

RIGHT WHALE NEWS

The Newsletter of the Southeastern United States Implementation Team for the Recovery of the Northern Right Whale and the Northeast Implementation Team

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Are Right Whales Starving?

By Robert D. Kenney

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(Editor's note: On March 8, Debbie MacKenzie (debimack@auracom.com) posted a message on a fisheries science email discussion list (FISH-SCI@SEGATE.SUNET.SE) to present her hypothesis that the root cause of many of the present problems seen with marine populations is that the oceans are starving - that over the centuries commercial fishing has removed so much nitrogen from marine ecosystems that overall ocean productivity has declined and all marine populations are suffering from food limitation. Over the next couple of days, an interesting exchange of ideas, discussion and criticism followed. As one line of supporting evidence, MacKenzie claimed that northern right whale populations have declined because they are starving to death, an assertion apparently based on news stories, press releases and the EWS field reports posted on WhaleNet. Dr. Robert D. Kenney subsequently posted a contribution to the discussion to comment on what he feels were misconceptions and over-simplifications both of MacKenzie's hypothesis and in the ensuing discussions. The following article is an expanded and revised version of his response. The italicized items are paraphrased summaries of points made by others in the course of the email discussions. To obtain a copy of all 25 pages of the discussions e-mail Dr. Kenney at rkenney@gso.uri.edu)

Are the right whales starving?

If what is meant by "starving" is that individuals are dying because of insufficient food, the short answer is no. In the North Pacific in 1999, there were many more strandings of gray whales than in previous years, and many of those animals were clearly emaciated and had apparently starved. Unlike that situation, I am not aware of a single North Atlantic right whale mortality where starvation has been implicated as a primary or contributing cause of death. Caswell et al. (1999) estimated based on mark-recapture modeling that mortality rate during the 1990's significantly increased over the 1980's. To date, no one, to my knowledge, has suggested that the increase in mortality estimated by their model is due to starvation. Food/energy limitation has been hypothesized as one of the potential mechanisms which may be affecting reproductive rates (more details below).

Right whale abundance and/or survivorship has been steadily or continuously declining for an extended period.

The Caswell et al. (1999) modeling study concluded that present mortality rates have substantially increased over those during the 1980's and that the population is declining at 2.4% per year. However it is not quite correct to say that there has been a steady or long-term decline in survival. In fact, their analysis confirmed the earlier estimate by Knowlton et al. (1994), using a less sophisticated analysis method, that the population was growing at 2-3% in the 1980's.

Why haven't right whales recovered since their protection from whaling in the mid-1930's?

This is not a valid question, since there are absolutely no data on the abundance of right whales in the North Atlantic at the time the first International Convention for the Regulation of Whaling was ratified. The first available estimate of abundance was about 1980. The population was slowly growing during the 1980's, and, in fact, there seemed to be an increasing number of right whales along the Florida coast noted by observers during the 1960's and early 1970's (Layne, 1965; Caldwell & Caldwell, 1974). If there were only five or ten North Atlantic right whales in 1935, then the population has recovered fabulously. If there were a thousand, they've gone right down the drain.

The right whales' very low reproductive rate makes them extremely vulnerable.

Right whale populations may be able to reproduce and grow faster than the conventional wisdom might predict. Under optimal conditions, females can mature as young as 5-7 years old and produce a calf every 2-3 years. Some Southern Hemisphere populations are growing at 7-9% per year. This is obviously much slower than species like codfish or mice, but higher than in many odontocetes, elephants or humans.

Despite very low calving rates, the EWS surveys frequently report dead calves. The cause of death in calves is generally undetermined; since ship strike and entanglement can be easily ruled out, starvation is the likely cause.

Approximately one-third of known right whale mortalities occurs in neonates (Kraus, 1990). However, that percentage was estimated during the 1980's, at a time when the population was known to be increasing and prior to the recent decline in reproduction. A high rate of mortality in the first year of life is the usually expected pattern in wild animal populations. In addition, the frequency of neonatal mortalities in the Georgia-Florida calving ground, where the EWS surveys are flown, largely reflects the numbers of calves born. The highest numbers of neonatal mortalities have occurred in the years when the numbers of calves born were high.

