



NORTH ATLANTIC RIGHT WHALE CONSORTIUM
Annual Meeting

23-24 October 2024
Renaissance Providence Downtown Hotel

With Special Attendee (Onsite & Remote) Programming on 22 October 2024

MEETING FORMAT AND AGENDA

Pre-Meeting:

Prior to the meeting, all registered participants will receive a unique meeting site login code that will allow them to view all pre-recorded presentations in advance of the meeting. All underlined presentations should be viewed **in advance of the meeting** as they will not be shared live. Those presentations that are not underlined will be shared **live** during the meeting. The six-digit number preceding the presentation title corresponds to the video number on the meeting site. Please note that presentations that are to be viewed live will be uploaded to the meeting site **post meeting**, and therefore have six-digit codes as well.

Participants (both onsite and remote) may submit questions/comments for presenters in advance of the meeting using the question submission link on the meeting page.

Electronic copies of the Poster Presentations will be available on the Meeting page in advance of the meeting.

Live Meeting:

Remote participants will be able to view the meeting, including live presentations and discussions, using the zoom access links on the meeting site.

Following any live presentations within a session, a discussion panel will take place with all presenters within that session. Presenters who are onsite will gather at the front of the auditorium and presenters who are remote will be pinned to the top of the zoom meeting and visible to onsite participants. The panel will take questions/comments from both onsite and remote meeting participants. Remote participants will be able to come off mute to ask their questions and/or can submit via the zoom chat.

All meeting materials (both static and live) are intended for registered participants only and may not be shared in any capacity. All participants have agreed to the meeting Code of Conduct. There is no external recording (including but not limited to video, audio, screenshots, or photography) or sharing (including social media) of any material (including but not limited to presentations, presentation content, discussions) without explicit consent of the presenter, speaker, moderator, etc. The meeting will be recorded to facilitate the synthesis of meeting notes to be distributed to participants only.

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Meeting Site Information

The onsite meeting will take place at the **Renaissance Providence Downtown Hotel**. We will be using three levels of the venue during our meeting. Additionally, registration check-in will take place in the hotel lobby.

Access to each of the floors below is available by both stairs and elevators.

The Symphony Ballroom Floor

Symphony Ballroom Theater

- 10/22 Workshops
- 10/22 Screening of film *Right Whale Stories*
- 10/23-10/24 Main Meeting Room

Symphony Ballroom Floor Lobby

- 10/23 Reception bar and passed hors d'oeuvres
- 10/23-10/24 Breakfast/Break buffet set up

Coat Check Room

- Late check in for meeting material pick up

Mezzanine Level

Beethoven and Mozart Rooms

- 10/22 Workshops
- 10/23 Poster Session

Mezzanine Level Lobby

- 10/23 Reception passed hors d'oeuvres

Temple Level

Haydn, Handel, 33rd Degree Room

- 10/23-10/24 Seating for Lunch/Break/Breakout Sessions

Public Kitchen and Bar

- 10/23-10/24 Lunch buffet and dining seating

Temple Level Lobby

- 10/23-10/24 Lunch buffet
- 10/23 Reception bar and passed hors d'oeuvres

Temple Board Room

- By reservation only

Hotel Lobby

- 10/23 and 10/24 730AM Check In

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ROPELESS AND NARWC 2024 ANNUAL MEETINGS SPECIAL PROGRAMMING

Tuesday, October 22, 2024

Workshops

There are several workshops being held on the afternoon of October 22, 2024. These are independently organized - please see Workshop page at narwc.org for more information and registration information.

- 1:00-2:30PM: New England Gear Innovation Fund Grantee Workshop (Symphony Ballroom Theater)
- 1:00-2:00PM: Underwater Acoustics for On-Demand Fishing (Mozart Room)
 - *On water demo to follow workshop at TBD location*
- 1:00-2:00PM: Technological Advancements and Real-World Fishery Trials of Sub Sea Sonics Acoustic Releases and Guardian Ropeless Pop-Up Sleds Workshop (Beethoven Room)
- 2:00-3:00: Nutahshay8ôk Peetôp: My Family Whale (Beethoven Room)
- 2:00-4:00PM: New advancements in the EdgeTech On Demand Fishing System and Trap Tracker (Mozart Room)
- 2:30-4:00PM: NMEA Standards for Gear Integration Workshop (Symphony Ballroom Theater)

