

ROSEATE TERN RECOVERY PROJECT

SUMMARY REPORT

2010



Project Description/Background

As required by the federal *Species at Risk Act* (SARA, Section 37) a species recovery strategy entitled the “Recovery Strategy for the Roseate Tern in Canada” was developed by Environment Canada’s Canadian Wildlife Service (CWS). The third objective of the strategy is to “*restore a broader distribution of the Roseate tern by establishing at least one more managed colony*”. Mahone Bay was chosen as an appropriate site to establish a managed colony for two main reasons. The first being that prior to the mid 1990’s Grassy Island, located just east of Big Tancook Island, held one third of Canada’s Roseate tern (*Sterna dougalli*) breeding population. The second being that Mahone Bay is located mid-way between Nova Scotia’s two existing managed Roseate tern colonies on Country Island and The Brothers.

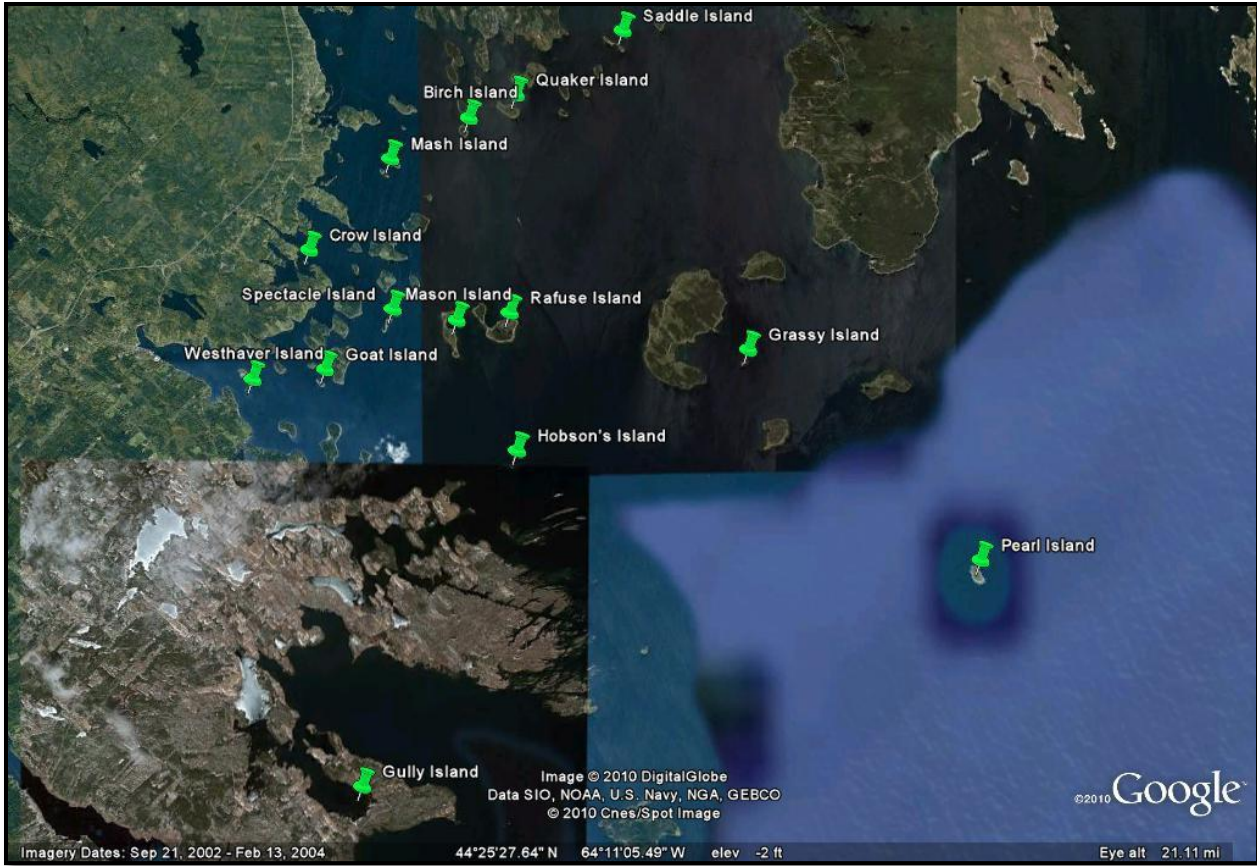
In 2003, the Roseate Tern Recovery Project (RTRP) was established by BCAF in partnership with CWS as a response to a noticeable decline in the Roseate tern population in Atlantic Canada. The goal of the RTRP was to secure a nesting site for Roseate terns on an island in Mahone Bay. Since its establishment the RTRP has established two stewardship programs, the first on Quaker Island (2004-2007) and the second on Grassy Island (2010).