Another third of known mortalities can be definitely attributed to ship collisions and fishing gear entanglements, and the final third are those in which no cause of death can be determined. The proportion of human-related mortalities may have increased in recent years. Considering the number of carcasses which are never recovered, human-caused mortality is a very significant impact. Regardless of any other sources of mortality or food stress, this is one place where active management can (and MUST) be applied.

Right whales are showing clinical evidence of skin lesions and disease caused by malnutrition.

There appears to be an increase in the occurrence of a variety of skin lesions, based on photographic evidence being studied at the New England Aquarium. There has yet been no connection demonstrated between that increase and nutritional stress. Malnutrition would be just one potential contributing cause of increasing skin lesions, which should be a testable hypothesis using Michael Moore and Carolyn Miller's ultrasound blubber thickness measurement method.

Competition from other species which feed on zooplankton, such as sei whales, basking sharks, mackerel and herring, is not a reasonable hypothesis for reduced prey availability for right whales, since the other species are too rare and/or declining in abundance.

The last available estimate suggests that there are about two thousand sei whales in the Gulf of

Maine/Nova Scotia stock which overlaps in distribution with right whales. But those data are over twenty years old, and one might expect the population to have increased by today. It is clear that there is a significant overlap in prey species between right and sei whales, as well as a distributional overlap in some habitats and years. There have been no published estimates of abundance for basking sharks in the western North Atlantic, although we did derive a crude estimate of about 10,000 in continental shelf waters between Maine and North Carolina from the CETAP aerial survey data (using some possibly questionable assumptions). Herring and mackerel standing stocks in the Gulf of Maine/Georges Bank region are currently at or near all-time highs. Of course, fisheries biologists have only been conducting stock assessments for the last century or so, so there are no data for what stocks may have been when right whales were abundant several hundred years ago. That being said, I think that the current evidence for competition being an important impact on right whale foraging success is, at best, tenuous and speculative, although there may be some data in NMFS and DFO fisheries assessments which could be useful for hypothesis testing.

Long-term declines in productivity (whether or not caused by nitrogen removal) have reduced plankton abundance, reducing prey availability for right whales.

A point of clarification first—there seems to be a common misconception that right whales (and other baleen whales) are herbivores, feeding on phytoplankton. For that reason, I always make it a point to specify zooplankton rather than simply plankton when talking about right whale food. There is no evidence for any long-term decline in productivity which might impact right whale feeding. Their preferred prey includes the older juvenile stages (copepodites) and adults of *Calanus finmarchicus*, which is the dominant zooplankton species in much of the North Atlantic. While there is some evidence of a decline in *Calanus* abundance in the eastern North Atlantic, a similar pattern has not been seen in the western North Atlantic. In fact, there has been an apparent increasing trend in total zooplankton abundance off the northeast U.S. since the early 1980's. For a right whale, however, the abundance of total zooplankton or of *Calanus* specifically over broad areas of ocean is relatively unimportant. What a right whale "cares" about is the concentration of copepods in patches the size of its mouth opening. That concentration must be exceptionally high in order to pay back the high costs of metabolism, locomotion, migration, foraging and reproduction—the highest zooplankton concentrations measured in the North Atlantic have been obtained by sampling near feeding right whales. The most important factors in determining the location and value of appropriate feeding grounds for right whales are physical-oceanographic concentrating mechanisms rather than biological productivity. Changes in circulation patterns are therefore more likely to impact right whale foraging success and nutritional status than alterations in nutrient supply, phytoplankton productivity or zooplankton abundance.

Why has the number of right whale calves decreased?

During the 1990's the most dramatic observed changes in the western North Atlantic right whale population have been in reproductive biology. The number of calves born has declined markedly (only one this year!) and there has been a large increase in the average interval between calves. In 1980-1992 the average inter-birth interval was 3.7 years (the modal interval is three years— one each for pregnancy, lactation and replenishment of energy stores). The average for 1993-1998 is over 5 years, with very few 3-year intervals and with some females apparently dropping out of the reproductive pool entirely. In a long-lived species with the expectation of multiple future reproductive opportunities, one would expect that energy allocation strategies would favor survival at the expense of reproduction. A decline in food availability for right whales might be expected to manifest itself first in reproductive effects, including an increase in the time needed to accumulate the surplus energy needed for pregnancy and lactation. In other words, a food shortage that isn't severe enough to cause actual starvation could still impact reproduction.

