



Maine Coastal Islands National Wildlife Refuges



Common tern Kirk Rogers

2010 Highlights

- Refuge Gets a New Home
- More Islands added to Refuge
- Bird and Bat Migration Monitoring
- Seabird Research Update
- Protecting Native Habitats
- People Decoys Debut at Rockland Festival
- Youth Rehab Birch Point Trail

2010 Program Highlights

Refuge Complex Gets New Home

On April 20th, 2010 the Maine Coastal Islands National Wildlife Refuge Complex accomplished the first exciting step in its long-time goal of gaining greater visibility through having a new headquarters and visitors' center. The Service purchased a beautiful building on the waterfront in downtown Rockland, Maine. This location is ideal for attracting tourists and serving residents in the mid-coast area, as well as convenient to the islands the mid-coast staff must service. The building, a former day care center for MBNA (credit card company), had been completely renovated in 2000, is already universally accessible, with 9,600 square feet in a good layout and all mechanical systems are in great shape.

The Friends of Maine Seabird Islands played a critical role in the purchase of the building by securing a purchase and sale agreement and completing the necessary due diligence work. Maine Coast Heritage Trust lent the Friends a large sum that served as earnest money to facilitate extensions of the purchase agreement. The Northeast Division of Realty also played a critical role by obtaining supplemental funding and working on a very tight timeline to meet deadlines.



Since the refuge complex's lands are largely offshore islands, and these islands are closed to the public during the nesting season, the refuge and its resources are not well known. The visitors' center will play an important role in raising the complex's visibility. Visitors to the center will view exhibits about the importance of islands to nesting seabirds, migrating birds, and other wildlife of conservation concern in the Gulf of Maine.

Refuge Protects More Islands for Terns, Eagles & Eiders



Crow Island, Muscle Ridge—photo by Maine Coast Heritage Trust

Four islands and an inholding parcel on Metinic Island were added to the refuge this year. The islands purchased include 12-acre Crow Island in Muscle Ridge, Knox County; 7-acre Compass Island, Hancock County; 1.5-acre Three Bush Island, Hancock County; and 8-acre Sheep Island, Steuben, Washington County. This brings to 54 the number of islands the refuge owns in fee, easement, or manages as part of the refuge through agreement. Purchase of these islands was recommended by the Refuge's Comprehensive Conservation Plan published in 2005.

Crow and Sheep both provide nesting habitat for bald eagles, Three Bush has a colony of common terns, and Compass provides nesting habitat for eiders. Maine Coast Heritage Trust had acquired all of these islands except Three Bush over several years through the cooperation of willing landowners in continued partnership with the refuge.

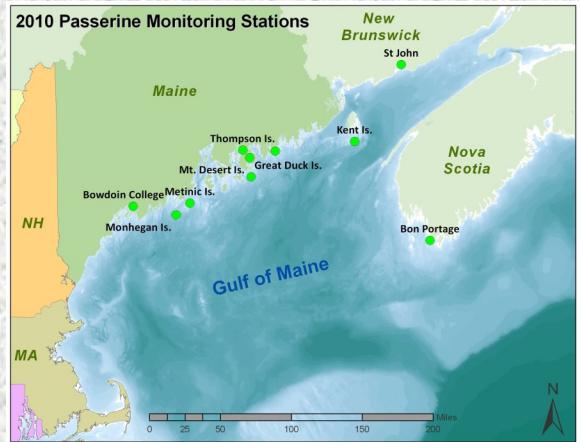
Partners Monitoring Bird and Bat Migration in the Gulf of Maine



Maine Coastal Islands National Wildlife Refuge, the University of Maine, Acadia University, and the National Park Service collaborated this year to

begin answering these very important questions: how do songbirds and bats migrate along the coast of Maine and where are important stopover sites located? Partners operated banding stations, acoustic recording devices, radar, telemetry receivers, and conducted visual surveys from August through October. The data collected at each site will be collectively analyzed to reveal landscape-scale migration patterns.

