the current decline in North Atlantic right whales, NOAA Fisheries reconvened the Team in both October 2018 and April 2019 to develop consensus recommendations to further reduce entanglement risk in trap/pot fisheries. The Team is composed of approximately 60 fishermen, scientists, conservationists, and state and federal officials. After considerable discussion, the Team reached near consensus on a framework of measures that would achieve an estimated 60% reduction in mortality and serious injury in the lobster and crab trap/pot fisheries in waters off the northeast United States. Two general risk reduction approaches emerged as the Team’s preferred options: line reduction and gear modification.

NOAA Fisheries released a proposed rule and supporting analyses to implement the framework recommendations of the Team in December of 2020⁷. The proposed rule includes reductions in vertical buoy lines as well as gear modifications to reduce the strength at which lines will break. Reduced breaking strength lines (1,700-lb equivalent) would allow entangled whales to more easily break free of gear. Additionally, the proposed rule would expand gear marking by increasing the number of marks and using state-specific colors to create larger and more distinct marks on the Northeast U.S. lobster and crab trap/pot fishery buoy lines. This expansion would improve the ability of large whale scientists and managers to better determine the source of gear seen on or retrieved from endangered large whales. NOAA Fisheries is developing a final rule that considers public input and is aiming to publish that final rule in the summer of 2021. To address additional entanglement risk, the Team will be reconvening in 2021 to discuss

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

additional risk reduction measures for the other trap/pot and gillnet fisheries along the U.S. East Coast.

NOAA Fisheries oversees the Large Whale Entanglement Response Network in the United States and authorizes highly trained professional responders to assist whales entangled in fishing gear or marine debris. There are 7 responders in the United States authorized to lead the disentanglement of a North Atlantic right whale. From 2018-2019, there were 15 cases of entangled North Atlantic right whales in the United States, 12 alive and 3 dead. Over the same time period, 6 entanglement responses were mounted for North Atlantic right whales; all resulted in improved documentation, and 4 resulted in improvements to the animal's entanglement. NOAA Fisheries provides funds for network members to purchase equipment and NOAA Fisheries 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 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 United States continues to employ a suite of measures aimed at reducing vessel interactions with North Atlantic right whales. NOAA Fisheries implements mandatory speed restrictions of 10 knots or less for most vessels 65 feet or greater in overall 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 requests that mariners voluntarily reduce speed in Dynamic Management Areas (DMAs) and North Atlantic right whale Slow Zones, based on near-real-time North Atlantic right whale detections. Additional measures to reduce overlap between whale habitat and vessel traffic, include recommended vessel routes and Areas To Be Avoided, along with modified international shipping lanes. The State of Massachusetts has also implemented mandatory speed limits in Cape Cod Bay (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.

In January 2021, NOAA Fisheries released an assessment of the vessel speed rule that evaluated the biological effectiveness, mariner compliance, outreach and enforcement efforts, navigational safety, and economic impacts of the rule⁸. The assessment also evaluated the voluntary DMA program and reviewed Automatic Identification System (AIS) equipped small vessel (<65ft) speed profiles within SMAs. The report includes recommendations for modification to NOAA's vessel strike mitigation efforts to strengthen our vessel strike reduction strategy and provide additional protection for North Atlantic right whales. NOAA Fisheries solicited public comment on the report and is currently in the process of considering those comments as we evaluate the need for additional changes in our programs.

⁸<https://www.fisheries.noaa.gov/national/endangered-species-conservation/reducing-vessel-strikes-north-atlantic-right-whales>

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 (NEIT), and the Southeast Implementation Team (SEIT)) to assist with issues related to the status and conservation of North Atlantic right 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 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 will help identify demographic benchmarks useful to inform management and gaps in research.

In 2021, NOAA Fisheries completed a NOAA Fisheries' Species in the Spotlight (SIS) Priority Action Plan for North Atlantic right whales⁹. NOAA Fisheries designated North Atlantic right whales as a SIS in 2019¹⁰ and a 5-year action plan is required for species identified as among the most at-risk of extinction under this initiative. NOAA Fisheries developed the plan with input from the implementation teams. 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 *Species in the Spotlight* 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. We will report on progress on those actions we have made which includes working with our partners in the next Biennial report to Congress.

North Atlantic Right Whale Scenario Planning

NOAA Fisheries recently conducted a scenario planning exercise to complement and enhance ongoing efforts to recover North Atlantic right whales. During this exercise, an array of federal participants with expertise in North Atlantic right whale-related science and management explored plausible future conditions for North Atlantic right whales and developed possible options to address these conditions to improve recovery with the following specific objectives: 1) better understand the challenges of North Atlantic right whale management in changing

⁹<https://www.fisheries.noaa.gov/species/north-atlantic-right-whale#spotlight>

¹⁰<https://www.fisheries.noaa.gov/feature-story/recovering-threatened-and-endangered-species-report-congress-2017-2018>

conditions; 2) identify potential research activities and recovery needs across the species' range; 3) increase coordination and collaboration related to recovery efforts; and 4) explore how scenario planning can be used to support decisions. The group's discussions reaffirmed the importance and need to continue efforts to reduce impacts from vessel strike and fishery entanglements into the future. Participants also identified new, emerging threats and helped to highlight the importance of putting additional resources/efforts towards novel actions (e.g., expanded tagging efforts appropriate for North Atlantic right whales, new modeling efforts on climate and zooplankton, and developing emergency response plans for episodic events like harmful algal blooms or oil spills).

As detailed in the associated report published in December 2020¹¹, we identified priority actions related to science, management, and partnerships including, but not limited to: 1) research shifting spatial and temporal distributions of North Atlantic right whales and prey in a changing climate; 2) develop technology to further reduce impacts from human activities; 3) continue ongoing management efforts related to vessel traffic and fishing; and 4) maintain existing and develop new partnerships (e.g., industry engagement in problem solving). The results of the exercise will be used in considering how to best work in coordination with our partners (e.g., other state and federal agencies, Canadian government, fish and shipping industries, scientists, conservationists, etc.) to optimize North Atlantic right whale recovery in changing conditions.

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 March 2020, 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.

¹¹<https://www.fisheries.noaa.gov/resource/document/north-atlantic-right-whale-eubalaena-glacialis-scenario-planning-summary-report>