We can now go back to the question of supposed lack of recovery since 1935 from some unknown but possibly low abundance. Surprisingly, some recent results of genetic studies are now suggesting that the population has been maintained at a low level for a relatively long period, perhaps since the episode of intensive Basque whaling in Newfoundland in about 1530-1700. If that is true, a reasonable inference is that the population undergoes cycles of growth and decline (which may be more reasonable than expecting that the population has remained stable at about 300 whales for 300 years or more). My own research has shown correlations between the number of calves born and two different atmospheric cycles over the last 20 years, and we know that those cycles have been occurring for centuries.

In my humble opinion, the different lines of evidence are converging on a logically-consistent scenario which fits both the long-term and recent trends. The Basque whaling in Labrador and Newfoundland, plus American and Canadian pelagic and shore-based whaling (the last of which continued into this century) wiped out most of the population, leaving only a small remnant at the southern end of the original range. (One of the most interesting questions to me is why right whales have never re-occupied what was probably the core of their range in Newfoundland/Labrador waters, which must have been good habitat if the Basques could kill some 20,000 of them in a century or two. I suspect that it is due to strong matrilineal habitat fidelity, where animals return year after year to the feeding grounds that they learned from their mothers during their first year of life.) In that peripheral habitat, the population has undergone cycles of growth and decline, probably related to coupled atmosphere-ocean patterns, e.g., the North Atlantic Oscillation (NAO). (The NAO is a pattern of alternating phases in atmospheric pressure between Iceland and the Azores, leading to different patterns of jet stream trajectory, winds and weather at both extremes of the cycle (van Loon and Rogers, 1978; Hurrell, 1995; Kenney, in press). The short-term switch in the early 1990's from a growing population with 3-year calving intervals to a declining one with 5- or 6-year intervals corresponds to major shifts in habitat use and to a shift in phase of the NAO. Beginning in about 1993, the whales abandoned their summer feeding grounds on the Nova Scotian Shelf, and many more crowded into the other known summer habitat in the Bay of Fundy. Interestingly, the few females who have calved in the last couple of years are whales who don't summer in the Bay of Fundy.

On top of this hypothesized decadal-scale cycle of alternating stretches of good years and bad years, then overlay continued anthropogenic mortality. At first it was opportunistic whaling (it may not have been economically feasible to target right whales, but it still paid to kill any which were encountered during a sperm-whaling cruise), which we have replaced in recent times by running them over with ships and drowning them in fishing gear. The population has never had a chance to recover. There's nothing we can do to change the North Atlantic Oscillation, but we can minimize, or even better, eliminate the mortality to give them a fighting chance.

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NMFS Adopts Controversial Budget for Right Whale Recovery

On May 8, Assistant Administrator Penny Dalton approved the National Marine Fisheries Service budget for the expenditure of \$4.1 million appropriated by the Congress last year for right whale recovery. The North Atlantic Right Whale Fiscal Year 2000 Spending and Research Plan calls for expenditures on gear modification (\$780,000), early warning surveys and acoustics (\$1,037,3000), reproduction research (\$375,000), habitat monitoring and population studies (\$600,000), tagging and feeding studies (\$565,000), the Whale Conservation Fund (\$231,000) and other (\$250,000) for a total of \$3,838,3000. The reduction from the appropriation of \$4,100,000 reflects across-the-board rescission cuts required by Congress.

The initial announcement of the spending plan met with loud criticism from a broad spectrum of stakeholders and more muted objections from others whose funding and/or permits are dependent in part or whole on the agency. At the core of critics' objections were indications that the funds would be used to make up salary deficits in the agency's budget. Claims were made that funds that were intended for right whale research and recovery were to be used to pay the salaries of NMFS staff whose work includes non-right whale tasks. However, the NMFS has assured those interested in the right whale spending plan that "although some salary costs have been and will continue to be covered by these funds, they will only be used to cover the salaries of personnel directly involved in the research or management task involved." Some outside the agency still warn that if NMFS insists on using some of the funds in this way, lobbying efforts for next year's appropriation for right whales will focus on more clearly defining how the funds will be used and by whom and giving the agency less discretion in how they carry out their responsibilities.

