

Northwestern Atlantic Marine Bird Conservation Cooperative

Spring 2012 Update: Seabird Research and Conservation Activities in the Northwestern Atlantic



The Northwest Atlantic Marine Bird Conservation Cooperative 2012 Annual Meeting

The Northwest Atlantic Marine Bird Conservation Cooperative met February 28-29, 2012, in Sturbridge, Massachusetts. Cooperative members gave updates on projects underway. Discussions at the meeting focused on highest priority science needs for marine birds and recommendations on pre and post construction survey and studies for offshore wind projects. The marine bird distribution and abundance and bycatch working groups met and came up with a list of priority tasks to tackle over the next year. A summary of the meeting and copies of presentations can be found on the Marine Bird Cooperative website at www.acjv.org/marinebirds.htm.

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Workshop on Marine Bird Science and Offshore Wind

A workshop to assess the state of our knowledge about marine bird and how we might use the information to help determine where to place offshore wind facilities was held in Herndon Virginia in June 2011. The Objectives of the workshop were to: (1) Get everyone up to speed on what we know now (studies past 3-5 years), (2) determine additional data needs within the context of the decisions that have to be made about offshore wind, and (3) prioritize science needs.

There were sixty-five participants representing a diversity of interests including federal and state agencies, industry, bird advocacy groups, non-profit organizations, and academia. Workshop materials were prepared ahead of time using the seabird database of historic and recent surveys compiled by USGS and mapped by Biodiversity Research Institute. Seabird distribution and abundance maps were created to stimulate workshop discussions. Researchers working in the Atlantic on seabirds were asked to provide distribution and abundance data prior to the workshop. The maps initiated lively discussions about data adequacy, persistent aggregations (hot spots) and the need to have clearly documented metadata about the underlying data. Breakout sessions were used to address the following questions: (1) Can we identify areas that minimize overlap between birds and wind structures? (2) How do we define "persistent aggregations"? (3) What is our confidence level with our existing data?

During one of the breakout sessions, participants identified factors or co-variables attracting birds to areas in the marine environment and the factors that make an area more or less desirable for wind development.

There was consensus among all break out groups on these factors which include physical characteristics such as currents and land features, species life history traits/behaviors, and species status.

The last day of the workshop focused on future efforts to gather information needed to help us make the most informed decisions about siting wind facilities in the near term. Data gaps identified include baseline information and movement patterns (diurnal and nocturnal) for the south Atlantic Bight, nocturnal movement patterns (everywhere), and migratory routes (including passerines). Future science needs include predictive modeling to help us forecast where we expect to find birds in the system, given a set of ocean habitat variables or characteristics and existing distribution and abundance data.

There was much discussion about creating the "best bird map" possible by identifying data anomalies, such as trawlers, applying predictive models, and incorporating data gaps (such as migrants). Areas showing up as either high or low use areas could then be weighted relative to the status of the species found there. Finally, the map could be weighted by potential risk for harmful interactions (flight height, avoidance, displacement, etc.). This would in effect, give us a map of relative risk to use for siting wind facilities.

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Mapping the Distribution, Abundance and Risk Assessment of Marine Birds in the Northwest Atlantic: Phase 1

A project folks are calling the Best Darn Bird Map is getting underway this spring. With funding from the North Atlantic Landscape Conservation Cooperative, biologists with the Atlantic Coast Joint Venture are overseeing a project pulling together existing data on marine birds from varying studies and surveys completed and underway - and producing a product highlighting areas within the marine environment that have high or low use by marine birds. This project will also assess the relative risk or exposure to marine birds at areas that are identified as "hot spots." It will produce products that can be used for marine spatial planning. The first phase of this project is focused on the mid-Atlantic with the hopes of expanding it to the rest of the Atlantic if the products prove useful. This is a two year project and will be completed December 2013.

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AMAPPS: Protected Marine Species Study: A Partnership in Action

Partners continued the country's largest-ever survey of protected marine species summer 2011 for the Atlantic and Gulf of Mexico. The five-year joint effort is documenting where and when whales, dolphins, porpoises, seals, sea turtles, and seabirds are present and in what numbers. The information will be used by the study sponsors -- National Oceanic and Atmospheric Administration (NOAA), Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE), U.S. Fish and Wildlife Service, Atlantic Coast Joint Venture, U.S. Geological Survey, and the U.S. Navy -- as they work toward more coordinated use of marine areas and resources through marine spatial planning.