Special Attendee Evening Programming

Symphony Ballroom Theater, Renaissance Providence Downtown Hotel

Open to in person and remote attendees

Zoom link for remote attendance posted on meeting page

4:30-6:00PM Film Premiere: The Right Whale

Moderators: Cheryl and Nick Dean, Spindrift Images

*Panelists: Regina Asmutis-Silvia, Whale and Dolphin Conservation
Tonya Wimmer, Marine Animal Response Society
Alex Zerbini, NOAA Fisheries*

Southern right whales are one of the greatest conservation success stories of our time. In contrast, Northern right whales are facing extinction. *The Right Whale* reveals the mysterious lives and behavior of individual right whales around the world. We follow scientists using cutting edge technologies as they strive to solve the puzzle of why some whales are thriving and others struggling, posing solutions to help ensure the whales can coexist with us. These are contrasting environmental stories that explore our relationship with wildlife and our commitment to sustainability and biodiversity preservation in the increasingly industrialized ocean.

Join us for a special screening of the film and a panel discussion with some of the film's featured scientists.

Social Meet and Greet

630PM Trinity Brewhouse, 186 Fountain St, Providence, RI 02903

New to the NARWC meeting? Not new but excited to connect/reconnect with other members? Looking to network in advance of the meeting? Join us for an informal social gathering at a fun local spot! Please RSVP via WhatsApp QR code on meeting site.

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NARWC 2024 ANNUAL MEETING

Day 1

Wednesday, October 23, 2024

730-830AM Check in – Hotel Lobby

Continental Breakfast (Symphony Ballroom Level)

If you arrive after the start of the meeting, please check in at the coat check room during a break.

830AM Opening

Heather Pettis, NARWC Chair

900AM Session 1: Data Collection and Management

Moderated by Heather Pettis, New England Aquarium

01.01.01 North Atlantic Right Whale Catalog Update

- *Philip Hamilton, New England Aquarium*

01.01.02 Using known births to account for delayed marking in population estimation of North Atlantic right whales

- *Daniel Linden, NOAA/NMFS/NEFSC*

01.01.03 Results of the smartWhales initiative: Demonstrating the potential use of space-based technologies to support North Atlantic right whale conservation

- *Deborah Austin, Fisheries & Oceans Canada*

01.01.04 An Agent-Based Model of human-whale interactions in the North Atlantic

- *Amir Tofighi, George Mason University*

1015AM Break (Symphony Ballroom Level)

1045AM Session 2: Reproduction, Injury, and Mortality

Moderated by Rob Schick

01.02.01 Right Whale mortality events 2024

- *Bill McLellan, University of North Carolina, Wilmington*

01.02.02 North Atlantic right whale attached gear entanglements and response 2024

- *Delphine Durette-Morin, Canadian Whale Institute*
- *Bob Lynch, Center for Coastal Studies*

01.02.03 Near real time monitoring of North Atlantic right whale injuries 2024

- *Heather Pettis, Anderson Cabot Center for Ocean Life at the New England Aquarium*
- *Allison Henry, NOAA/NEFSC*

01.02.04 Right whale mortalities and serious injuries by observer source: detection trends and implications for cryptic mortality apportionment

- *Allison Henry, NOAA/NEFSC*

01.02.05 Using mark-recapture derived mortality estimates for North Atlantic right whales to assess effectiveness of management actions

- *Tim Cole, NOAA Fisheries NEFSC*

01.02.06 Update on the North Atlantic Right Whale Unusual Mortality Event: 2017-Present

- *Deborah Fauquier, National Marine Fisheries Service*

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1215PM Session 3: Anthropogenic Event Mitigation
Moderated by Erin Meyer-Gutbrod, University of South Carolina

- 01.03.01 **Evaluating the efficacy of real-time passive acoustic monitoring near offshore wind energy development activities to help mitigate risks to North Atlantic right whales**
• *Mark Baumgartner, Woods Hole Oceanographic Institution*
- 01.03.02 **CObal-FISH: Identifying optimal solutions for whale entanglement mitigation through fishermen-led efforts in snow crab fisheries**
• *Lyne G. Morissette, M - Expertise Marine*
- 01.03.03 **Protecting a moving species: What management measures are most resilient to reducing whale entanglement in the face of shifting species distributions?**
• *Burton Shank, National Marine Fisheries Service/Northeast Fisheries Science Center*
- 01.03.04 *This presentation has been removed from the agenda by authors.*
- 01.03.05 **Evaluating the feasibility of using 1700lbf ropes and its effectiveness for whales**
• *Amy Knowlton, Anderson Cabot Center for Ocean Life, New England Aquarium*
- 01.03.06 **Elevations of Novel Groundlines Used by the Canadian Snow Crab Fishery in Conjunction with On-Demand Gear**
• *Shiva Jian-Javdan, Canadian Wildlife Federation*
- 01.03.07 **Method for accounting vessel size and type when measuring probability of lethality of vessel strike**
• *Alexandra Mayette, Canadian Wildlife Federation*
- 01.03.08 **Predicting the vessel strike risk reduction achieved by various technologies**
• *Thomas Weber, MITRE*