Mahone Bay is a popular location, not only with local recreational boaters, but with touring boaters as well. With increased recreational boat activities in the bay there is an increased threat for potential nesting by Roseate terns, as well as any continued nesting activities by Common terns (*Sterna hirundo*) and Arctic terns (*Sterna paradisaea*). The RTRP Tern Colony Signage Program brings awareness to boaters about the Roseate tern and other seabirds nesting in Mahone Bay. In addition to the signage program, many other forms of education and outreach are conducted in order to raise awareness of the Roseate tern with recreational boaters, members of the local community, and visitors to the area.



Roseate Tern

Bay-wide surveys are conducted in order to monitor tern and gull distribution, abundance, productivity, and reproductive success. These surveys also assist in monitoring the Mahone Bay islands for anthropogenic disturbances which can cause distress and even the abandonment of tern colonies. 2010 marks the first attempt to use a webcam situated on an island that traditionally hosts the largest colony in Mahone bay, in order to monitor the tern colony from an onshore location.



Map showing the 14 islands in Mahone Bay monitored for the RTRP in 2010.

Bay-wide Surveys

Bay-wide surveys were completed from May to August of the 2010 field season. These surveys were conducted in order to determine tern and gull distribution and abundance, as well as tern reproductive success. Tern predation and anthropogenic disturbances were also monitored during bay-wide surveys. During the nesting season of 2010, tern colonies were located on Crow, Goat, Grassy, Gully, Mash, and Westhaver Islands. Other islands in Mahone Bay which have been known to host tern populations were also monitored regularly throughout the breeding season to monitor potential re-establishment sites in case of abandonment of current colonies. Reproductive success in Mahone Bay tern colonies was determined through nest/egg counts, fledgling counts, and predator events. The following results were found:

Island	# of Nests	# of Fledglings	# of Predation Events
Crow	N/A	4	0
Goat	4	0	0
Grassy	56	0	0
Gully	107	0	0
Mash	46	0	0
Westhaver	126	1	0

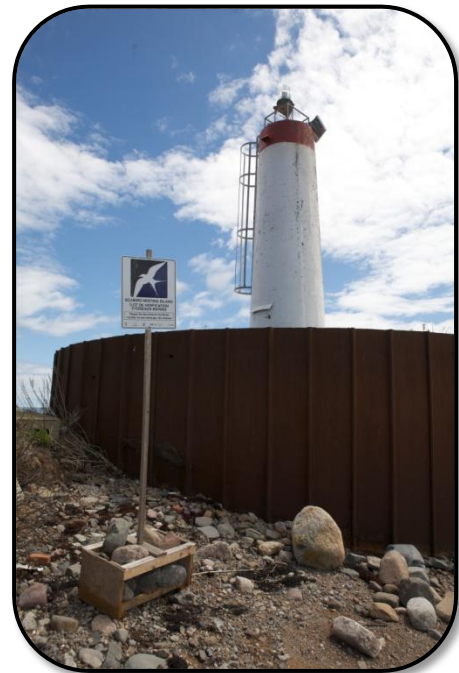
Fledgling numbers were very low during the 2010 nesting season on account of all tern colonies, with the exception of Grassy Island, being abandoned by early July. During mid June, a severe thunder/lightning storm passed over Mahone Bay and caused terns to abandon their nests. As bay-wide surveys were often not conducted on a regular basis due to inclement weather and transportation issues, it was impossible to determine the exact dates of colony abandonment for all colonies except Westhaver Island. An abandonment date for Westhaver was made possible by the webcam equipment that was established on the island in early June. Webcam details are discussed under the heading “Webcam Remote Monitoring System” later on in this report.