This summer, NOAA and the ACJV coordinated both ship-based and aerial surveys that covered the entire northwestern Atlantic Ocean, from Maine through Florida..

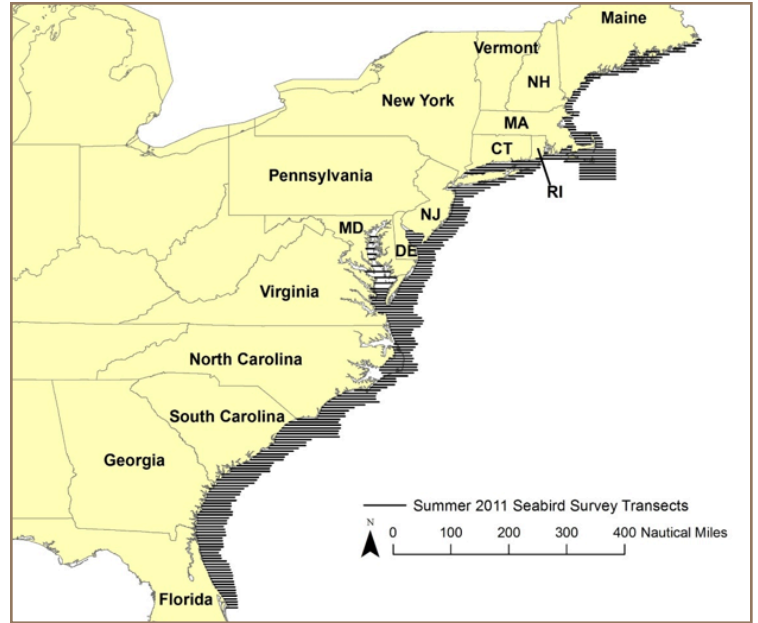
The project will also test new remote sensing technologies that increasingly make it easier to gather more data, and at a lower cost. Some of the technologies include underwater recorders that capture sounds animals make, pattern recognition software that helps scientists identify species, tags attached to animals that transmit information about the animals' locations and ocean conditions whenever the animal surfaces, and underwater robots outfitted with a variety of sensors. This project will give a clear picture of the very complex relationships between animals and ocean conditions, as well as how human activities influence both. Study results will help us make more informed choices about human uses of the ocean, such as offshore energy projects and military training areas. This partnership will give us much better scientific information about seabird populations, so that we can more clearly define the needs of these species and make better management decisions.

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SEANET

Through a strong partnership with John Stanton and the U.S. Fish and Wildlife Service, SEANET is expanding beached bird surveys into North Carolina. A well-attended training session in September added 12 new beaches in the Cape Fear area, and an upcoming training in March will focus on the Outer Banks. In addition to expanding monitoring, we are currently developing a Beached Bird Field Guide to the Southeast region of the United States, a long overdue project which will benefit scientists and members of the public in their efforts to monitor for and respond to seabird mortality events. We are actively seeking photos of select species for inclusion in the guide, and welcome input from members of the Cooperative.

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AMAPPS Survey Transects

Metapopulation Dynamics and Ecology of Roseate Terns

Jeff Spendelov (U.S. Geological Survey-Patuxent Wildlife Research Center [USGS-PWRC]) continues to oversee PWRC's long-term collaborative research on the metapopulation dynamics and ecology of Roseate Terns (ROSTs - *Sterna dougallii*). The focus since 1987 of the Cooperative Roseate Tern Metapopulation Project (CRTMP) had been on the ROSTs nesting in the MA-CT-NY region. In 2011, however, with the start of the use of plastic field-readable (PFR) bands (with a 3-character complex) on chicks from colony sites in Connecticut, New Hampshire, Maine, and Nova Scotia, the CRTMP has expanded in scope to include the entire endangered Northwest Atlantic breeding population. Individuals wearing PFRs can be identified at greater distances than those with metal FR bands, allowing cooperators at colony sites, staging sites, and elsewhere to repeatedly identify color-banded individuals on a systematic basis. Jeff did not do colony site fieldwork in 2011, but cooperators color-banded more than 270 chicks (and 16 adults in Nova Scotia) and this allowed him to do a pilot study during the post-breeding dispersal period (PDP) fieldwork (mid July through September) on the differential use of staging sites in the "Cape Cod & Islands" area of southeastern Massachusetts by Hatch Year (HY) ROSTs coming from different parts of the breeding range. As in 2010, a lack of funding in 2011 meant that MassAudubon's Coastal Waterbird Program (MACWP) was unable to hire seasonal research staff for the PDP fieldwork, but Jeff was assisted for a 6-week period by David Monticelli (a post-doc colleague from Belgium) and also received volunteer assistance from current and former MACWP staff (Ellen Jedrey, Edie Ray, Michelle Avis, Nuray Taygan), and from the U.S. Fish and Wildlife Service, the National Park Service, and cooperators on Nantucket and Tuckernuck Islands (Vern Laux, Dick Veit). During the PDP fieldwork, Jeff resighted almost 60%