145PM Lunch – Extended (Temple Level)

Lunch provided onsite. The break is long by design to allow for breakout sessions and for participants to take advantage of being together to connect, engage in strategic planning, etc. Onsite participants should plan on getting lunch and then heading to the session location.

215PM Breakout Sessions

See meeting site for remote attendance zoom links if available.

NEIT – 33rd Degree Room (Temple Level)

The Northeast Implementation Team (NEIT) is a multi-disciplinary team established under the U.S. Endangered Species Act to advise NOAA Fisheries on issues related to the status and conservation of right whales in the Northeastern U.S. (Maine to Virginia). Members of the NEIT and the Greater Atlantic Regional Fisheries Office will be available during this breakout session to answer questions on recent activities. To learn more about the NEIT, see <https://www.fisheries.noaa.gov/new-england-mid-atlantic/endangered-species-conservation/north-atlantic-right-whale-recovery-plan-northeast-us-implementation-team>. Onsite participants only.

Advancing North Atlantic right whale conservation through solutions based in social science
Symphony Ballroom (Open to onsite and remote participants. Main meeting zoom will be used)
Moderated by Andrew Wright, George Mason University

Despite considerable management effort, the critically endangered North Atlantic right whale (NARW) remains in decline, primarily due to vessel strikes and entanglements. Promising

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advancements in on-demand (aka “ropeless”) fishing gear seem poised to substantially reduce impacts of fishing activities. However, uptake of new technology has been slow in many areas due to distrust of scientists, government regulations, cultural resistance to change, logistical, technological, and financial challenges, and other distinctly human considerations. These challenges lie within the purview of social sciences, which study human behaviour, individual and community decision-making, relationships, and culture, rather than natural sciences. Increasingly, social sciences are being recognised for their role in designing effective behavioural interventions for social or conservation improvements. An interactive workshop, held after the 2023 North Atlantic Right Whale Consortium annual meeting, introduced participants to social science approaches for overcoming social barriers within conservation, and created a uniquely moderated space for fisher harvesters, natural and social scientists, policymakers, and conservation practitioners to engage with each other on topics relating to NARW conservation. This breakout session will review the workshop objectives and discussions and provides an opportunity for continued dialogue in this important space.

315PM Ropeless Consortium Meeting Summary
Moderated by Elizabeth Vézina, Canadian Wildlife Federation

345PM Session 4: Management Discussion Panel
Moderated by Mark Baumgartner, Woods Hole oceanographic Institution
Bill McLellan, University of North Carolina, Wilmington

01.04.01 **Transport Canada (TC) update on North Atlantic right whale vessel management measures**

- *Chantal Bois, Transport Canada (TC)*

01.04.02 **Developing new tools to mitigate right whale vessel strikes**

- *Caroline Good, NOAA Fisheries*

01.04.03 **Fisheries and Oceans Canada (DFO): Fisheries management adaptation and innovation in support of right whale recovery**

- *Melissa Landry, Fisheries and Oceans Canada*

01.04.04 **NOAA Fisheries investment in North Atlantic right whale recovery under the Inflation Reduction Act**

- *Lindsey Stadler, NOAA Fisheries Office of Protected Resources*

01.04.05 **Offshore wind mitigation and monitoring: A review of general MMPA and ESA regulatory requirements**

- *Jaelyn Daly-Fuchs, NOAA's National Marine Fisheries Service*

500PM Education Presentation
The Calvineers Movie – It’s Only Right

- *Thom Willey, Thom Willey Film*
- *Bill McWeeny and The Calvineers*

520PM Day 1 Wrap

545-730PM Poster Session
List of posters below. Digital copies are available on the Meeting Site.

- Onsite Session: Beethoven and Mozart Rooms (Mezzanine Level)

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- Remote Poster Session (see meeting page for zoom link)

Onsite Reception

- Bars located on Symphony Ballroom and Temple Levels
- Passed hors d'oeuvres on Symphony Ballroom, Mezzanine, and Temple Levels

NARWC 2024 ANNUAL MEETING

Day 2

Thursday, October 24, 2024

730-830 AM Check in – Hotel Lobby

Continental Breakfast (Symphony Ballroom Level)

If you arrive after the start of the meeting, please check in at the coat check room during a break.