The good news is that the \$4.1 million is now in NMFS's baseline budget, so at least that amount is expected to be appropriated next year.

Canada's Right Whale Recovery Plan Now Final

The final Canadian Recovery Plan for the North Atlantic Right Whale is being printed and should be

ready for distribution this summer from the Department of Fisheries and Oceans (DFO). (Call 902-426-9096 for information on availability.) Apparently, there are no substantive changes from the draft plan, which was released for public review and comment in May 1999. The lack of controversy was probably due to the inclusive nature of the effort: the DFO and the World Wildlife Fund-Canada co-sponsored the planning effort and included from the outset representatives of fishing, shipping and whale watching industries as well as other government agencies and scientists. (A copy of the Executive Summary of the draft plan is available in *Right Whale News* 6 (2): 1-4, which is available on the web at <http://www.graysreef.nos.noaa.gov/rightwhalenews.html>)

In April, David Anderson, Canada's Environment Minister, introduced the Species at Risk Act in the House of Commons. The proposed legislation will seek to protect habitat through conservation and voluntary measures. If those measures fail, the federal government would step in with prohibitions on killing endangered and threatened species or the destruction of critical habitat.

Southeastern Team Calls for Open Recovery Planning

At its May 5 meeting, the Southeastern U.S. Implementation Team called on the National Marine Fisheries Service to open up the process of developing a revised recovery plan for the northern right whale. The team asked that stakeholders, particularly those who would be active participants in the implementation of a new plan, be allowed to participate in the plan's development rather than only being allowed to review a draft, as is presently contemplated. At present, NMFS is expected to release a draft for public review during the third or fourth quarter of this year. The revised plan is to replace the Final Recovery Plan for the Northern Right Whale, *Eubalaena glacialis*, published by the NMFS in December 1991. Similar concerns about the recovery teams being involved in plan formulation were expressed at the Northeast Implementation Team meeting on February 29.

New Leaders and Members of the Southeastern U.S. Implementation Team

Cyndi Thomas of the Florida Marine Research Institute is the new chair of the Southeastern United States Implementation Team for the Recovery of the Northern Right Whale. The previous chair, Barb Zoodsma of the Georgia Department of Natural Resources, is now the vice chair. The change in leadership was announced at the end of the May 5 team meeting.

Cyndi can be reached at:

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Several other changes in team membership also were announced at the meeting. Rudy Nyc has retired from the Corps of Engineers and Jerry Wallmeyer of the U.S. Navy has moved on to other duties. The current team roster, affiliations and e-mail addresses are as follows:

Chair: Cyndi Thomas

Vice Chair: Barb Zoodsma, GA Department of Natural Resources, Barb_Zoodsma@mail.dnr.state.ga.us

Members:

Jeannie Adame, Canaveral Port Authority; portcanenv@aol.com

LT. Corey Brown, Submarine Group 10, U.S. Navy; n32@csg10.subasekb.navy.mil

LCDR. David A. Cinalli, U.S. Coast Guard Seven

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Lessons Learned from the Whale Formerly Known as "Rhode Island"

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January 19 marks the anniversary of the worst environmental disaster to hit the State of Rhode Island, the date that the North Cape barge grounded off the pristine shores of Trustum National Wildlife Refuge, spilling close to one million gallons of oil.

Millions of lobsters and sea clams were killed, along with hundreds of sea birds, fish, crustaceans, amphipods and worms. In the hours immediately following the oil spill, state and federal officials scrambled to contain the impending disaster. New lessons regarding coordination, communication and response to extraordinary events were learned.

January 19, 2000, again tested state fisheries staff as to what to do when the unexpected happens, as the report of a dead whale floating south of Block Island was forwarded to the Division of Fish & Wildlife (DFW). Two otter trawl vessels had sighted the whale floating upside down approximately five miles south of the island around noontime. One vessel did not report to the Coast Guard, as he was unaware of

the necessity of so doing, while the other vessel did report to Point Judith Coast Guard Station. Unfortunately, communication to the proper federal response authorities was further delayed until nightfall, preempting any investigation as to the whale species. Once NMFS officials communicated to DFW the possibility that the whale might be a right whale, coordination of a potential response began between DFW, the Naval Undersea Warfare Center (NUWC) and the fishing industry.