of all the HY ROSTs color-banded in 2011, and in a 5-hour period on September 9, at the Hatches Harbor area of Cape Cod National Seashore, he resighted 51 different color-banded HY ROSTs from the Gulf of Maine and Canada, just over 20% of all the HY ROSTs color-banded in the northern part of their breeding range.

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Canadian Wildlife Service Oil Pollution, Bycatch and Seabird Mortality Monitoring Efforts

The Canadian Wildlife Service (CWS) continues to monitor oil pollution and other seabird mortality events through the beached bird survey program in Newfoundland and Labrador, for which trend information dates back to 1984. The focus in this region has been to increase the survey interval (from monthly to weekly) by implementing a volunteer-based program (Adopt-A-Beach) aiming at recruiting residents and schools to survey a beach in their local community. Since 2010, CWS partners with the Canadian Parks and Wilderness Society - Newfoundland and Labrador Chapter (CPAWS-NL) to deliver this program by facilitating the recruitment and coordination of volunteers. Additionally, in response to the Deepwater Horizon blowout that occurred in April 2010 in the Gulf of Mexico, CWS and wildlife research scientists of Environment Canada are closely monitoring the size and productivity of the North American Northern Gannet population, which breeds in only six colonies, all located in Canada (three in Québec and three in Newfoundland).

Seabird Bycatch

The Department of Fisheries and Ocean (DFO) and CWS are currently updating Canada's National Plan of Action (NPOA) for reducing the incidental catch of seabirds in the longline fisheries, originally published in 2007. Part of the updates will expand the NPOA to include other fisheries known to incidentally take marine birds, such as gillnets and bottom otter trawls. In addition, seabird bycatch data collected through DFO's Fishery Observer Program are currently being analyzed to identify seabird-fishery conflict zones pertaining to the east coast of Canada, including both the Québec and Atlantic Regions. This information will be used to update the NPOA and form the basis of Avoidance Guidelines and Beneficial Management Practices (BMP) which ultimately will be made available to fishers.

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Roseate Tern. Jorge Saliva

Biodiversity Research Institute Workshop on Wildlife Science and Marine Wind Energy

In November 2011, the Biodiversity Research Institute (BRI) hosted a two-day workshop on 'Wildlife Science and Marine Wind Energy' at the University of Southern Maine in Portland. The meeting was designed to identify areas of scientific consensus and disagreement regarding the effects of marine wind power development on wildlife (birds, bats, marine mammals, turtles, and fish), identify major research, regulatory, and other needs to address knowledge gaps, and communicate the above to regulators, developers, policymakers, and the general public. The workshop attendees, led by Kate Williams (BRI), are currently drafting a review article which summarizes the results of the meeting and provides recommendations on mitigating impacts. The manuscript will be submitted to *BioScience* for potential publication as a forum article.

Northeast Region

Iain Stenhouse and Andrew Gilbert (BRI) are currently working with the USFWS on a project to identify important islands for breeding colonial waterbirds and shorebirds in the Northeast Region. The goal is to assess habitats and prioritize islands such that the USFWS can make informed decisions on habitat management, restoration projects, and future additions to the National Wildlife Refuge system.

