North Atlantic Right Whale Report Card
November 2005 - October 2006

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 will include updates on the status of the population, mortalities and entanglement events, and a summary of current management and research efforts.

Population Status *(see detailed explanation of calculation at end of report)*

Low: 179 indivdiuals

179 Cataloged whales alive in 2005

Middle: 396 individuals

330 Cataloged whales presumed alive
40 Intermatch whales likely to be added to Catalog
26 Calves from 2004 and 2005 likely to be added to Catalog

High: 591 individuals

451 All Cataloged whale minus those known dead
98 All active intermatch codes without calves
42 All 2004 and 2005 calves minus dead

Analysis 10/10/06

Reproduction

19 calves born this year
Average calving interval of 2006 moms is 3.2 years.
5 first time moms

Mortalities

Between the 2005 and 2006 Annual Consortium Meetings, five right whale mortalities were documented and an additional right whale is suspected to have died. Four of these 6 mortalities were right whale calves (2 females, 1 male, 1 sex unknown). The final two documented mortalities were females.

Documented right whale mortalities November 2005-October 2006

EGNO	Date	Sex	Age	Necropsy	Cause of Death	Comments
2006 Calf of 1243	10 Jan 06	M	Calf	McLellan	Shipstrike	
2006 Calf of 1802	22 Jan 06	F	Calf	Moore	Unknown	
Unknown	18 May 06	F	Unknown	No*	Unknown	*Skin sample retrieved at sea Probable sub-adult
N/A	24 July 06	F	Calf	McLellan	Shipstrike	
Unknown	03 Sep 06	F	Unknown	Moore	Shipstrike	Probable adult
2006 Calf of 1301	Last seen 18 Feb 06	Unknown	Calf	No	Unknown	1301 seen with calf on 18 Feb 06 and then without calf on 19 Mar 06.

Pettis HM, Hamilton PK. (2006) North Atlantic Right Whale Consortium 2006 annual report card. Report to the North Atlantic Right Whale Consortium, November 2006.

As highlighted in the 2005 Report, 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.

Non-Fatal Entanglements and Ship Strikes

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

Four new entanglements in fishing gear were reported and an additional 7 right whales remain entangled. New entanglements include:

New right whale entanglements November 2005 - October 2006

EGNO	Date	Location	Sex	Age	Comments
3445	03 Dec 2005	St. Simons Isl., Georgia	Unknown	2	Partially disentangled
Unknown	16 Aug 2006	Brier Island, Nova Scotia	Unknown	Unknown	Unable to relocate
Unknown	17 Sep 2006	Bay of Fundy	Unknown	Unknown	Probable male
Unknown	27 Sep 2006	Bay of Fundy	Unknown	Unknown	Juvenile

Four additional shipstrikes were reported:

New right whale non-fatal shipstrikes November 2005 - October 2006

EGNO	Date	Location	Sex	Age	Comments
BK53 (temporary ID code)	08 Jan 2006	Florida	Unknown	Probable juvenile	Re-sighted in GSC 24 Mar 2006 and on Roseway Basin September 2006
2006 Calf of 2503	16 Jan 2006	GoMEX	Unknown	Calf	Struck between 11 Dec 2005 and 16 Jan 2006 Re-sighted 4 Feb 2006 GoMEX
2005 Calf of 1622	11 Mar 2006	Georgia	Unknown	Yearling	Struck between 1 March 2006 and 11 March 2006
CT50 (temporary ID code)	14 April 2006	Cape Cod Bay	Unknown		Re-sighted 27 April 2006, 5 May 2006 and 6 May 2006

Research Efforts 2006 *(sighting information through October 2006)*

Surveys:

Southeast United States (759 sightings; NEAq, FWRI, Associated Scientists, Wildlife Trust, Trent University)
- Aerial surveys December 05 through March 06
- Biopsy darting January through mid March.

Cape Cod Bay (160 sightings; PCCS)
- Aerial surveys and habitat sampling January through mid-May

Massachusetts Bay (73 sightings; PCCS)
- Aerial surveys and habitat sampling January through mid-May

Great South Channel (49 sightings; NEFSC, PCCS, NEAq)
- Aerial and vessel surveys spring and early summer
- Broadscale surveys year-round

Gulf of Maine (32 sightings; NEFSC; PCCS)
- Broadscale surveys year-round
- Aerial surveys spring and early summer

Bay of Fundy (555 sightings; NEAq)
- Vessel surveys August-September
- Fecal sampling for hormone, parasite, fatty acid analyses

Roseway Basin (281 sightings; NEAq)
- Vessel surveys late August – late September

Mid-Atlantic (23 sightings; UNCW, Wildlife Trust, Riverhead)
- Aerial surveys December 05 – April 06

Gulf of St. Lawrence (1 sighting; NEAq)
- Vessel surveys August

Other Research Activities:

- Risk assessments of whale/ship interactions
- Review of chronic entanglements to determine duration and impact
- Determining estimates of calf mortality
- Analysis of potential conflict areas of fisheries and right whales
- Entanglement risk reduction
- Modeling right whale calving habitat
- Education and adoption programs
- Use of whalewatch vessels as research platforms
- Cross-species comparisons of body morphology and skin properties as related to entanglement risk
- Visual assessment of North Atlantic right whale health and its relationship to reproduction and survival
- Modeling of ship whale interaction
- Analysis of baleen and prey stable isotopes
- Workshop on chemical and physical immobilization
- Detailed diving behavior of whales on summer and winter grounds
- Locomotion energetics – numerical flow analyses to quantify drag, lift forces, etc.
- Various acoustic analyses (mother-calf, depth and vocal behavior, individual recognition, response to high frequency signals, nonlinear vocalizations)
- The comparison of the lipid content and composition of right whale fecal material to those of their copepod prey
- Passive acoustic detection of right whales

Opportunistic sightings:
- Gulf of Mexico - Florida - South Carolina - Bay of Fundy
- Cape Cod Bay - Massachusetts Bay - Gulf of St. Lawrence

Management Activities 2006
- LFA DEIS comment and USWTR DEIS comment

- Proposed Rule to Implement Speed Restrictions to Reduce the Threat of Ship Collisions with North Atlantic Right Whales issued (contact Greg Silber).

- In Canada, stewardship is moving forward with the marine industry and Transport Canada and the Department of Fisheries and Oceans to propose an Area to Be Avoided for right whales on the Roseway Basin Conservation Area. It is hoped that a proposal will be submitted to the Subcommittee on the Safety of Navigation at the International Maritime Organization in 2007 (contact Moira Brown).

- Marine Mammal Commission review of the cost effectiveness of the North Atlantic Right Whale Recovery Program (contact David Laist).

- The Canadian recovery strategy is being redrafted to comply with the Species at Risk Legislation passed in 2003. Anticipate completion in 2007 (contact Jerry Conway/Moira Brown).

- Coast Guard Port Access Routes Study comment

- Atlantic Large Whale Take Reduction Plan Broad-based gear modifications – Draft EIS published Feb 2005; final EIS pending (contact Mary Colligan)

- Temporary rule to restrict gillnet fishing in the southeast U.S. restricted area from February 15, 2006, through March 31, 2006 (71 FR 8223, February 16, 2006) (contact Laura Engleby or Barb Zoodsma).

***Suggested Future Research and Management Activities*:**

Essential Population Monitoring
- Photographic Identification and cataloging in SEUS, CCB, GSC, BOF and SS
- Monitoring of body condition using aerial photogrammetry
- Monitoring of scarring and visual skin health
- Examination of all mortalities – ashore if practical or aerial and underwater video at sea at least.
- Fecal analysis of reproductive hormonal status, parasitism and other disease indicators

Suggested Research and Management Activities cont'd

Applied Research
- Analysis of foraging ecology to focus on where and at what depths entanglements occur most commonly to better target mitigation efforts
- Modeling of ship-whale collisions to better understand failure of avoidance and lethal mass and speed cut off points
- Aggressive large scale gear research program on vertical lines

Management
- Establishment of a program that recognizes that entanglement avoidance has to include targeted fishery efficiency improvement, as well as gear modification. For instance if lobsters were only caught once in areas of high entanglement risk, the entanglement risk would reduce by about 10 fold. (i.e. actual removal of rope from the water column as opposed to softening its ends by poorly evaluated gear modifications.)

- Completion of speed reduction process to actually achieve fewer ship trauma mortalities.

- Evaluate whether the existence of disentanglement programs have the effect of creating a false sense of security regarding present fishing practices, leading to reduced effort to develop new management methods and hence increased entanglement rates.

- Experimental fishing zones where no whale-killing vertical lines are allowed, to provide incentives to fishermen for the development of whale-safe gear

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Population Estimate Calculation

We have developed standardized criteria that can be applied each year to get a low, middle (best estimate) and upper number of whales in the population as determined from Catalog data. One term needs to be explained to understand these numbers. Whales are given temporary intermatch codes if 1) two or more sightings match each other, and 2) neither have been matched to a catalog whale. Some of these whales will eventually be matched to existing cataloged whales and others will be determined to be "new" to the Catalog and assigned a number. Once an intermatch whale is given a Catalog number, or matched to another intermatch code whale, the intermatch code is made inactive.

Lower
To determine the lower bound, we simply count the number of unique cataloged whales identified the year before. Because of delays in processing data, this number is lower than the eventual total number of whales seen alive in that year.

Middle
The middle bound is determined by summing three categories:

1) All whales presumed to be alive in that year (i.e. seen in the last six years),
2) Intermatch whales that are likely to be added to the Catalog. This is calculated by first finding all intermatch codes that span two or more years, removing calves (assumes that any surviving calf from two years ago or earlier would have been photographed since and given either an intermatch code or Catalog number) and SEUS whales (many of which span two years because they are seen in December and January). Then, we determine which of those intermatch whales have Catalog numbers and what percent of those were new to the catalog. The remaining intermatch whales are then multiplied by that fraction to determine how many are likely new to the Catalog.
3) Calves from the last two years that have not been cataloged. We make an assessment of whether there is enough photographic information to match them to future sightings and thus assign them a Catalog digit and then sum those that will likely be added.

Upper
The upper bound is also the sum of three categories:

1) All Cataloged whales minus those whose carcass's were identified,
2) All active intermatch whales minus calves
3) All calves from the last two years minus those known to be dead.

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