

# North Atlantic Right Whale Consortium Annual Report Card (01 November 2007 – 30 April 2009)

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## NORTH ATLANTIC RIGHT WHALE CONSORTIUM BACKGROUND

The North Atlantic right whale (*Eubalaena glacialis*) remains one of the most endangered large whales in the world. The interest in addressing the problems hampering the recovery of North Atlantic right whales using innovative research techniques, new technologies, and continued analyses of existing databases has increased significantly over the past ten years. This increased interest necessitated better coordination and collaboration among all stakeholders to ensure that there was improved access to data, research efforts were not duplicative, and that findings are shared with all interested parties. The North Atlantic Right Whale Consortium, initially formed in 1986 by five research institutions to share data among themselves, was expanded in 1997 to address these greater needs. Currently, the Consortium membership is comprised of representatives from more than 100 entities including: research, academic, and conservation organizations; shipping and fishing industries; whale watching companies; technical experts; U.S. and Canadian Government agencies; and state and provincial authorities; all of whom are dedicated to the conservation and recovery of the North Atlantic Right whale. The Consortium is governed by an Executive Committee and Board members who are elected by the general Consortium Membership at the Annual Meeting.

The Consortium's mission is to significantly enhance the survival probability of North Atlantic right whales. To accomplish this goal, the Consortium membership is committed to long-term research and management efforts and to coordinate and integrate the wide variety of databases and research efforts related to right whales to provide the relevant management groups with the best scientific advice and recommendations on right whale conservation. The Consortium is also committed to incorporating new and updated methods in its research activities, providing up-to-date information on right whale biology and conservation to the public, and maintaining effective communication with U.S. and Canadian Government agencies, state and provincial authorities, the Canadian Right Whale Network, the U.S. Right Whale Implementation Teams, the Atlantic Large Whale Take Reduction Team, the NMFS Scientific Review Group, and members of Congress. The Consortium membership takes responsibility for ensuring continuity among the separate research programs under its umbrella, including acting as executor for database archives from private institutions with substantial holdings. Lastly, the Consortium is interested in maximizing the effectiveness of management measures to protect right whales, including using management models from other fields.

## ANNUAL NORTH ATLANTIC RIGHT WHALE REPORT CARD

North Atlantic Right Whale Consortium members agreed in 2004 that an annual "report card" on the status of right whales would be useful. This report card includes updates on the status of the catalogued population, mortalities and entanglement events, and a summary of current management and research efforts that have occurred over the previous 12 months. While the format of this report is evolving, the Board's goal is to expand evaluations of current research and management activities, as well as provide detailed recommendations for future activities. The Board views this report as a valuable asset in assessing the effects of research and management over time.

This version of the annual report card, written specifically for the International Whaling Commission Scientific Committee meeting in May 2009, includes some information over a 17-month period (01 November 2007 – 30 April 2009), depending on data availability.

### Essential Population Monitoring

The Consortium emphasizes that these key monitoring efforts be continued and maintained in order identify trends in the population as well as assess the factors behind any changes in these trends:

- Photographic Identification and cataloging in southeast United States, Cape Cod Bay, Great South Channel, Bay of Fundy, Scotian Shelf, and Jeffreys Ledge (the International Whaling Commission recommended that the continuation of right whale photo-identification studies and the processing of such data be given "high priority". IWC 2001).
- Monitoring of scarring and visual health assessment from photographic data
- Examination of all mortalities. Shore based necropsies are ideal and should be performed if at all possible. If a shore-based necropsy is not possible, at sea examination with aerial and/or underwater video should be performed. While preferable to no examination, at-sea exams are often ineffective at providing detailed information about the whale and cause of death. The lack of tow and disposal sites, particularly in the northeast US, has hindered the ability to perform on-shore necropsies.
- Continue using photo-ID and genetic profiling to monitor population structure and how this changes over time.

### **Estimate of Catalogued North Atlantic Right Whales: 2007**

The ability to monitor North Atlantic right whale vital rates is entirely dependent on the right whale identification database. Curated by the New England Aquarium, the database consists of over

500,000 slides, prints, and digital images collected during the ~46,000 sightings of over 500 individual right whales photographed since 1935. Each year, nearly 3,000 sightings consisting of 20-30,000 images are added to the identification database. Due to the lag time in processing data, the most recent estimate of the cataloged population available is for 2007.