Mid-Atlantic Region

The federal government aims to deploy over 50 gigawatts of offshore wind energy capacity by 2030. The current administration has put offshore wind power development on an expedited approval track, and several agencies are working to advance the timeline for deployment of offshore wind energy systems. A number of 'wind energy areas', sites for potential development of offshore wind generation facilities, have already been identified, mainly off the mid-Atlantic coast. On behalf of the Department of Energy (DOE), the Biodiversity Research Institute (BRI) in Gorham, Maine is currently carrying out broad-scale surveys for marine birds, marine mammals, and sea turtles in the mid-Atlantic region. The project involves two years of boat-based surveys and high-definition aerial video surveys to obtain baseline data on wildlife distributions and densities, and environmental covariates. BRI will include a direct comparison of high definition video aerial and boat-based survey methods. Combined with the Northwest Atlantic Seabird Compendium, and freely available data from other sources, BRI aims to develop the largest existing database of mid-Atlantic marine wildlife distribution and movement data. A third year will be dedicated to risk assessment and modeling within a hierarchical framework, a proven statistical method for separating observational and ecological processes and understanding factors that influence species distributions and relative abundance. This project is a broad collaboration between BRI and HiDef Aerial Surveying, Inc., Richard Veit (City University of New York), Beth Gardner (North Carolina State University), and Ari Friedlaender and David Johnston (Duke University Marine Laboratory).





BRI is also currently involved in satellite tracking studies of focal marine bird species (Northern Gannets, Surf Scoters, Red-throated Loons, and Peregrine Falcons) in the mid-Atlantic.

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Shearwater and Tropicbird Tracking and Caribbean Seabird Science Workshop

Patrick Jodice and Will Mackin are continuing to track shearwaters and tropicbirds. This year they plan on deploying additional geolocators on Audubon's Shearwaters in the Exumas and hopefully, come November, Tobago. This would potentially provide movement data from the northern and southern edges of the AUSHs breeding range in the Caribbean. That effort is being funded by FWS. Patrick Jodice is also teaming up with Ann Sutton and The Nature Conservancy in Jamaica with plans of deploying satellite tags on Masked Boobies this spring. Patrick Jodice, Lisa Sorenson, Ann Sutton, Chris Haney, Jennifer Wheeler and Will Mackin will be leading a 5-day workshop this June in San Slavador that is intended to build capacity for seabird science in the Caribbean. That effort is being funded by NFWF.

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An Emerging Disease Issue Affecting Common Eiders

U.S. Fish and Wildlife Service (USFWS) Division of Migratory Birds staff continued to coordinate the response and evaluation of recurring common eider mortality events along the coast of Cape Cod, Massachusetts, which have been occurring from 1998-2011. Investigators from the Tufts Cummings School of Veterinary Medicine, USGS National Wildlife Health Center (NWHC) and Southeastern Cooperative Wildlife Disease Study (SCWDS) have been working collaboratively with the USFWS, U.S.D.A. Wildlife Services and the National Park Service to determine the cause of mortality and the potential implications to eider populations. During FY11, researchers with the NWHC and SCWDS determined the cause of mortality to be a previously unidentified orthomyxovirus, which has tentatively been named the Wellfleet Bay Virus (WFBV). To date, common eiders are the only species to have documented disease associated with WFBV. Ongoing and proposed research to address this emerging disease issue includes an investigation into the geographic source(s) of eiders involved in these mortality events, how widespread the virus may occur, the potential route of virus transmission among eiders, and whether there is evidence of previous exposure to WFBV and subsequent recovery among healthy eiders. Common eiders are a USFWS Focal Species, and Cape Cod/Nantucket Sound represents an area in which the majority of eiders are known to migrate through, stage and overwinter.

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Concentration areas of common eider mortality events along Cape Cod, MA, 1998-2011 (J. Ellis, Tufts University)

Determining Offshore Use of Diving Bird Species in Federal Waters of the Mid-Atlantic United States using Satellite Tracking

As interest mounts in using mid-Atlantic waters to construct commercial wind developments, there is a pressing need to implement tracking studies for a broad suite of marine birds across the region to provide a comprehensive understanding of marine bird movement and occurrence. Such information will be added to data currently being collected by comprehensive offshore marine bird surveys (such as AMAPPS) to ensure that wind facilities are not constructed in marine bird hot-spots. Tracking studies will also provide background data on bird use in an offshore area prior to wind turbine construction so displacement effects can be identified after turbines are built.