While NMFS and the US Coast Guard prepared to respond, one of the state's high-speed enforcement vessels was placed on stand-by to transport biologists to identify and, if possible, tag the animal. The last known coordinates of the dead whale were immediately communicated to the fishing industry known to set gear or transit the area. NUWC agreed to tow the whale ashore and make their facility available for necropsy. Additionally, DFW immediately interviewed both vessel captains in order to supply NMFS with the best available information on the whale.

One captain was asked to identify the whale from a photo I.D sheet, and without hesitation selected the "right" whale, also articulating an accurate description of a right whale. The other vessel captain previously participated in the pelagic drift gillnet fishery and had worked with NMFS scientists and other marine mammal experts on the R/V Abel J cruise designed to document and necropsy whale species incidentally caught in that fishery. Knowing scientists would want to examine the whale, he expressed frustration at the lack of immediate response to his call. Both fishermen reported observing some type of gear on the animal.

What followed was a set of unfortunate circumstances that ultimately culminated in the whale disappearing before any determination as to the cause of mortality. The USCG initial flight was delayed, subsequent flights were postponed due to weather and satellite-tagging kits were not readily available for the state to deploy if the opportunity presented itself. By the time the whale was relocated on day 2 and positively identified as female #2701, an approaching storm made recovery attempts treacherous. However, vessels returning to port because of the storm were notified of the updated coordinates and several agreed to stand by if the whale was sighted.

While word of another dead right whale spread quickly throughout the media, industry awareness that this animal might have died as a result of an entanglement escalated recovery efforts. Two offshore lobster vessels steaming home from the Hudson Canyon area diverted their normal course to survey the general area where the whale was last sighted. NMFS asked DFW to instruct the vessel captains to photograph the animal and attempt to secure a skin sample if the whale was located. Despite deteriorating weather conditions, one vessel ran transects back and forth in the area, in attempts to locate the animal. Efforts were called off as the wind gusted over 40 knots and the vessel began making ice. Four days later, the Coast Guard sighted the whale offshore, however attempts to recover the animal were futile. #2701 was a lesson in how established response protocol is ultimately overruled by a classic ocean storm.

Did the state have to respond? No, the whale formerly known as Rhode Island, later identified as right whale # 2701, was in federal waters, and the state did not have any authority to respond until authorized by NMFS. However, given the dire straits of right whales, everyone, including the fishing industry wanted to document the cause of mortality. The interagency and industry coordination to retrieve #2701 was remarkable, and has served as a template in the development of Rhode Island's contingency plan for response to live, dead or entangled whales in both state and federal waters.

Since the Large Whale Take Reduction Plan was put into place, the state of Rhode Island has been working with industry on solutions to a complex problem. Two informational and training workshops have been held where fishermen and ship pilots received an overview of the Sightings Advisory System, learned how to identify endangered and threatened whales, received basic disentanglement training and

were made aware of developing gear modifications. The DFW and the Navy are coordinating funding to secure a satellite/VHF tagging kit for trained individuals to be kept in the Narragansett Bay area. Additionally, DFW, NUWC, industry and the Mystic Aquarium are finalizing a contingency plan for protection of right whales.

Lawsuits Plague NMFS

Three conservation organizations are currently suing the National Marine Fisheries Service (NMFS) over right whale issues. On May 1, GreenWorld filed a suit against NMFS and the State of Maine for their unlawful take of right whales in fishing gear (see the February 2000 issue of *Right Whale News*, page 7).

In March, the Humane Society of the United States filed a sixty-day notice of intent to sue the NMFS under the Endangered Species Act (ESA) and the Marine Mammal Protection Act for "failing to develop and implement plans for the conservation and survival of the North Atlantic right whale."

