RIGHT WHALE NEWS

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The 2010 SEUS Calving Season: Will Good Weather Result in Additional Mother-Calf Sightings?

Contributed by Katie A. Jackson, Florida Fish and Wildlife Conservation Commission

As of mid-February, we have reached the middle of the 2010 North Atlantic right whale calving season and despite long periods of high winds and rough seas the survey teams have detected over 120 individual right whales in the coastal waters of the southeast U.S. Water temperatures are noticeably cooler than in recent winters and it appears right whale distribution may have shifted south as a result. Large concentrations of whales have been observed between Jacksonville and Matanzas Inlets and nearshore Flagler Beach, Ormond Beach, and Ponce Inlet in comparison to recent winters when whales were more commonly sighted between Savannah, GA, and Jacksonville, FL. The vast majority of these whales are juveniles including approximately thirty-five 2008 and 2009 season calves.

Juveniles are common in the 2010 SEUS season. These are two yearlings, the 2009 calf of 1151 “Mavynne” (left) and the 2009 calf of 1503 “Trilogy” (right). (Photo: 19 January 2010, 12 miles off the St. Augustine Inlet, Corey Accardo, Florida Fish and Wildlife Conservation Commission)

No mortalities and no new entanglements have been reported or observed by the survey teams to date. Chronically entangled whale #3346 "Kingfisher" has been sighted multiple times and appears in good health and the 2008 calf of 1208 was documented to be gear-free. Several juvenile whales have been observed with resolving wounds including #3745 with two propeller series across his back and the 2009 calf of 1240 with severe fluke wounds likely caused by entanglement. Eleven mother-calf pairs have been sighted to date including #1145 and #1701 "Aphrodite," who gave birth to their 7th and 5th calves respectively. Four of the eleven mothers were born in 2001 during the then record-breaking season of thirty-one calves; three of these four are "first-time mothers". A handful of potential mothers have been sighted in the area recently and the survey teams remain optimistic that more calves will be observed in the coming weeks.

Right Whale Calving and the Winter of 2010

Contributed by Robert D. Kenney,
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"*Oh, the weather outside is frightful…*" You would have needed to be a hibernating ground-hog to have missed the weather news this winter—freezing temperatures in Florida, torrential rains across the South, historic snowstorms in the Mid-Atlantic, and sub-zero cold in the upper Midwest. In the North Atlantic right whale calving ground off Florida and Georgia, the aerial survey crews have been grounded more days than usual by the stormy, windy conditions. At the same time, the numbers of right whale mother-calf pairs seen in the calving ground have dropped off substantially from high numbers in the last few years, with only 11 identified at the time this was written. Frequently the weather news blames the severe winter on El Niño, or sometimes on the North Atlantic Oscillation (NAO). So the question is—can we blame the severe weather, El Niño, and/or the NAO for the apparent drop in calving? The short answer is: "Yes and No."

Greene *et al*. (2003) showed weak correlations between the NAO cycle, oceanographic conditions as measured by slope-water temperatures, Gulf of Maine copepod, *Calanus finmarchicus*, abundance, and the number of right whale calves born. Given that *Calanus* is the primary prey of right whales, it is completely logical that its abundance is closely linked to right whale reproduction. *Calanus* population abundance in the Gulf of Maine depends on repeated "re-stocking" by individuals that come in from the Nova Scotian Shelf and in slope water entering through the Northeast Channel (Greene *et al*., 2004). Anything that affects Gulf of Maine oceanography, including NAO and El Niño variability, can affect Gulf of Maine *Calanus* stocks, and therefore right whale feeding and calving success.