In 2007, the best estimate of catalogued North Atlantic right whale population was 415 individuals. This estimate assesses the number of photographed whales; it does not assess how many unphotographed whales may be in the population and therefore is not a population estimate. This total includes 379 catalogued whales that were presumed to be alive in 2007 because they were seen in that year, or any time in the prior six years (Knowlton et al. 1994). The total also includes 22 calves from 2006 or 2007 that were considered suitable for inclusion in the catalog. Calves are added only if enough photographic information is ultimately available to reliably match them to future sightings. Finally, the estimate included 14 other whales that did not match the catalog, but were re-identified in at least one subsequent year (excluding sightings in field seasons that spanned the calendar year).

### **Reproduction:**

In 2008, 23 right whale calves were documented. The average calving interval of 2008 moms was 3.1 years (not including primiparous cows, n=7).

In 2009, 39 right whale calves were documented based on surveys on the calving ground. This number may increase as some calves are first detected on the feeding grounds. The average calving interval of 2009 moms was 3.9 years (not including 8 primiparous cows, n=8).

### **Mortalities:**

Between 01 November 2007 and 30 April 2009, 6 right whale mortalities were documented (Table 1, highlighted rows). Four of these mortalities were calves. Three other mortalities are suspected, all calves. It is possible that two of the confirmed mortalities were also among the suspected mortalities. Among the 6 documented mortalities were two reports from the stranding network in North Carolina who responded to two live right whale strandings where the animal's condition was assessed and euthanasia was conducted.

### **Non-Fatal Entanglements and Vessel Strikes**

These cases are classified as non-fatal only in so far as the animals were alive when last seen.

#### *Entanglements:*

There were ten new entanglement cases reported between November 2007 and April 2009 (Table 2). Additionally, there are 5 open confirmed entanglement cases (3346, wr-2006-14, 3210, 1430, 1815).

#### *Vessel Strikes:*

There was one confirmed right whale non-fatal vessel strike reported:

- On Sunday 19 April 2009 the research vessel Auk was traveling at a speed of 19 knots when they struck a right whale in poor sea conditions approximately 7 nm east of Scituate, Massachusetts. The vessel was immediately turned around and the observers looked for the whale. They found the whale and reported

damage to the left fluke; photographs were obtained. The whale has been tentatively identified as an uncatalogued whale: a female first sighted in January 2006 and last sighted 17 April 2009. This whale has not yet been resighted.

A second large whale strike was reported in March 2009; however the species of whale has not yet been confirmed:

- 31 March 2009: A vessel reported hitting a submerged object and was taking on water. A few minutes later the vessel operator radioed that he saw a whale surface and there was a trail of blood in the water. They reported that their 30' pleasure craft was approximately 4nm south of Port Royal Sound, South Carolina.

#### **Aerial and Vessel-based Survey Efforts 2008**

(Catalogued sighting information through 31 October 2008. Not all data has been received and/or entered. Survey platforms and sighting totals may change.)

##### *Survey Organizations:*

BOS: Blue Ocean Society  
 FWRI: Fish and Wildlife Research Institute  
 GDNR: Georgia Department of Natural Resources  
 NEAq: New England Aquarium  
 NEFSC: Northeast Fisheries Science Center  
 PCCS: Provincetown Center for Coastal Studies  
 UNCW: University of North Carolina Wilmington  
 WCNE: Whale Center of New England  
 WT: Wildlife Trust

Southeast United States (1561 sightings; NEAq, FWRI, WT, GDNR, NEFSC)

- Aerial surveys December 07 through March 08
- Biopsy darting and vessel photo-ID December 07 through mid March 08.