Also in March, the Conservation Law Foundation filed a sixty-day notice of their intent to sue the NMFS for violations of Sections 7 and 9 of the ESA. The CLF asserts that NMFS has failed to insure that its fisheries management program is not likely to jeopardize the continued existence of right whales and that NMFS has failed to use the best scientific data available and to reinstate consultation in light of new information. Further, CLF asserts that NMFS's permitting of fixed fishing gear has caused takes of right whales, also a violation of the ESA.

Atlantic Large Whale Take Reduction Team

The summary of the February 22-24 Atlantic Large Whale Take Reduction Team meeting in Danvers, MA, is now available from Abby Dilley at Resolve, 1255 23rd Street, NW, Suite 275, Washington, DC 20037; tel. 202-944-2300.

The NMFS has drafted regulations that would implement the gear requirements agreed to by the team. The draft is for an Interim Final Rule, but NMFS is also reviewing the option of using an emergency rule to implement the regulations in the shortest time. The rule is expected to be published shortly in the Federal Register.

The deliberations of the team are in the process of being split into three subgroups: the Northeast subgroup (tentatively north of 72°30' W - just east of New Haven, CT), Mid-Atlantic and Southeast subgroups. Additional meetings of the Northeast subgroup are being planned for mid-May. For more information on the team's deliberations, consult the NMFS's new newsletter – described in the following article. Questions may also be addressed to Doug Beach (978-281-9254) or Chris Mantzaris (978-281-9346) at the Northeast Regional Office of NMFS.

NMFS Launches Take Reduction Plan Newsletter and Web Site

In an effort to provide a better and more regular flow of information from the NMFS to the members of the Atlantic Large Whale Take Reduction Team, the Northeast Regional Office has launched a new newsletter, Whale Plan Update. The newsletter will contain articles and summaries of reports and other documents as they become available. The documents themselves will be posted on a new web site:

www.nero.nmfs.gov/whaletrp/

The first issue of the newsletter (April 2000) includes articles on potential lawsuits, the FY 2000 spending plan, planned revisions to the Take Reduction Plan, gear research, right whale science and speed and routing restriction options. The newsletter is available to anyone interested in the Take Reduction Plan. For further information and to subscribe, contact George Liles at 508-495-2378; george.liles@noaa.gov

Experimental Use of Modified Gillnet Gear in Bay of Fundy

East Coast Ecosystems (ECE), a Canadian-based nonprofit organization, will be working this summer with Hebert Saulnier, a Nova Scotia fisherman, to test modified gill net gear in the Bay of Fundy. With funds from the World Wildlife Fund-Canada and technical support from NMFS gear specialists, the experiment will test the use of gill nets modified with breakaway weak links in the strong currents and deep waters of the Bay. Deb Tobin of ECE is coordinating the effort. For further information, contact her at: deb.tobin@ns.sympatico.ca

Eubalaena Award Competition

Sponsored by the Toronto-based Canadian Whale Institute and the New England Aquarium, the *Eubalaena* Award Competition is seeking entries proposing creative and practical innovations to prevent or reduce the severity of right whale entanglements in fishing gear.

The competition is open to members of the fishing industry, researchers, students and inventors & especially those working in the fields of engineering, chemistry and fishery technology.

Participants can submit entries in three categories: engineering, Chemistry/fishing technology and open. The first prize is \$5,000.

For details, visit the web site, www.savetherightwhale.com or contact Sarah Haney at the Canadian Whale Institute, Box 633, Bolton, Ontario, Canada L7E 5R7; fax 905-939-2863.

IFAW and Right Whales: Protecting a Dwindling Population

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The International Fund for Animal Welfare (IFAW) was founded in 1969 to stop the commercial slaughter of harp and hood seals. IFAW now works to improve the welfare of wild and domestic animals throughout the world by reducing commercial exploitation of animals, protecting wildlife habitats and assisting animals in distress. IFAW's right whale project, initiated in 1996, includes elements of research and policy as well as funding of other groups. It is currently addressing the problem of vessel/right whale interactions, ghost gear removal in Massachusetts and Maine and passive acoustics surveys.

IFAW-hosted workshops to consider the problem of ship strikes have led to the insertion in current U.S. Coastal Pilot publications and navigational charts of information on right whales and their distribution, assisting mariners in locating and navigating through critical right whale habitat. A leaflet and waterproof placard also have been produced, containing information on right whales and collision avoidance. These are distributed to all merchant ships entering U.S. ports.

