

Nova Scotia Habitat Conservation Fund Final Report April 2006

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Title of Project: Mahone Bay Roseate Tern Habitat Recovery Project

Type of Project: Enhancement & Education

Project Summary:

Roseate terns are listed as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). A single site in Mahone Bay once supported one-third of the Canadian population. This colony was abandoned in the mid-1990's, and the Roseate terns have attempted unsuccessfully to nest at several sites since. Predation and human disturbance are the main threats to the survival of Roseate terns that nest on islands in the Bay. As such, the management of human activities and predators is necessary to prevent the loss of breeding sites and the total extirpation of the Roseate tern from Canada.

The "Mahone Bay Roseate Tern Habitat Recovery Project" was initiated in April 2003 to focus on implementing a recovery program in Mahone Bay, providing secure nesting sites for the terns. This is being accomplished through habitat enhancement (placement of nesting shelters), predator deterrence (human presence, pyrotechnics) and public awareness (signage, public consultation, and outreach). Roseate terns are the main focus of this project; however since they nest in mixed colonies with Common and Arctic terns, essentially we have been managing all three species.

This project addresses the third objective of the Canadian Roseate Tern Recovery Plan: to restore a broader distribution by establishing at least one more managed colony.

Objectives and Results

Habitat enhancement, protection and restoration

Goals for habitat enhancement included the displacement of nesting gulls on Quaker Island and the successful use of strategically placed nesting shelters by terns. Habitat protection was defined by the successful colonization of terns on Quaker Island. Habitat restoration goals included the establishment of a predator-free colony on Quaker Island and the improvement of Roseate Tern habitat through the use of decoys, a sound system, and nesting shelters.

The first habitat enhancement objective was met successfully. In comparison to 2004, there were significantly fewer gulls on the island (15 nests destroyed in 2005 versus 92 in 2004). Because of the techniques employed by project staff, including human presence, pyrotechnic use, and gull nest destruction, the colony was successfully displaced and no further gull nests were found after June 3.

A number of tern social attractants were used in an effort to attract terns to the island. 25 tern decoys were placed along the western point of the island, which contains the most suitable tern nesting habitat. A sound system that played tern colony sounds during daylight hours was activated on May 4. 6 nesting shelters were placed on the point as well.

Island use by nesting terns was encouraging. Terns (Common and Arctic) were first observed circling and landing on Quaker Island on May 10, 2005 and began exhibiting nesting behaviour shortly thereafter. On June 9, staff counted 23 nests (COTE and ARTE) on the island. Although Roseate Terns did not nest, 2 pairs were observed circling and landing on the island on a number of occasions.

Predator watches were conducted approximately 150 m from the colony using a spotting scope. In an effort to minimize disturbance, project staff did not enter the colony until they were confident that some of the terns had laid eggs.

On June 10, project staff observed a mink in the colony during a routine predator watch. Upon doing a ground check of the colony, it was discovered that the mink had predated all of the eggs. The next day, June 11, the adult terns abandoned the colony. On June 12, a trapper came to the island and set traps to catch the mink. The mink was later trapped.

After the mink predation event, BCAF maintained a field crew on the island on a part-time basis until early July in hopes that the terns would re-nest. However, the terns did not re-nest on Quaker Island.

Monitoring population size, distribution, movement, and productivity

Quaker Island field staff was responsible for collecting the following data on a daily basis:

1. General Island Surveys - General Island Surveys are point counts of all birds present and are conducted at 0600, 1300, and 2000.
2. Weather Datasheets - The following weather variables are recorded at 0600, 1300, and 2000: temperature, cloud cover, rainfall, wind speed, and sea state.
3. Noisemaker Observations - When pyrotechnics are fired to scare gulls, the observer, time, number of predators, and reaction of predators are recorded.
4. Daily Journal - At the end of each day, all of the day's activities and significant occurrences are recorded (e.g. first egg found, and major depredation event, etc.).
5. Gull Nest Datasheet - The date that the nest was destroyed and the number of eggs composted is recorded.

6. Quaker Island Bird List - All bird species sighted on the island is noted throughout the season. The purpose of collecting data on other species (See Exhibit D) is to monitor the effect of predator control on other species nesting on the island.
7. Predator Watches - Predator Watches documented predator intrusions into the colony, the length of time of the intrusion, and whether or not the intrusions were successful. They begin when the terns begin laying (late May/early June). Watches are conducted during three time periods (0600-0800, 1200-1400, and 1800-2000) and usually span the entire two-hour observation period.
8. Tern Monitoring Data - Extensive data that is collected on nesting terns includes general observations, nest and egg counts, productivity, diet, and chick growth data.

Data was successfully and thoroughly collected throughout the season. All of the raw data from the spring/summer 2005 field season is located in the 2005 *Quaker Island Data Binder* at the BCAF office, Mahone Bay Town Hall.