830AM Session 1: Distribution and Foraging Ecology

Moderated by Hansen Johnson, New England Aquarium

02.01.01 Satellite telemetry reveals spatial and temporal patterns in NARW movements and diving behaviour

- *Christian Ramp, Fisheries and Oceans, Canada*

02.01.02 Forecasting North Atlantic right whale density with spatial capture-recapture

- *Nathan Crum, Florida Fish and Wildlife Conservation Commission, Fish and Wildlife Research Institute*

02.01.03 The Yum Factor: Evaluating prey patch nutritional quality for skim-feeding North Atlantic right whales in Cape Cod Bay

- *Christine Hudak, Center for Coastal Studies*

02.01.04 What's my area again? Photo-ID indicates a new shift in North Atlantic right whale distribution

- *Brigid McKenna, NOAA/NEFSC*

02.01.05 A closer look at an unusual late-spring aggregation of North Atlantic right whales off VA using tag and environmental data

- *Jessica Aschettino, HDR Inc.*

02.01.06 *This talk has been pulled from the agenda. Please see this [publication](#) for related information.*

02.01.07 Using an individual movement model to quantify right whale habitat use in between sightings

- *Abigail Kreuser, University of South Carolina*

1000AM Session 2: Emerging Science/Real Time Monitoring

Moderated by Kim Davies, University of New Brunswick

02.02.01 An Emerging Spring Nursery for North Atlantic Right Whales in Cape Cod Bay

- *Ryan Schosberg, Center for Coastal Studies*

02.02.02 Vessel speed responses to near real-time slow-down periods implemented to protect whales

- *Leila Fouda, University of New Brunswick*

02.02.03 Parameterizing the GNOME drift model to improve whale carcass movement prediction and hindcasting

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- *Lisa Neyman, Ocean Associates Inc./National Marine Fisheries Service*
- 02.02.04 **An analysis of North Atlantic right whale news coverage in an era of climate change**
- *Amadi Afua Sefah-Twerefour, University of South Carolina*
- 02.02.05 **Gamification for Conservation: Saving the endangered right whale**
- *Jennifer Kelly, Whale & Dolphin Conservation*
- 02.02.06 **Strengths and limitations of near real-time monitoring for the conservation of North Atlantic right whales**
- *Hansen Johnson, Anderson Cabot Center for Ocean Life at the New England Aquarium*
- 02.02.07 **Implications of a recent Gulf of Maine cold wave for right whale foraging**
- *Nicholas Record, Bigelow Laboratory for Ocean Sciences*

1145AM Lunch/Breakout Sessions (Temple Level)

Student/Early Career Roundtables – Haydn Room (Temple Level)

Join professionals in the right whale community as they share their career journeys and experiences. Host bios are provided in the abstract booklet. Look for reserved tables for onsite hosts. Remote session will be moderated by a current NARWC Board Member and will start with brief introductions followed by opportunities to join remote hosts in their own breakout rooms for discussion. See meeting site for zoom link

1245PM Session 3: Acoustics and Acoustic Detections

Moderated by Genevieve Davis, Northeast Fisheries Science Center

- 02.03.01 **Identifying individual right whales through passive acoustic upcall recordings**
- *Irina Tolkova, K. Lisa Yang Center for Conservation Bioacoustics, Cornell Lab of Ornithology, Cornell University*
- 02.03.02 **Passive acoustic monitoring for North Atlantic right whales off Nova Scotia, Canada: 2017-2022**
- *Gabrielle Macklin, Fisheries and Oceans Canada*
- 02.03.03 **The effect of vessel noise on North Atlantic right whale upcall behavior in the US Mid-Atlantic Bight**
- *Kirsten Silva, University of Maryland Center for Environmental Science*
- 02.03.04 **Vocalisation rates of North Atlantic right whales encountered throughout the US coastal range in 2023**
- *Oliver Boisseau, R/V Song of the Whale team, MCR International*
- 02.03.05 **North Atlantic right whale acoustic persistence and recurrence across the western North Atlantic Ocean**
- *Lindsey Transue, NOAA Northeast Fisheries Science Center*

215PM Session 4: Genetics, Health, and Physiology

Moderated by Philip Hamilton, New England Aquarium

- 02.04.01 **Building an Integrated North Atlantic Right Whale Health Assessment Strategy**
- *Shasta McClenahan, NOAA- Office of Protected Resources*
- 02.04.02 **Estimating the field metabolic rate of right whales with inertial sensing tags**
- *Rhyl Frith, Dalhousie University*