New England (694 sightings; PCCS, NEFSC)

- Aerial surveys and habitat sampling January - May 08

Jeffreys Ledge (94 sightings; NEFSC, WCNE, BOS)

- Aerial and vessel surveys November 07 – March 08, September 08 – October 08

Great South Channel (292 sightings; NEFSC, PCCS)

- Aerial and vessel surveys February 08 – August 08

Gulf of Maine (174 sightings; NEFSC)

- Aerial surveys November 07 – October 08

Bay of Fundy (708 sightings; NEAq)

- Vessel surveys August-October 08

Mid-Atlantic (86 sightings; NEFSC, WT, PCCS)

- Aerial and vessel surveys February – June 08

Roseway Basin (7 sightings, NEFSC)

- Aerial surveys July 08

#### **Partial Listing of Research Analyses Underway in 2008**

- Determining migration routes of North Atlantic right whales through the mid-Atlantic corridor
- Mapping right whale density vs. shipping lanes in Gulf of Maine
- Publication of right whale sighting south of Iceland
- Seasonality, density and reproductive status of right whales sighted in Jordan Basin
- Estimates of right whale population size
- Area specific papers on right whale distribution, abundance, demographics

- Retrospective study of neonatal right whale mortalities in regards to spatial and temporal patterns and causes of death
- Right whale movement patterns among critical feeding habitats in the northeast US and eastern Canada to allow for estimates of vessel strike and fishing gear entanglement risk calculations
- Estimates of the contemporary spatial distribution, concentration and energy content of zooplankton available to right whales within Roseway Basin to determine whether inter-annual variation in the prey-field can explain variation in habitat occupancy
- Facilitate identification of the origin of heteroplasmy, transmission through maternal lineages, and segregation of haplotypes
- Health assessments of entangled whales
- Mitigating Risk to Whales from Lobster Fishing off the Coast of Maine
- Organochlorine pesticides, Polychlorinated Biphenyls, and Brominated Flame Retardants in Marine Vertebrates, including the Endangered North Atlantic Right Whale
- Reproductive physiology and factors potentially impacting health and reproduction in North Atlantic right whales.
- Assessing the risk posed by the Nova Scotia offshore lobster fishery to right whales
- Validation of a predictive model of right whale habitat use based on copepod abundance
- Review of marine mammal distribution in VA waters in advance of the potential opening up offshore oil and gas leases
- Health assessments of entangled North Atlantic right whales
- Assessing scarring sources and rates in right whales
- Evaluation of lipid assimilation in right whales to determine whether they are capable of digesting the wax components of their copepod diets
- Studies on the profiles of the (floating) groundlines used in the Canadian Bay of Fundy lobster fishery
- Predicting other areas in Canadian waters that are potential aggregation sites for right whales
- Mapping the spatial/temporal distribution of fishing gear in Canadian waters for the purpose of assessing the threat to right whales
- Characterization of cow/calf pairs on southeast US calving ground
- Using AIS to monitor vessel speed and use of recommended shipping lanes in the southeaster US right whale critical habitat
- Development of a model to define calving habitat for the North Atlantic right whale in the southeastern US.

### **Management and Mitigation Activities 2008**

- The U.S. Navy published three Draft Environmental Impact Statements (DEIS) assessing the effects of proposed sonar training, vessel maneuver and ordnance detonation activities to be conducted in Southeast U.S. ocean waters.
  - The Atlantic Fleet Active Sonar Training (AFAST) DEIS was published on February 15, 2008 and describes potential environmental effects associated with the use of active sonar during Atlantic Fleet training exercises, maintenance, and research, development, test, and evaluation (RDT&E) activities.
  - The Jacksonville Range Complex DEIS was published in June 2008 and assesses the potential environmental impacts of vessel maneuvers, ordnance detonations and other RDT&E activities that will be conducted in waters within and adjacent to the North Atlantic right whale calving grounds over the next 10 years.
  - The Undersea Warfare Training Range (USWTR) DEIS was published on September 12, 2008. The DEIS assesses the projected impacts of the installation and operation of a training range that the Navy intends to build 50NM offshore of Jacksonville, FL, adjacent to the North Atlantic right whale calving grounds.
- DFO and lobstermen on the western side of the Bay of Fundy introduced a Right whale/Lobster fishing gear mitigation strategy for the lower Bay of Fundy in 2006 - 2008 and are planning on continuing those efforts.
- The Campobello Whale Rescue Team (CWRT) started rescue efforts for entangled and entrapped large whales in the lower Bay of Fundy in 2002. CWRT and the Canadian Whale Institute are re-establishing the disentanglement network for the Bay of Fundy in 2009.
- DFO Canada established the right whale recovery network in December 2008.
- DFO Right Whale Recovery Strategy is in review and expected to be posted on the Species at Risk public registry in 2009.