Project staff surveyed other tern colonies in Mahone Bay on a weekly basis including Westhaver's, Mason's, Lynch, and Saddle Island. Productivity plots were set up on all of the previously mentioned islands. Predator watches were also conducted on a regular basis. Unfortunately none of the tern colonies in Mahone Bay were successful in fledging tern chicks during the 2005 nesting season (See table below). Human disturbance is suspected to be the cause of at least 2 of the abandonments. Supporting evidence included: reports of dogs running through the colonies unleashed, dog bones, footprints, inukshuks (sculptures made out of rocks), and garbage.

Tern Colony	Initial nest count/ date	Date Abandoned
Westhaver's	232 nests/ June 24	July 18
Mason's	103 nests/June 23	July 11
Lynch	17 nests/ July 6	Between July 9-12
Saddle	13 nests/ July 20	Between August 15-19

Fostering public support & improving public awareness

Public support and awareness objectives included fostering a more educated and aware general public and recreational boating community, and increasing the number of stewards in the area looking out for the survival of the Roseate Tern in Mahone Bay.

Public presentations were made at the Atlantic Fisheries Museum of the Atlantic on July 26 and at the Chester Legion on August 22, 2005. Individual consultations were made to numerous people throughout the summer at local festivals, to visitors to Quaker Island, to recreational boaters at the government wharf in Chester, etc. The Coordinator contacted two local newspapers (Progress Enterprise and Chester Clipper) regarding the project. Both ran stories about the RTRP throughout the summer. An ASN television program, "Breakfast Television", broadcast a 5-segment story on the project. Thus, project information was disseminated to a large number of people.

A project brochure and newsletter was developed and distributed to local residents via local festivals (including the Mahone Bay Wooden Boat Festival and the Bridgewater

Children's Fair), one-on-one meetings and at public presentations. A second newsletter summarizing the 2005 field season was produced and distributed in January 2006 to all island owners and island monitors, and was placed within various businesses throughout Lunenburg County to facilitate community knowledge of the project. It was also posted on the BCAF website.

Signage was placed at the government wharf in Chester and other boat launches in the area. The signs stated that Quaker Island was the site of a tern colony and requested that the public stay at least 100 m away from nesting birds. It also stated that these birds may abandon their young if disturbed during the nesting period. Signs were also placed on Quaker Island and at other bird colonies in the area.

A school education program focusing on species-at-risk, including the Roseate Tern, was developed and delivered throughout the year. Presentations were tailored according to the age of the school children and were delivered to various schools in Lunenburg County (Lunenburg Academy, Lunenburg Junior High, Lunenburg Senior High, Bayview Community School) and one in Halifax (Sacred Heart School).

BCAF's network of island monitors was increased from 30 to 35 individuals during the summer of 2005. This network of volunteers provides information regarding island use, development, island flora and fauna, etc. This program, known as *Island Watchers*, is a great way to involve the community in the project and increase the sense of stewardship of the islands amongst the monitors. The Project Coordinator received information on a regular basis from the monitors, including the location of terns in the Bay. Two of the island monitors sit on the RTRP Advisory Committee.

Presentations on the RTRP have also been conducted for the following groups: Atlantic Tern Working Group; Canadian Roseate Tern Recovery Team, and various school classes in the area.

Project Success

BCAF considered the 2005 field season a success despite the fact that no chicks fledged. Both RTRP project staff and the Canadian Wildlife Service found nesting numbers very encouraging prior to the unforeseeable mink predation event, and terns continued to frequent the island following nest abandonment. In addition, the mink was successfully trapped approximately three weeks later.

Similar restoration projects that have taken place in the Gulf of Maine have never experienced nesting numbers as high as those observed on Quaker Island in the initial two years of Roseate Tern recovery. Due to the encouraging results of BCAF's efforts on this project thus far, the island's owner, Christopher Ondaatje, is firmly committed to the continuance of the project, and BCAF is determined to persist with recovery efforts for the Roseate Tern in Mahone Bay.

Follow-up actions required to ensure future success

During the spring of 2006, the Project Coordinator will continue to focus attention on education and outreach and increase these efforts for both residents and the tourist community. Future proposed projects include a boater's survey and distribution of

information about the project on paper placemats to be used in dining establishments in the area that are most frequented by tourists.

Improved signage for the Chester public wharf and Mahone Bay tern nesting areas is also currently being investigated. It is hoped that this initiative will serve to further restrict visits to nesting areas and decrease the effect of human disturbance on the colonies in Mahone Bay.

In response to the events of the 2005 field season, BCAF hopes to conduct research into mink and other predatory presence on the island prior to the arrival of the colony. Field staff will conduct owl pellet surveys to determine whether this type of predator poses a threat to the colony on Quaker Island. BCAF will also employ the precautionary principle to ensure that the possibility for mink predation in the 2006 field season is limited, i.e. by preparing infrastructure, such as wire fencing, that will deter mink from the nesting area and facilitate quick set up of traps, if necessary.