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- 02.04.03 **Investigating calving and reproductive failure in North Atlantic right whales through retrospective baleen analysis**
- *Nadine Lysiak, New England Aquarium*
- 02.04.04 **The North Atlantic right whale – Stressing about their future**
- *Katharyn Chadwick, Saint Mary's University*
- 02.04.05 **Improved genetic profiling of North Atlantic right whales for ongoing population genetic monitoring**
- *Carla Crossman, Saint Mary's University*
- 02.04.06 **The sensory systems of the North Atlantic right whale: Their roles in migration and foraging strategies, and implications on conservation efforts**
- *Jeff Fasick, University of Tampa*

345PM **Break** (Symphony Ballroom Level)

430PM **Open Forum**

530PM **Meeting Wrap and Close**

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2024 NARWC POSTER SESSION

In person and remote poster sessions will happen concurrently on the evening of **23 October 2024**. Remote posters (indicated by underlined title) will be presented during a zoom session with link posted on meeting site.

Acoustics and Acoustic Detections

01. **Automated detectors in the real world: Overcoming challenges for meaningful monitoring and management using passive acoustic monitoring**
 - *Mark Thomas, JASCO Applied Sciences*

Anthropogenic Interaction Mitigation

02. **Building the Fisheriescape: Mapping the threat of entanglement from vertical fishing lines**
 - *Stephanie Ratelle, Fisheries and Oceans Canada*
03. **Evaluating Smart Buoy adoption for detection of North Atlantic right whale entanglements in New Brunswick snow crab fishing gear**
 - *Alexandra Friedman, IFAW - International Fund for Animal Welfare*
04. **Eat, sleep, risk repeat. How the behaviour of North Atlantic right whale influences exposure to anthropogenic risk.**
 - *Jay Kirkham, Dalhousie University*
05. **Machine learning for predicting North Atlantic right whale presence to support offshore wind energy development in the U.S. Mid-Atlantic**
 - *Jiaxiang Ji, Rutgers, The State University of New Jersey*

Distribution and Foraging Ecology

06. **Quantifying North Atlantic right whale site fidelity to Cape Cod Bay, Massachusetts**
 - *Laura Ganley, Anderson Cabot Center for Ocean Life, New England Aquarium*
07. **Physics, Plankton, and Whales, Oh My!**
 - *Laura Nazzaro, Rutgers University*
08. **Celebrating the Silver Jubilee: The changing distribution and demography of NARW in Cape Cod Bay over 25 years**
 - *Amy James, Center for Coastal Studies*
09. **Changes in site fidelity and demographics of North Atlantic right whales in Canadian waters**
 - *Angelia Vanderlaan, Fisheries and Oceans Canada*
10. ***Eubalaena glacialis* foraging habitat suitability under future climate scenarios in the Northwest Atlantic**
 - *Omi Johnson, Khoury College of Computer Science, Northeastern University*
11. **Comparison of physiological, morphometric and energetic characteristics of *Calanus* spp. copepods between North Atlantic right whale foraging habitats**
 - *Jillian Carter, University of New Brunswick*
12. **Climate and adaptation deficits: Mechanisms of response to climate change by the endangered North Atlantic right whale**
 - *Jonathan Syme, Bigelow Laboratory for Ocean Sciences*
13. **Big whales, big ocean, tiny food: Navigation and foraging of North Atlantic right whales across spatial scales**
 - *Delaney Jones, University of Tampa*

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Emerging Science

14. **Assessing the predictive value of basking shark arrival for North Atlantic right whale departure from Cape Cod Bay**
- *Annie Bartlett, Center for Coastal Studies*

Management Research and Monitoring

15. **Fisheries and Oceans Canada: An update on key research and monitoring activities for North Atlantic right whales (*Eubalaena glacialis*)**
- *Adèle Labbé, Fisheries and Oceans Canada*

Real/Near Real Time Monitoring/Management Opportunities and Constraints

16. **Pilot program for glider-based Passive Acoustic Monitoring of right whales in the Southeast US calving ground**
- *Erin Meyer-Gutbrod, University of South Carolina*
17. **Exploring the potential of satellite-based *Calanus finmarchicus* estimates for enhanced tracking of North Atlantic Right Whales in the Gulf of Maine**
- *Rebekah Shunmugapandi, Bigelow Laboratory for Ocean Sciences*

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