As described, there are two atmospheric conditions that may be involved. El Niño is an irregular periodic warming in the eastern tropical Pacific Ocean. The phenomenon occurs most intensely during the Southern Hemisphere summer/Northern Hemisphere winter, and is correlated with a "see-saw" in atmospheric pressure between the eastern and western sides of the South Pacific—the Southern Oscillation (Philander, 1990). The Southern Oscillation Index (SOI) is the difference in sea-level barometric pressure between Tahiti and Australia, standardized as the anomaly from the average difference over a base period. The annual average SOI is calculated as

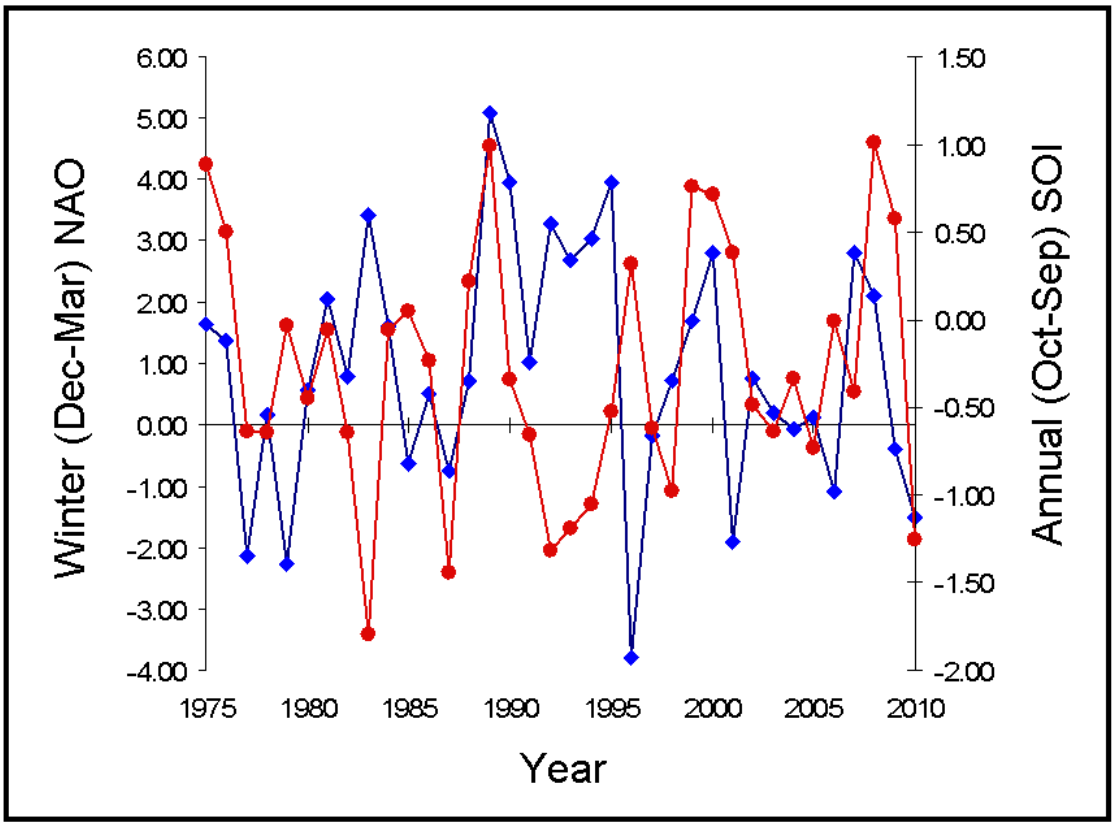
the mean of the monthly values from October of the previous year through September, with lows corresponding to El Niño years. There were strong El Niño events in 1983, 1987, and 1998, and weaker drops in the SOI in 1992-1994, 2003, and 2005.

The NAO is the dominant mode of inter-annual climate variability in the North Atlantic (Hurrell, 1995; Mantua *et al*., 2002). There is a semi-permanent low-pressure system near Iceland and a similar high-pressure system near the Azores that tend to intensify or weaken synchronously. The NAO index is the standardized difference in pressure between the two systems. When they intensify, the pressure difference increases and the NAO is positive; when they weaken, the difference decreases and the NAO is negative. The effects of NAO variability are most apparent during the winter, therefore standard practice is average the monthly values from December through March. The NAO has shown a tendency to remain for extended periods in primarily positive (*e.g*., early 1970's to 1995) or negative (1950's and 1960's) phases, but variability has increased significantly since 1995.

