

Report to ORPC on Nesting Seabirds
on Goose Island and Spectacle Island
in Cobscook Bay, Maine

Period of Investigation

Summer 2011

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October 2011

INTRODUCTION

The Center for Ecological Research (CER) conducted seabird inventories off the waters of North Lubec where Ocean Renewable Power Company (ORPC) plans to install a TidGen™ Power System (Fig. 1). CER monitored two seabird nesting islands just north of the proposed Deployment Area off North Lubec. The purpose of these inventories was to determine the number and type of seabirds nesting on Goose Island and Spectacle Island. These results should help determine whether the presence of ORPC's TidGen™ Power System might potentially impact the birds that nest on these islands. These data should provide guidance to ORPC to minimize potential impacts when it deploys and operates its equipment.

Background:

Cobscook Bay is a rich marine environment with 5-7 meter tides and strong currents (Larsen 2004). This bay is an important fishing area and we regularly observed 12-20 urchin draggers in the bay during our surveys in October and November. Numerous salmon pens are also scattered throughout the bay; boats service these pens on a daily basis.

Goose Island and Spectacle Island, just north of the Deployment Area, are nesting sites for Common Eiders (*Somateria mollissima*), Double-crested Cormorants (*Phalacrocorax auritus*), Herring Gulls (*Larus argentatus*), and Great Black-backed Gulls (*Larus marinus*). The Maine Department of Inland Fisheries and Wildlife (MDIFW) has conducted periodic surveys of Goose Island to count the number of nesting birds. A nest count was conducted on June 5, 1991, when the following nest counts were recorded: Common Eider - 237; Double-crested Cormorant - 435; Herring Gull - 504; Great Black-backed Gull - 76 (Brad Allen, pers. comm.). These islands were surveyed in 2008 and nesting eiders had declined from 237 pairs in 1991 to only 13 pairs in 2008 (Brad Allen, pers. comm.).

STUDY OBJECTIVES

The objective of this study was to determine the species and numbers of seabirds, and other birds that are in the area close to Goose and Spectacle islands during the breeding season. These islands are north of the proposed Deployment Area of the TidGen™ Power System.

SURVEY SITE and METHODS

We used a small boat to circumnavigate Goose Island and Spectacle Island at a distance of approximately 100 meters. This distance did not disturb the birds but allowed for accurate identification. Each survey lasted approximately 30 minutes which allowed us sufficient time to estimate the number of birds on or immediately adjacent to each island. We only included birds that were on an island or were within 30 meters of an island. We used 10x power binoculars for these surveys. All counts were conducted in fair weather with wind speeds <20 kph. CER did not land on any islands to conduct nests searches.