*Legislated Actions:*

- NOAA's National Marine Fisheries Service (NMFS) published the Final Rule to Implement Speed Restrictions to Reduce the Threat of Ship Collisions with North Atlantic Right Whales in the Federal Register on Friday October 10, 2008 (73 FR 60173; 50 CFR 224.105). The rule became effective December 9, 2008 and implements speed restrictions of 10 knots or less in specific areas along the US east coast at certain times of the year for all vessels 65 feet and greater in overall length. This measure is set to expire in 2013.
- NMFS has approved a Final Rule, which amends the regulations implementing the Atlantic Large Whale Take Reduction Plan (ALWTRP). This Final Rule provides an additional six months (through April 5, 2009) for trap/pot fishermen along the Atlantic east coast to comply with the broad-based sinking groundline requirement. Additionally, this Final Rule deletes the "neutrally buoyant line" term and definition from the ALWTRP regulations, so that only the "sinking line" term and definition remain. The Final Rule was published on September 2, 2008 (73 FR 51228).
- NMFS reinstated the Dynamic Area Management (DAM) program under the Atlantic Large Whale Take Reduction Plan (ALWTRP) north of the pre-existing Seasonal Area Management boundaries (i.e. north of 42° 30' N. latitude) (73 FR 58942, October 8, 2008) pursuant to a preliminary injunction issued in the case, *The Humane Society of the United States, et al. v. Gutierrez, et al.*, in U.S. District Court for the District of Columbia (Civil Action No. 08-cv-1593 (ESH)). The October 5, 2007 ALWTRP rule (72 FR 57104, October 5, 2007; 73 FR 19171, April 9, 2008) had eliminated the Dynamic Area Management (DAM) Program on April 5, 2008, when most of the newly required broad-based gear modifications became effective. The DAM regulations provide NMFS the authority to temporarily restrict the use of lobster trap/pot and anchored gillnet fishing gear on an expedited basis to protect right whales. The DAM program was effective from October 5, 2008, through 2400 hrs April 4, 2009, and expired at this time when the broad-based sinking groundline requirement for Atlantic trap/pot fisheries became effective on April 5, 2009.
- An Advanced Notice of Proposed Rulemaking (ANPR) was published in the Federal Register regarding the Marine Mammal and Sea Turtle Conservation Division, Office of Protected Resources, NMFS, consideration of proposing changes to its implementing regulations governing the taking of stranded marine mammals under section 109(h), section 112(c), and Title IV of the Marine Mammal Protection Act (MMPA). The ANPR and MMPA implementing regulations (50 CFR part 216) can be found at [http://www.nmfs.noaa.gov/pr/health/mmpa\\_anpr.htm](http://www.nmfs.noaa.gov/pr/health/mmpa_anpr.htm).
- The proposed Canadian recovery strategy for the North Atlantic Right Whale was made available for a 60-day public comment period ending March 9th, 2009. The document is now waiting final approval from the Minister of Fisheries. The strategy can be accessed on the SARA Public Registry at the following address: [http://www.sararegistry.gc.ca/document/default\\_e.cfm?documentID=1750](http://www.sararegistry.gc.ca/document/default_e.cfm?documentID=1750)
- The Roseway Basin Area to be Avoided (ATBA) adopted by the International Maritime Organization was implemented by Transport Canada on May 1, 2008 and took effect June 1, 2008. The ATBA is recommendatory for all ships of 300 gross tons and greater and seasonal; it will be in effect annually from June 1 to December 31.
- The US proposal to establish an ATBA in the Great South Channel was approved by the International Maritime Organization (IMO) in December 2008 and will become effective June 1, 2009. The ATBA is recommendatory for all ships 300 gross tons and greater and will be in place each year from April 1-July 31.
- The US proposal to narrow the north-south lanes of the Boston Traffic Separation Scheme from 2 miles each to 1.5 miles each was approved by the IMO in December 2008 and will take effect June 1, 2009.