The effects of positive vs. negative SOI or NAO on the North Atlantic and the surrounding land masses tend to be very similar. The conditions associated with positive index values include: warm winter weather in Europe and central North America; principal jet stream and wind pattern west to east; and cold temperatures in the northwestern Atlantic and Labrador Sea, enhancing sea-ice freezing and deep-water formation. Conditions in negative years include: cold winter weather in Europe and central North America; major jet stream track with large meanders; increased storminess along the U. S. east coast; and warm temperatures in the northwest Atlantic and Labrador Sea, inhibiting the formation of sea ice and deep water and enhancing the southward transport of cooler, fresher, surface water in the Labrador Current.

So far in the winter of 2010, both the winter NAO and SOI are sharply negative (see figure below), which has only occurred once before since 1975—in 1987. Note that both values are preliminary for 2010, since the winter NAO includes only December and January in the average and the annual SOI only includes October–January. It is clear, however, that the severe winter weather we've been experiencing this year can be blamed on the "double whammy" of simultaneous low values in both cycles.

What is less clear is the connection to this winter's low calf numbers—for two reasons. One has to do with historical calving. Whether or not a particular female gives birth depends both on her feeding success and on her recent reproductive history, since nearly all females require a minimum of three years between calves (Kraus *et al*., 2007). Greene and Pershing (2004) constructed a model that resulted in a very close fit to observed calving frequencies by fitting the probabilities of a female transitioning between pregnant, lactating, and resting/recovery phases as functions of *Calanus* abundance. There were 23 calves born in 2008, and a record 39 in 2009, effectively removing 62 mothers from the pool of individuals available to give birth in 2010. (It is estimated from the catalog that there are 43 more females of reproductive age potentially available to calve this year. This includes 30 females who have previously calved and 13 who have never previously calved.)



The winter mean North Atlantic Oscillation index (blue) and the annual mean Southern Oscillation Index (red), 1975–2010.

The second reason has to do with time lags in the effects of NAO and SOI on right whale reproduction. Although the inter-relationships are weak, variable, and probably non-linear, analyses to date suggest lags of 1–2 years between the atmospheric cycles and right whale calving (Green *et al*., 2003, 2004; Kenney, 2007). There was a decrease in NAO from a relatively high value in 2008 to a negative value in 2009, therefore it might be linked to the decrease in calving this winter. However, given the preliminary data suggesting simultaneous lows in both NAO and SOI in 2010, we might expect lower-than-average calving in 2011 and/or 2012.

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Update on USWTR Surveys off Jacksonville, Florida

Contributed by William A. McLellan, University of North Carolina at Wilmington

Survey effort continues at the proposed Undersea Warfare Training Range (USWTR) off the coast of Jacksonville, Florida. The aerial survey effort that began in January 2009 is designed to cover the 10 track lines on the site at least twice per month and extra effort has been made to conduct additional aerial surveys during the right whale calving season. Additionally, shoulder data were collected during November 2009 in the form of on-effort transit legs to and from the survey site. Once the EWS right whale surveys end, shoulder data will be collected again through May 2010. To date, 185 USWTR track lines (approximately 16,000 km or 8,600 nautical miles) have been flown.

Vessel survey effort that began in July 2009 takes place on the same track lines. Prior to the start of the right whale calving season a protocol was adopted for the research vessel when operating in right whale habitat. The vessel slows to 12 knots and posts watches while underway during daylight. Through January 2010, 14 vessel surveys have been conducted.

A towed hydrophone array is deployed during vessel surveys to obtain simultaneous visual and acoustic data. Additionally, two High-frequency Acoustic Recording Packages (HARPs) are deployed at the USWTR site and are collected, downloaded and re-deployed every six months.

No right whales have been sighted during any survey effort in the USWTR site. Right whales have been observed during vessel and aerial transits through the Right Whale Critical Habitat (RWCH). When right whales are observed from the plane during transit through the RWCH, observers note the location but the plane does not break track or descend from its agreed-upon 3000 ft. transit altitude. When encountered during vessel transits, location and ID photographs are obtained. Other species of marine mammals have been observed in the USWTR site including the minke whale (*Balaenoptera acutorostrata*), which was encountered during January

and February 2009. Several odontocete species have been encountered during aerial and vessel surveys, with Atlantic spotted dolphins (*Stenella frontalis*) being the most commonly observed species, followed by bottlenose dolphins (*Tursiops truncatus*), Risso's dolphins (*Grampus griseus*), rough-toothed dolphins (*Steno bredanensis*), and dwarf or pygmy sperm whale (*Kogia* sp.). In addition, short-finned pilot whales *(Globicephala macrorhynchus*) were encountered during off-effort transit through the USWTR survey area.