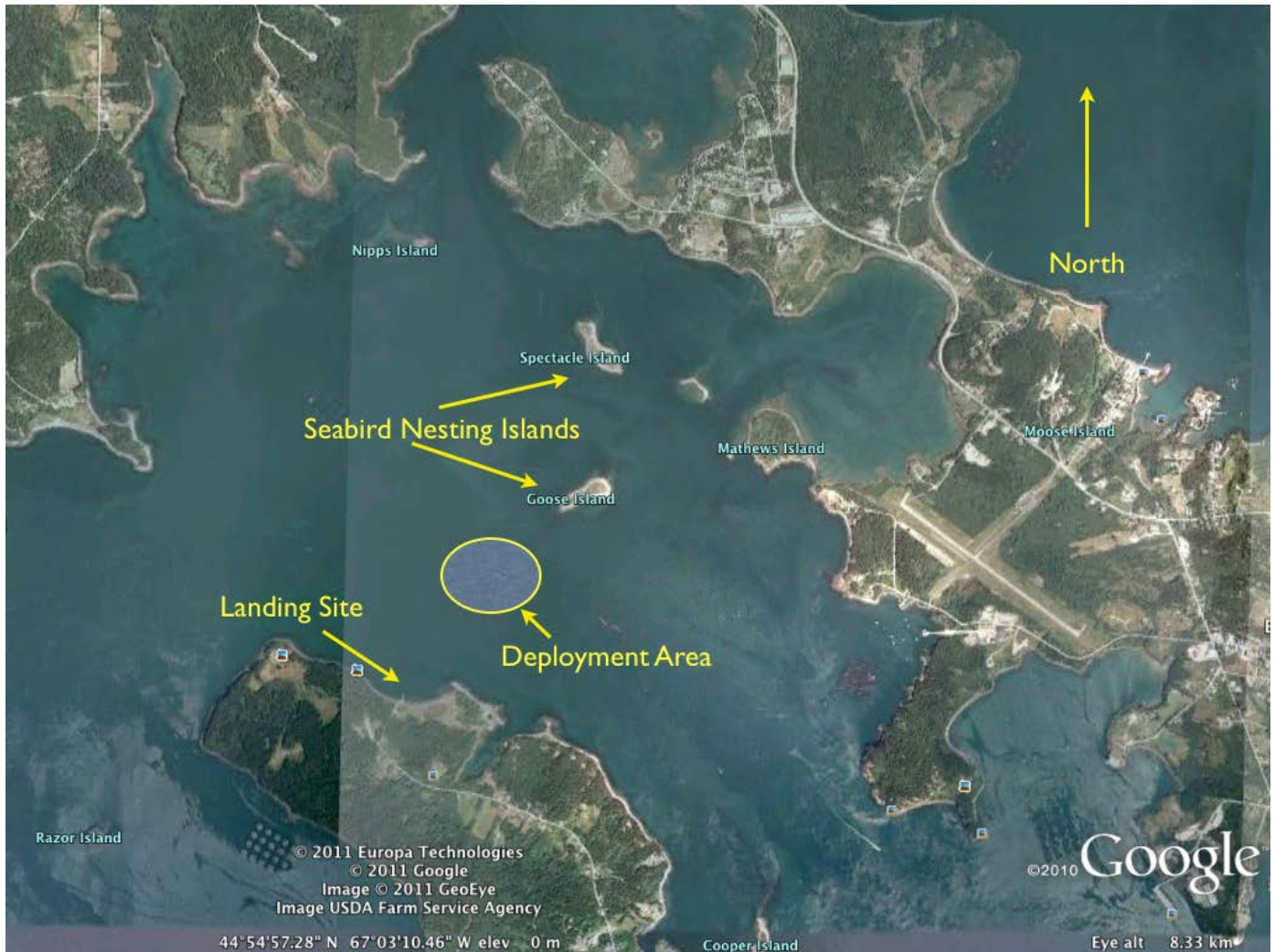


Figure 1. Goose Island and Spectacle Island are both seabird nesting islands situated north of the proposed deployment area off North Lubec, Maine.

RESULTS

We conducted three surveys of each island and the waters immediately adjacent to each island (Table 1). We found Common Eiders, Double-crested Cormorants, Herring Gulls, and Great Black-backed Gulls on each survey for each island.

Goose Island: Male Common Eiders increased from 184 individuals on June 10, to 266 on July 14. Female Common Eiders peaked at 61 individuals on June 28. Four Common Eider chicks were seen on June 28, but no chicks were observed on July 14. The maximum count for Double-crested Cormorants peaked at 20 individuals on June 28. Herring Gulls varied from 185 to 343 individuals (Table 1). Great Black-backed Gulls increased to 90 individuals on July 14. Fourteen gull chicks, presumably Great lack-backed Gulls, were observed on June 18. Two Bald Eagles (*Haliaeetus*

leucocephalus) were present on July 14 when they were observed preying upon gull chicks. A single Leach's Storm-Petrel (*Oceanodroma leucorhoa*) flew close to Goose Island on June 10, and a Common Raven (*Corvus corax*) was present on June 10.

Spectacle Island: Male Common Eiders were most numerous on June 10, when 143 individuals were observed. Female Common Eiders peaked at 37 individuals on June 28. No Common Eider chicks were observed around Spectacle Island. Double-crested Cormorants peaked at 257 individuals on July 14. Herring Gulls peaked at 292 individuals on June 28, and Great Black-backed Gulls peaked at 69 individuals on the same date. Thirty gull chicks were observed on June 28. Seven Common Crows (*Corvus brachyrhynchus*) were seen on Spectacle Island on July 14.