**CAUTIONARY NOTE:**

**Despite significant success on the reduction of the potential for vessel/whale collisions in Canada (Vanderlaan et al. 2008) and the United States, there is still a lack of clear direction forward to resolve the entanglement problem. Furthermore, funding for all right whale research, in particular the work on the reproduction, health assessments and monitoring, is at an all time low. It is important for readers of this document to understand that the bulk of this work has been carried out by independent researchers who develop, fund, research, analyze and publish on their own grant and contract money. Given the current funding climate there are substantial shortfalls and many of the research projects that resulted in significant conservation measures are no longer funded.**

**REFERENCES**

IWC 2001. Report of the workshop on status and trends of western North Atlantic right whales. J. Cetacean Res. Manage. (Special Issue 2): 61-87.

Knowlton, A.R., S.D. Kraus, and R.D. Kenney. 1994. Reproduction in North Atlantic right whales (*Eubalaena glacialis*). Canadian Journal of Zoology 72:1297-1305.

Vanderlaan, A. S. M., C. T. Taggart, A. R. Serdynska, R. D. Kenney and M. W. Brown. 2008. Reducing the risk of lethal encounters: vessels and right whales in the Bay of Fundy and on the Scotian Shelf. *Endangered Species Research* 4: 283-297.

Table 1: Documented and inferred right whale mortalities 01 November 2007- 30 April 2009

Whale#	Date	Sex	Age	Necropsy (Field #)	Cause of Death	Comments
2008 calf of #1301	Between 05 December and 18 December 2007	Unknown	Calf			Calf lost between 05 December and 19 December 2007
--	25 January 2008	Male	Calf	Yes (HUBBS0803Eg)	Complications at birth	Carcass on Ormond Beach, FL
2008 calf of #3180	Between 08 February 2008 and 14 February 2008	Unknown	Calf			Calf lost between 08 February and 14 February 2008
--	15 February 2008	Male	Calf	Yes (EgNEFL0802)	Complications at birth	Carcass on Huguenot Beach, Jacksonville, FL, Possible this is 2008 calf of #3180
--	16 December 2008	Male	Calf	Yes (KLC 022)	Developmental anomaly	Live stranded, euthanized
3710	29 January 2009	Male	2	Yes (CALO 0901)	Chronic Entanglement Injuries	Live stranded, euthanized
2009 Calf of #2660	Between 12 February and 15 February 2009	Unknown	Calf	No		Calf lost between 12 February and 15 February 2009
--	17 February 2009	Female	Calf	Yes (EgNEFL0904)	Complications at birth	Probably 2009 Calf of 2660
3103	25 February 2009	Female	8	Limited, at sea (IFAW 09-033Eg)		Carcass not recovered

Since the 2005 Report Card, the Consortium Board recognizes necropsies as significant data collection events that provide valuable information on which management and conservation measures can be (and have been) made. The Board views consistent necropsy response and support (both financial and personnel) as integral to right whale recovery.

Table 2: New right whale entanglements 01 November 2007 – 30 April 2009

Whale#	Date	First location	Sex	Age	Comments
3333	01 January 2008	Florida	Male	6	Minor entanglement, subsequent sightings shows gear-free
2645	12 January 2008	Cape Cod Bay	Female	Adult, Unknown	Minor entanglement, subsequent sightings shows gear-free
1980	03 February 2008	Cape Hatteras	Male	Adult, unknown	Severe entanglement, last sighted 17 April 2008
1140	06 March 2008	Cape Cod Bay	Female	Adult, unknown	Minor entanglement, last sighted 25 February 2009
1249	07 May 2008	Great South Channel	Male	27	Subsequent sighting shows likely gear-free
3294	08 December 2008	Florida	Unknown	Adult, unknown,	Likely gear-free
2007 Calf of 1701	26 December 2008	Florida	Unknown	2	Disentangled, gear free
3311	14 January 2009	Georgia	Unknown	6	Severe entanglement, partially disentangled
3420	31 January 2009	Florida	Female	5	Telemetry buoy attached, shed. Some entangling gear retrieved with buoy
2007 Calf of 2614	07 February 2009	Georgia	Unknown	2	Partially disentangled