In 1998, following urging by IFAW, the U.S. Government agreed to support the introduction of an International Maritime Organization mandatory ship reporting procedure. This requires large ships to report to the U.S. Coast Guard when traveling in areas identified as critical habitat for right whales. The mariner subsequently receives information on recent sightings and advice on avoiding collisions with whales. Funding for the first year of implementation was provided by IFAW. The ship-strike subcommittee of the Northeast Implementation Team (co-chaired by Amy Knowlton of the New England Aquarium and IFAW consultant Bruce Russell) is now considering a series of discussion papers on vessel speed, routing and voluntary measures to reduce the incidences of whale interactions with vessels. In 2000, IFAW and NMFS will host several "Solutions" workshops, bringing together experts in various fields to address specific issues related to right whale conservation.

In collaboration with scientists from the Center for Coastal Studies, the New England Aquarium, Woods Hole Oceanographic Institute, University of Massachusetts, NMFS and Cornell University, IFAW also carries out right whale research. Since 1997, a team on IFAW's vessel, Song of the Whale, has been conducting research off the coast of the United States and Canada. This has included making passive acoustic recordings of the vocal behavior of this species (which is quite poorly known), contributing to photo-identification efforts in less accessible waters, and examining right whale surface behavior and movements in the presence and absence of vessels and vessel noise.

The team recently has been investigating the potential for passive acoustic monitoring of right whales as part of an early warning system. Preliminary results indicate some potential for locating right whales acoustically; this may be especially useful in poor weather or at night. If positions of right whale aggregations were better known, shipping could be routed away from them. Planning is underway for experiments later this spring, in collaboration with Cornell University, to explore this potential further.

The Song of the Whale team also assisted with several right whale disentanglement efforts in the Great South Channel and the Bay of Fundy during 1999.

During January and February 2000, Song of the Whale (and an IFAW/ NMFS/ New England Aquarium team) has been on standby off the coast of Florida to track right whale mother calf pairs. By early February, only one pair had been sighted and deteriorating weather conditions prevented the aerial survey team from staying in visual contact with the whales.

News of Colleagues

We are saddened to report that Ellie Dorsey, formerly with the Conservation Law Foundation and the Atlantic Large Whale Take Reduction Team, passed away on May 16. She was a serious and quiet conservationist and her effective advocacy on behalf of right whales will be missed. Condolences may be sent to her husband, Bruce Stedman, at 17714 Meetinghouse Road, Sandy Spring, MD 20860. Terry Stockwell of Maine's Department of Marine Resources (DMR) received one of the Gulf of Maine Council's Visionary Awards for his role as a liaison between DMR and the lobster fishery in which fishermen and state government officials share management responsibilities. Terry also serves on the Northeast Implementation Team and the Atlantic Large Whale Take Reduction Team. LT. Joe Thomas

has left the command of the Northern Right Whale Fusion Center at the U.S. Navy's Fleet Area Control and Surveillance Facility (FACSFACJAX) for additional training followed by sea duty. He will be replaced by LT. Tom Scheer. FACSFACJAX commander Captain James R. Cannon is expected to retire from the Navy this fall. Information on FACSFACJAX's whale work can be found on the web at www.facsfac.jaxm.navy.mil

Report from the Calving Ground: A Brief Summary of Notes from the Calving Ground/2000

By Chris Slay

Early Warning Surveys, New England Aquarium

<http://whale.wheelock.edu/whalenet-stuff/reports/>

This season has gained the infamous status as the worst calving season since systematic monitoring of this population began almost 20 years ago. During the survey dates of December 15 to March 30, there were only 40 days of decent coverage. Only one confirmed mother (#1334) and calf were sighted, off Ossabaw Island, Georgia, on January 22. This identified mom is one of the "offshore" whales that do not haunt the inshore summer habitats. These offshore whales appear healthy and robust, while in recent years many of the inshore animals have shown signs of what may be malnutrition. Attempts were made to tag the mother on February 7 but failed.