The Refuge purchased and deployed four Wildlife Acoustic recording units and recorded nocturnal bird calls and bat echolocations from late August through October on Inner Double Head Shot Island, Petit Manan peninsula, Metinic Island, and in South Thomaston. The Refuge also operated two banding stations where contractors banded birds, conducted visual surveys, orientation tests, and collected stable isotope samples to determine where birds were born or bred. Nearly 10,000 birds were banded at the partners 5 monitoring stations this fall.



New Research Provides Answers to Seabird Movement and Behavior

Arctic Tern Geolocator Project In June, Refuge and National Audubon researchers trapped 30 incubating Arctic terns and equipped them with 1.6g geolocators on Metinic Island and Eastern Egg Rock. The units, which calculate location based on the length of daylight and the time of sunrise and sunset, allow us to determine the route used by the terns during their annual migration to the Antarctic and back. Researchers will need to recapture the terns in 2011 to access the data.

Atlantic Puffin GPS Logger Project In hopes of discovering and mapping their foraging areas, 14 nesting puffins on Petit Manan Island, Seal Island, Matinicus Rock, and Machias Seal Island were trapped and tiny GPS logger units were attached. GPS data logging units, recently available in weights a puffin can carry, can capture detailed information on puffin activities by collecting five location points every three minutes for about a week. The birds were recaptured a week later to recover the data.

Unfortunately, this initial year turned out to be a disappointment, as almost every puffin returned without the equipment, and the only GPS unit recovered had no data. We are looking into other equipment and attachment methods, and hoping for better luck next year!

Atlantic Puffin Diving Behavior Study Sarah Spencer, a M.S. student at the University of Massachusetts, Amherst is currently completing her thesis work on foraging ecology of Atlantic puffin. Small temperature depth recorders (TDRs) were attached to metal leg bands using gorilla tape, and birds were recaptured within a week or two after deployment. Sarah found that puffins made nearly 60% of dives between 4:00-8:00AM and 4:00-8:00PM and averaged 276 dives per

day each! The majority of dives (86%) were less than 15 meters in depth and the maximum depth of a dive was 40.7 meters. Average foraging site temperature was 51.8°F.

Puffin Sex Determination Another part of Sarah's research involved developing a predictive model for identifying the sex of individual breeding puffins on Petit Manan Island by comparing body measurements of banded birds to their sex as determined by analysis of blood samples. She found the sex of a puffin was best predicted by the length of the ridge on the upper bill and bill depth; male puffins typically have larger bill measurements than females.

Greater Shearwater Habitat Use and Movements in the Gulf of Maine

Wildlife biologist Linda Welch captured seven greater shearwaters and equipped them with 32g SirTrack Kiwisat satellite transmitters. 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. Data will be shared with a graduate student at Memorial University in Newfoundland, for comparison with ship-based observations of greater shearwater in the Gulf of Maine.



Shearwater Banding Team led by Linda Welch, Refuge Biologist—second left

Protecting Native Habitats on Maine Islands; Botanical Inventories and Invasive Plant Control



Bittersweet Nightshade

Given the remote locations of the 54 islands owned by Maine Coastal Islands, assessing and protecting island habitat quality is a challenge. The Refuge hires local contractors to conduct botanical inventories on 1 to 4 islands annually. Thanks in large part to efforts over the last 10 years, 50% of Refuge islands have complete botanical inventories and 70% have been surveyed for invasive plants.

The Refuge also conducts invasive plant control on 9 Refuge islands and has established

monitoring plots to document the efficacy of various treatments. The most problematic plants on the Refuge are garlic mustard (*Alliaria petiolata*), purple loosestrife (*Lythrum salicaria*), garden valerian (*Valleriana officinalis*), bitter-sweet nightshade (*Solanum dulcamara*), Canada thistle (*Cirsium arvense*) and bull thistle (*Cirsium vulgare*). Additional plants controlled on Refuge islands include Oriental bittersweet (*Celastrus orbiculata*), coltsfoot (*Tussilago farfara*), and narrowleaf bittercress (*Cardamine impatiens*).