Left: BCAF staff and volunteers conducting bay-wide surveys. Right: Common tern nest with chick and egg.

Tern Colony Signage Program

Developed in 2008, the Tern Colony Signage Program focuses primarily on raising awareness of local nesting seabirds and their habitat to local and touring boaters. This is done by displaying seabird nesting signs, provided by CWS, on islands in Mahone Bay where terns are known or suspected to be nesting as well as on local wharves and other areas of importance. Signs posted on Mahone Bay islands exhibit the RTRP’s seabird symbol which is used with permission by its developers, the Audubon Society of Maine. These signs identify the location as a seabird nesting island and request that birds are not disturbed. Informational signs are posted on local wharves, docks, and other boat access areas that provide more detailed information including the consequences that colonies face if they are disturbed. Five additional informational signs were posted in 2010.



Seabird nesting sign on Westhaver Island, 2010.

Gull Deterrence

Herring gulls (*Larus argentatus*) and Great Black-backed gulls (*Larus marinus*) pose significant threats to tern colonies as they arrive earlier to summer nesting grounds, are larger and more aggressive, and they predate upon tern eggs as well as young and adult birds. During the summer of 2010, gull deterrence activities were conducted on Grassy Island and Westhaver Island. Deterrence was done in order to increase the success of creating suitable nesting sites for Roseate, Common, and Arctic terns. Beginning in early spring, Herring and Great Black-backed gull nests were removed and destroyed as they were found on Grassy Island, with only Great Black-backed gulls being targeted on Westhaver Island. Westhaver Island has hosted only one pair of nesting Great Black-backed gulls over the past several years. One or two large rocks were also placed where a nest had been located which made re-nesting in the same location impossible. Deterrence efforts were successful, but as it takes several years to deter gulls from a familiar nesting site, efforts will need to be continued in following years. On Grassy Island, the gull population was reduced by 70% by the end of the nesting season and the pair of Great Black-backed gulls on Westhaver Island did not successfully nest but continued to loiter on the island for the remainder of the season.



Left: Gull chicks on Grassy Island. Right: Gull nest and eggs on Grassy Island.

Tern Attraction

Roseate terns require a tern colony of 100 pairs or more before they will join a colony to nest. In 2010, in order to create suitable nesting habitat for Roseate terns on Grassy Island, methods to attract both Common and Arctic terns were employed. Tern decoys, nesting boxes (only Roseate terns will utilize), and a sound system playing tern calls were placed on the island in mid May. These efforts, combined with gull deterrence measures, led to the presence of Common and Arctic terns inhabiting Grassy Island. 56 tern nests were observed, which was deemed very successful given that 2010 was the first year island management activities took place on Grassy Island. The tern colony did not reach high enough numbers to determine whether or not Roseate terns would join the colony; however, by attracting terns it shows that they are eager to nest on Grassy Island. The number of terns attracted to the island may have been higher if inclement weather had not interfered with gull deterrence activities in the early spring. Tern attraction efforts should be continued in 2011 to increase the size of the tern colony nesting on the island.



Nesting boxes, decoys, and sound system set up on Grassy Island in 2010.

Webcam Remote Monitoring System

In early June, Rick Welsford, with the Sable Island Preservation Trust (SIPT), assisted by a BCAF staff member, established a remote monitoring system on Westhaver Island. The system consisted of a 12-volt 8-D car battery and video camera that were placed on the island, as well as a transmitter and receiver that were situated across Mahone Bay at an onshore location. The video camera was placed inside the lighthouse base on the island and was focused directly on the tern nests. It was able to switch from colour (daytime) to infrared (night-time) automatically, providing round the clock coverage of the colony. Video camera footage was transmitted to a computer being operated from the onshore location via radio signals and, in turn, was uploaded onto the popular YouTube website. As terns were nesting on the island when the system was established, it was quickly noticed that terns were not disturbed by the camera or associated equipment. After the installation and the crew departed Westhaver Island, terns returned to their nests promptly and carried on with their daily routines. The webcam remote monitoring system was extremely successful and has received excellent reviews by Mr. Welsford, BCAF, and CWS.