Seven days of surveying were completed between January 27 and February 8, covering from Savannah, GA, to about 20 NM north of Wilmington, NC. On February 1, the survey crew sighted a right whale calf approximately 20 NM NE of the entrance to Charleston Harbor. No adult was sighted nearby. It was a very difficult sighting due to the Beaufort 5 sea conditions and very turbid water. The crew was never able to photograph the calf, and it cannot be officially counted without photo data. It is possible, but unlikely, that this calf's mother was #1334.

There were 21 different right whales haunting the southeastern coast, including the six animals photographed during the four sightings of the foray to the Carolinas. After the photos from all the teams have been matched to the catalog, the number may climb to 25-30. I especially want to thank the team, Candi Emmons, Erin LaBrecque, Michael Newcomer, Morgan Roose, Alicia Windham-Reid and Monica Zani, for working so diligently and maintaining such a great collective attitude during a long, somewhat discouraging season.

Using Genetics to Identify Right Whales

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On October 7, 1998, a beached right whale was found on the coast of North Carolina, near the Virginia border. The whale was too decomposed to be identified by its physical characteristics. A skin sample was sent to Brad White's lab at McMaster University to be included in the ongoing genetic analysis of the North Atlantic right whale population which began in 1987.

Genetic analysis of the skin sample, including mitochondrial DNA and microsatellite analysis, provided enough information to confidently match the skin sample to a whale named Delta (New England Aquarium catalog #1333). This finding was reported to the New England Aquarium which confirmed

the match.

Delta was a male first seen December 7, 1978, and seen in most years since then. Delta has an interesting sighting history because in 21 out of his total 60 sightings he was involved in a surface active group (SAG). As genetic studies of this population continue, and as more paternities become confidently assigned, it will be very interesting to learn how many of the SAGs resulted in offspring for Delta.

Although we are still working on increasing the power of our genetic markers to identify whales, this new ability is an exciting and powerful tool that will allow us to identify whales that can't be matched by physical characteristics. Also it will enable us to confirm questionable sightings and, perhaps most importantly, to allow the genetic information and the photo-identification information to act as checks for each other in order to provide a more robust foundation of information on which all other population analyses can rely.

I believe that this example shows how valuable the behavioral and genetic analyses can be, and how important it is to combine these techniques in order to better understand the North Atlantic right whale. Only through long-term, dedicated behavioral studies would we have the behavioral history of whales such as Delta to see with whom they appeared to be mating and when, and where these matings took place. Only through genetic studies can paternity be assigned through time in order to assess the social structure of this population, produce family lines and understand how different whales are related. It will be exciting as genetic studies progress and behavioral studies continue and we come closer to answering more of these questions.

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Calendar of Events

July 2: Deadline for comments to the U.S. Coast Guard on the impact of high-speed commercial vessels on the users of navigable waters of the United States. For more information, the Public Notice requesting comments is posted at <http://dms.dot.gov/search/document.asp?qdocumentid=76815&qdocketid=7205>

October 26 &endash; 27: North Atlantic Right Whale Consortium meeting, New England Aquarium, Boston. For further information, contact Marilyn K. Marx at NEA, Central Wharf, Boston, MA 02110; mmarx@neaq.org

November 2 &endash; 3 (note date change): Next meeting of the Southeastern U.S. Implementation Team for the Recovery of the Northern Right Whale. The two-day meeting will be held in the vicinity of Jacksonville, Florida. For further information, contact team chair Cyndi Thomas at the Florida Marine Research Institute, 904-448-4300, ext. 229; e-mail: Cyndi.T.Thomas@dep.state.fl.us

Right Whale News

Right Whale News is the newsletter of the Southeastern U.S. Implementation Team for the Recovery of the Northern Right Whale and the Northeast Whale Implementation Team. The editor is Hans Neuhauser. The editorial board consists of Bill Brooks, Moe Brown, Scott Kraus, Mike Payne, Sigrid Sanders and Jerry Wallmeyer.

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To subscribe to *Right Whale News* or to submit news or articles for publication, contact the editor, Hans Neuhauser, at the Georgia Environmental Policy Institute, 380 Meigs Street, Athens, GA 30601, USA. Telephone 706-546-7507. Fax 706-613-7775. E-mail gepi@ix.netcom.com

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