Nuclear Aircraft Carrier for Mayport?

Mayport Naval Station may become the homeport for a nuclear-powered aircraft carrier. Mayport is located in northeast Florida, east of Jacksonville, near the junction of the St. Johns River and the Atlantic Ocean (and adjacent to right whale critical habitat). Justification for the proposed move is distribute the fleet so as to avoid the type of event that occurred at Pearl Harbor—given as an example of what can happen if ships are concentrated in one port. Mayport has hosted carriers in past years. In 2007, the conventionally-powered *USS John F. Kennedy* was decommissioned, and Mayport has been without a carrier since. Under the proposed plan, it would take 5 years to improve or build the required infrastructure. This would include building new facilities and dredging the river. Political views are mixed. City and state politicians advocate the move. However, Virginia politicians, concerned about losing the ship and the sailors, oppose the plan.

For more information: www.mayporthomeportingeis.com/EISDocuments.aspx.

Fishing News: Gear Research Exemption

The Pemaquid Fishermen's Cooperative Association has applied for an Exempted Fishing Permit to allow testing of fixed fishing gear with no vertical lines on the northern edge of Jeffrey's Ledge in the Gulf of Maine. The work is intended to assist NMFS and the Atlantic Large Whale Take Reduction Team (ALWTRT) in their efforts to address the entanglement threat of vertical lines in fixed fishing gear to large whales (including right whales). Comments on the application are due prior to 5 March 2010 and may be submitted to Patricia A. Kurkul, NMFS, Northeast Regional Office, 55 Great Republic Drive, Gloucester, MA 01930-2298, or electronically to Alobster@noaa.gov. In both cases, mark correspondence clearly "Comments-Lobster EFP Proposal." The Pemaquid Fishermen's Cooperative Association has previously been involved in gear research (*e.g*., weak links). For further information, see Federal Register, 18 February 2010 (Volume 75, Number 32), pages 7227-7228.

Marineland Right Whale Project Marks 10th Year

Jim Hain
(Editor, Right Whale News*, and P.I., Marineland Right Whale Project)*

The Marineland Right Whale Project commemorated its tenth season at the Lohman Auditorium, University of Florida's Whitney Laboratory, Marineland, Florida, on Saturday, 6 February 2010. About 150 volunteers, collaborators, and guests heard presentations on 2010 results to date along with a ten-year project retrospective. The Marineland Right Whale Project is a program based on a core of volunteers or citizen scientists that sight and monitor right whales from shore. Based in Marineland, Florida, the project monitors about 60 nautical miles of coastline. While the nearshore area to the north, off Georgia and northern Florida, is shallow, south of Jacksonville Beach (latitude 30º 15´N), the nearshore depth increases slightly and right whales sometimes come close to shore—often just outside the surf line. (Whales are often sighted in locations where the water depth is less than their body length.) It is here that teams of volunteers maintain regular lookouts and report sightings during the southeast U.S. calving and wintering season. Lookouts take place from piers, walkovers, and shorefront buildings, including several high-rise condos.

Like most histories and backgrounds, there are several threads to the Marineland story. In 1937, a group of entrepreneurs came to a quiet section of sandy beach 18 miles south of St. Augustine, and established Marine Studios, "the World's First Oceanarium." The original intent was to create a studio for underwater filming. The facility evolved into one of Florida's major attractions, and became Marineland of Florida. It was a film studio, public oceanarium, and research facility.

Marineland subsequently became incorporated as a town, so that Marineland, the oceanarium, was located in Marineland, the town. Over time, the town became the location for a number of additional marine-related organizations and facilities: the University of Florida's Whitney Laboratory, the Guana-Tolomato-Matanzas National Estuarine Research Reserve, the Dolphin Conservation Field Station, and the Coastal Policy Center.