Rick Welsford (SIPT) and Dave Welsford (BCAF) setting up the remote monitoring system on Westhaver Island in June 2010.

It is believed that this remote monitoring system could be vital in determining causes for colony abandonment in the future. During the summer of 2010, live footage of the Westhaver Island tern colony showed that abandonment occurred after a severe storm event. BCAF staff would have been able to assume this was the reason for abandonment, but the camera provided a first-hand account of the cause and removed any speculation. This system could be very beneficial on other tern colonies that are not always able to be monitored often enough to determine causes for events such as abandonment. Camera footage is available for viewing at www.youtube.com – Tern TV, where several clips are posted.

The following recommendations have been suggested to improve the system in the future:

1. Utilize a solar panel as the power source

Implementing a solar panel as a power source, rather than the previously used car battery, would minimize disturbance to nesting terns as additional trips to the island would not have to be made to switch out batteries. A solar panel was not used in 2010 as it would have had to be installed after the initial set up and would have caused additional disturbance to the terns.

2. Upgrade video camera

While the camera used during the 2010 field season worked well and provided good footage, upgrading the camera would allow for high definition picture to be available, therefore, improving the quality of tern footage.

3. Relocate camera position

Mounting the video camera in an alternate location (south side of lighthouse foundation) would provide a broader view of the tern colony rather than being focused on one to three nests.

4. Install system prior to the arrival of terns

If the installation of the camera and other equipment was complete on Westhaver Island prior to terns arriving no disturbance would be caused to the birds.

Outreach and Education

In April 2008, BCAF established its RTRP Outreach and Education Program and continued to build upon it during the 2010 field season. In order to reach a maximum number of individuals within various interest and age groups, several types of outreach activities have been conducted. Methods of enhancing public recognition of the Roseate tern and the RTRP within Lunenburg County include attending local events, delivering project presentations, attaining coverage by the local media, as well as developing and distributing educational materials. Events that were attended by the RTRP crew in 2010 included:

- Bayview Elementary School Lake Mushamush Camp (Cornwall)
- West Pubnico Tern Festival (West Pubnico)
- RTRP Public Information Session (Mahone Bay)
- Mahone Bay Regatta (Mahone Bay)

- South Shore Youth Day (Bridgewater)
- Lunenburg Farmers Market (Lunenburg)

To date, presentations were made to the following groups during the 2010-11 fiscal year:

- Bayview Elementary School (Mahone Bay)
- Chester and Area Elementary School (Chester)
- Gold River and Western Shore Elementary School (Western Shore)
- West Pubnico Tern Festival (West Pubnico)
- RTRP Public Information Session (Mahone Bay)
- Lunenburg Yacht Club (Lunenburg)
- Centre Consolidated School (Lunenburg)

Media coverage was attained by the following media sources in 2010:

- CKBW Radio (Bridgewater)
- Bridgewater Bulletin/Progress Enterprise (Lunenburg County)
- Chronicle Herald (Halifax)

Educational materials developed and distributed throughout 2010-11 include:

- Boater Postcards
- Placemats
- Newsletters (Spring, Summer, and Fall)
- Elementary School Handouts
- T-shirts
- Mahone Bay Regatta Treasure Map



Left: BCAF booth staffed with RTRP member at Lunenburg Farmers Market in fall of 2010.

Right: RTRP summer staff talking with students at Bayview Elementary School's Mushamush Camp.

RTRP Funding

For the fiscal year of 2010-11, the RTRP received its funding from the following sources:

- Environment Canada's Atlantic Ecosystem Initiative
- Habitat Stewardship Program for Species at Risk
- Nova Scotia Student Career Skills Development Program
- Sage Environmental Program
- YMCA-YWCA Youth Eco Internship Program

BCAF recognizes that without the generous support of our funders that the RTRP would not be successful in creating awareness of the Roseate tern and taking action to re-establish its population in Mahone Bay. BCAF would like to thank all the volunteers and project partners that made the RTRP run smoothly and efficiently throughout 2010-11.