Table 1. The Center for Ecological Research surveyed Goose Island and Spectacle Island, off North Lubec, Maine during the summer of 2011. We observations four species of nesting birds, but notably, very few young Common Eiders.

ORPC BIRD DATA - MAINE							
Island	Goose	Goose	Goose	Spectacle	Spectacle	Spectacle	
Date: 2011	10 June	28 June	14 July	10 June	28 June	14 July	
Observer: Chris Bartlett							
Time Start	11:00	12:15	8:15	11:30	12:45	8:45	
Time End	11:30	12:45	8:45	12:00	13:15	9:15	
High Tide:	6:08	9:23	10:45	6:08	9:23	10:45	
Species	Number						
Common Eider	184M; 28F	242M; 61F	266M; 26F	143M; 21F	83M; 37F	52M; 23F	
Common Eider chicks	0	4	0	0	20	0	
Leach's Storm-Petrel	1 (fly by)						
Double-crested Cormorant	16	20	6	240	239	257	
Bald Eagle	0	0	1A; 1J	0	0	0	
Herring Gull	185	343	197	189	292	222	
Great Black-backed Gull	20	59	90	37	69	46	
Gull sp.	20	17	3	15	26	0	
Gull sp. chicks (presumed GBBG)	5	14	0	1	30	10	
Common Raven	1	0	0	0	0	0	
American Crow	0	0	0	0	0	7; on island	
M = male; F = female							
A = adult; J = juvenile							

Endangered and Threatened Species: CER surveys did not find any federally or state endangered or threatened species. We did observe two Bald Eagles on Goose Island, July 14, 2011. This species was removed as a threatened species in 2009 (MDIFW).

DISCUSSION

It is clear that Common Eiders, Double-crested Cormorants, Herring Gulls, and Great Black-backed Gulls continue to nest on Goose and Spectacle islands. However, it appears that Common Eider productivity is very low. Our observations of only four Common Eider chicks on the water by Goose Island on June 28, 2011, and the complete absence of chicks at Spectacle Island, suggests that many chicks are being depredated, presumably by Great Black-backed Gulls.

Given that neither Goose Island nor Spectacle Island are important Common Eider nesting sites, it seems unlikely that ORPC maintenance activities will impact nesting behavior and productivity of Common Eiders. However, all efforts should be made for ORPC personnel to remain at least 100 meters from these islands between April and July. Construction activities, such as the use of pile drivers, are more likely to affect nesting seabirds and should be avoided during the breeding season between May and July.

ORPC plans to use a vibratory hammer to drive 10 piles into the substrate to hold the TidGen in place(MARINE MAMMAL INCIDENTAL HARASSMENT AUTHORIZATION FOR PILE PLACEMENT FOR ORPC'S COBSCOOK BAY TIDAL ENERGY PILOT PROJECT, September 2011, see attached). It is expected that it will take approximately 1 - 5 minutes to drive each pile. Because this work can only be conducted during slack tide, it is expected that one pile will be installed each day. Thus, pile driving is expected to take 10 to 14 days. This work is planned for March 2012. These activities should have no impact on nesting birds on Goose Island and Spectacle Island. Such construction could potentially impact nesting activities between May and July but the ORPC schedule will avoid this period.

FUTURE MONITORING PLANS FOR TidGen™ Power System INSTALLATION

During the installation, CER will have one or more observers present for each day of drilling for the pilings for the TidGen™ Power System. This is expected to occur in March. The observer(s) will monitor bird presence and behavior for two hours prior active drilling operations, and then for two hours after the drilling has stopped. After the pilings have been installed, CER will have an observer present for two observation periods per week. Each observation period will be conducted for a minimum of three hours.

Literature Cited:

Larsen, P. F. 2004. Introduction to ecosystem modeling in Cobscook Bay, Maine: a boreal, macrotidal estuary. *Northeastern Naturalist* 11:1-12.

MARINE MAMMAL INCIDENTAL HARASSMENT AUTHORIZATION FOR PILE PLACEMENT FOR ORPC'S COBSCOOK BAY TIDAL ENERGY PILOT PROJECT September 23, 2011

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