Early curators at Marineland included Forrest Wood, who went on to work for the Navy on the west coast and wrote *Marine Mammals and Man: the Navy's Porpoises and Sea Lions* (published in 1973); and David and Melba Caldwell, pioneers in dolphin bio-acoustics, who, along with many scientific publications, wrote *The World of the Bottlenosed Dolphin* (published in 1972). It was this book that provided one of the early published records of right whales and calves off the coast of Florida.

Almost from the beginning, sightings and photographs of right whales in Florida waters were collected at Marineland. Indeed, the Marineland collection provided some of the earliest photos in the right whale catalog, including a sighting from 30 March 1970 off Daytona Beach, of female #1619, named "Glispa."

In late 1986, the North Atlantic Right Whale Consortium was formed. The original partners were the New England Aquarium, the Woods Hole Oceanographic Institution, Provincetown Center

for Coastal Studies, University of Rhode Island, and Marineland. David K. Caldwell, Marineland, and Howard E. Winn, University of Rhode Island, were friends and colleagues. As a result, and based on the work at Marineland, Howard Winn explored the idea of a southeast U.S. sighting network for right whales (National Technical Information Service Report # PB84-240548, 1984). A few years later, the Marine Resources Council, Rockledge, Florida, expanded on an effort by the Cocoa Beach Women's Club, and in 1994 developed a sighting network. Building on these efforts, and in collaboration with the Marine Resources Council, the Marineland Right Whale Project began in 2001.

Florida provides a unique situation for the program. Right whale distribution in these waters is scattered and unpredictable, many "eyes on the water" are needed, there are many capable and retired individuals who are willing to volunteer, Florida contains a large section of the right whale critical habitat, and (as described) in certain sections of the habitat, right whales come close to shore. Now in its tenth season, the project stands alongside other volunteer networks that provide information to the science and management of environmental resources (*e.g.*, Audubon bird counts, Monarch butterfly migration studies, Chesapeake Bay Water Quality network, and the Lobster Conservancy's Intertidal Lobster Monitoring Program). Well-known too are groups like "Riverkeepers" and "Baywatchers" that have grown in number all over the country.

When a sighting is made, a response team is deployed to collect identification photographs and data. An aircraft may also be deployed. The combination of the shore-based network, the side-by-side interaction with scientists, the response teams, and the aircraft survey and photo response provides results. Sightings data and photographs are submitted to an alert system for mariners, and to the right whale catalog and database.

In addition to the science and monitoring, there is an education and outreach component. In the beginning, a surprising number of coastal residents were unaware that right whales occurred in their coastal waters. Placards, phone cards, media coverage, and presentations to condo associations, school groups, fishing associations, boating clubs, and Rotary Clubs have introduced about 4,500 people to right whales, their coastal habitat, and the role of citizens in monitoring and conservation.

For further information, see www.aswh.org, and marinelandrightwhale.blogspot.com.

Changes

Beginning 16 February 2010, Eric Schwaab will be the new Assistant Administrator for NOAA Fisheries. He was formerly the Deputy Secretary for the Maryland Department of Natural Resources. Dr. Jim Balsiger, who served as Acting Assistant Administrator since 17 February 2008, will return to his position as NOAA Fisheries' Regional Administrator for Alaska.

Calendar

2-5 March 2010. International Whaling Commission, 2010 Small Working Group and Intersessional Meetings, Tradewinds Island Resorts, St. Petersburg Beach, Florida. When the agenda is finalized it will be posted on the IWC website at www.iwcoffice.org.

4 May 2010. Southeast U.S. Right Whale Recovery Plan Implementation Team (SEIT) meeting. Location to be determined. For information, contact SEIT co-chair, Leslie Ward at Leslie.Ward@MyFWC.com.

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Right Whale News

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To submit ideas, article topics, and comments, contact Editor Jim Hain at jhain@earthlink.net, and place "RWN Editorial" in the subject line. To subscribe, contact Heather Pettis at hpettis@neaq.org, and place "RWN Subscribe" in the subject line.

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