A three year project was recently initiated to tag Red-throated Loons (*Gavia stellata*), Surf Scoters (*Melanitta perspicillata*), and Northern Gannets (*Morus bassana*) with satellite transmitters. Satellite-tagged birds relay precise locations multiple times a day, providing researchers with detailed movement and occurrence data on these focal species during winter and migration, when substantial proportions of their populations use Federal waters (3 to 200 nautical miles from shore) of the mid Atlantic U.S. The three focal species have disparate habits and life history strategies, representing a cross-section of marine birds found throughout the region, and are recognized as “species of conservation concern” or “conservation focal species” by the U.S. Fish and Wildlife Service. The project will also test new satellite attachment methods with the goals of increasing tag longevity and reducing adverse impacts of tags on study subjects.





The project, which is being funded by the Bureau of Ocean Energy Management and coordinated by the USFWS Division of Migratory Birds, involves multiple collaborators including USGS Patuxent Wildlife Research Center, BioDiversity Research Institute, the Monteverchi Lab at Memorial University of Newfoundland, and state wildlife agencies. Collaborators completed a first season of field work in March 2012, capturing and tagging over 30 birds with satellite tags. Tagged birds are currently being tracked as they embark on spring migrations. Data analysis will commence by early summer, with an annual report expected in late 2012.

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Ships of Opportunity Surveys

Richard Veit and colleagues continue to collect data on seabird abundance from NOAA research vessels off the US East Coast. They have also recently contracted with the Massachusetts Clean Air Commission to survey seabirds using aircraft off southern New England, and with Biodiversity Research Inc and the US Department of Energy to survey seabirds from boats off Virginia and Delaware.

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Maine Coastal Island National Wildlife Refuge Tracking Studies

Arctic Tern Geolocator Project

In 2010, Maine Coastal Islands NWR and National Audubon Society deployed geolocators on 30 Arctic Terns nesting in Maine. In 2011, researchers returned to the two breeding colonies (Metinic Island and Eastern Egg Rock) to recapture the terns and retrieve the geolocators. On both islands 53% of the tagged birds returned and 11 geolocators were recovered. Data has been processed by British Antarctic Survey, and the Refuge and NAS are working to analyze seasonal movements of the birds.

Greater Shearwater Habitat Use and Movements in the Gulf of Maine

In August 2011, Maine Coastal Islands NWR captured 4 greater shearwaters along the coast of Maine and equipped them with 30g SirTrack satellite transmitters. MCINWR deployed 7 additional units in 2010, and will deploy 7 additional units in 2012. The Refuge is hoping to identify foraging hotspots, migratory pathways, gather information on residency time in the Gulf of Maine, and begin to study potential conflicts with offshore energy development.

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Addressing Seabird Bycatch in US Atlantic Fisheries

Work continues on a project to understand and address marine bird bycatch in U.S. Atlantic fisheries, being coordinated by the U.S. Fish and Wildlife Service Division of Migratory Birds (USFWS). The goals of the project include characterizing the impact of fisheries on birds off the U.S. Atlantic coast (specifically understanding which fisheries produce the most marine bird bycatch, where, and at what time of year), disseminating effective outreach and education strategies, and collaborating with fishers and fishing groups to test feasible alternative fishing practices or gear in fisheries with the highest levels of bycatch.

In February 2012, the USFWS led a small working group at a meeting of the Northeast Marine Bird Conservation Cooperative (Sturbridge, MA) to discuss the progress of the project and receive input from meeting participants. A draft business plan, which summarizes strategies to meet project goals, was distributed and is now being reviewed by members of the Northeast Marine Bird Conservation Cooperative. At the meeting, the National Marine Fisheries Service Protected Species Branch announced that it had hired a staff member to analyze marine bird bycatch data from the Northeast Fishery Observer Program, which will contribute to meeting project goals.

In upcoming months USFWS staff will continue to solicit interest in the project from other agencies, universities, non-governmental organizations, and fishing groups, by participating in meetings (including Fishery Commission and Council subcommittees) and holding informational workshops. This work will eventually culminate in research, outreach, and conservation projects to reduce marine bird mortality in bycatch hotspots within U.S. Atlantic waters.

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Diving Gannet. Jim Fenton