People Decoys Debut at Rockland, Maine Summer Solstice

Giant seabird decoys, designed to attract people rather than birds, were unveiled to the public at a festival in Rockland that attracted hundreds of city residents and visitors. Maine Coastal Islands National Wildlife Refuge staff were designing signs for the decoys, and thought this would be an ideal event to provide the public a chance to react to the decoys and give input on the sign content, so that the final signs would better meet peoples' needs.

Many complimentary comments were received, as the decoys did indeed attract their intended quarry. Staff observed that few people actually read the signs, and that most people wanted to know what the bird was and where they could see one. It did seem that the 5% of those who did actually read the text, read everything and were interested to

know more. It was also interesting that the eider decoy was the one that everyone liked to pet!

These decoys are intended to be used as traveling installations to be placed at various locations all over the Maine Coast to help people find out about the refuge. The exhibits were produced locally, and are coated in the rugged paint used on climbing walls.



Visitors to Summer Solstice Festival interact with Human Decoys

Youth Conservation Interns Complete Birch Point Trail Rehabilitation



Youths hired through the partnership with Student Conservation Association under the Conservation Intern Program have completed a major renovation of one of the refuge's major walking trails at Petit Manan Point. In 2006 the Federal Highway Administration did an assessment of the condition of this four-mile trail. The cost of the recommended improvements was estimated at \$60,000. With limited funds to complete the project, CIP interns provided much of the labor, decreasing overall costs by nearly half. After much of the work was completed in the constant rain last season, this year's crew had better weather! Visitors will enjoy the improvements for years to come.

The following were completed this season:

- 444' of new boardwalks built
- 150' of trail cleared of overgrown brush
- 2000' of raised trail surface
- 150' of drainage pipe installed
- Benches placed along trail and view points
- 15 bags of trash removed from shoreline



Birch Point Boardwalk Construction



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[http://www.fws.gov/
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Refuge Vision:

"With the help of our conservation partners, at Maine Coastal Islands National Wildlife Refuge we will apply sound, scientific principles and adaptive management strategies to sustain the long-term health and integrity of coastal Maine habitats; expand community outreach and environmental education and interpretive programs; and, stimulate visitors to embrace stewardship of natural resources.

We envision the future Refuge Complex epitomizing the mission of the National Wildlife Refuge System; conserving in perpetuity an incredibly rich tapestry of coastal islands, intertidal estuaries, freshwater wetlands, maritime forests and open fields; and, enabling nesting and migrating seabirds, and other wildlife of conservation concern in the Gulf of Maine, to thrive here."

Maine Coastal Islands NWR Significance to Seabirds:

In the United States:

- 4 of 5 Atlantic puffin colonies occur on refuge islands
- 4 of 6 razorbill colonies occur on refuge islands

In Maine:

- 61% of common terns nest on refuge islands
- 58% of laughing gulls nest on refuge islands
- 97% of Arctic terns nest on refuge islands
- 86% of razorbill nest on refuge islands
- 90% of Atlantic puffin nest on refuge islands
- 54 islands important to seabirds, wading birds or bald eagles are now afforded protection as part of Maine Coastal Islands NWR.

Manager's Corner

As I look back over the year on this day before Thanksgiving, I can't help being amazed by this year's accomplishments, and sincerely grateful to all those who helped achieve them. The staff worked exceptionally hard on outstanding new research efforts – continuing to stretch our field season on both ends in a quest to understand the value of the islands and Gulf of Maine to migrating and pelagic birds as well as nesting seabirds. Many partners, including National Audubon, the University of Maine, the Park Service, and Acadia University are involved in this landscape-scale collaboration.



The Friends of Maine Seabird Islands, my superiors, and our support staff in the Regional Office in Realty all went above and beyond to make our new headquarters and visitors center a reality – apparently dreams can come true! Maine Coast Heritage Trust also helped us with the center, and made our purchase of new islands possible. They continue to work on more island purchases on our behalf. Our Regional Office also contributed many resources that supported research, island logistics, and improvements for the public at our Corea Division.

Thanks to all of you for a great year!

Beth Goettel, Refuge Manager