First Interim Report to ORPC on Bird Studies in Cobscook Bay, Maine
Period of Investigation

August - October 2010

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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 the waters off North Lubec for migrant and wintering seabirds and waterfowl from August through November. The purpose of these inventories was to determine the species and numbers of seabirds, and other birds that use the proposed deployment area of the TidGen™ Power System, the onshore Landing Site where the bundled cables are likely to come ashore in North Lubec, the waters immediately off the Landing Site, and the beach and pond east of the Landing Site. We also wanted to determine the behaviors of the species that used these specific areas. These results should help determine whether the presence of ORPC's TidGen™ Power System might potentially impact the birds that use these specific parts of eastern Cobscook Bay, and it 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.

The broader region of Passamaquoddy Bay supports the largest concentration of Bonaparte's Gulls (*Chroicocephalus philadelphia*) in eastern North America during the fall migration (Braune 1987). Tens of thousands of Bonaparte's Gulls linger in this region because abundant prey provides the necessary food resources to go through a full post-breeding molt (Braune 1987). Large numbers of Common Terns (*Sterna hirundo*) and Arctic Terns (*Sterna paradisaea*) also gather in Passamaquoddy Bay in August and September. Bonaparte's Gulls and both species of tern are surface feeders, taking small prey from the surface or just below it. Although this general region is critically important to Bonaparte's Gulls, it is unclear how many of these small gulls and terns use eastern Cobscook Bay, in particular the deployment area off North Lubec.

We paid special attention to federal and state endangered, threatened, and special-concern species and communicated with the Maine Department of Inland Fisheries and Wildlife to confirm that the updated list of these bird species in Maine was accurate (http://www.maine.gov/ifw/wildlife/species/endangered_species/state_federal_list.htm; see Appendix 1).

Cobscook Bay is also considered an important area for wintering ducks, especially American Black Ducks (Longcore and Gibbs 1988). This bay also supports substantial numbers of seaducks (C. Bartlett, pers. obs.) but it is unclear whether ducks and other seabirds use the eastern portions of Cobscook Bay, especially the deployment area. Large numbers of Razorbills (*Alca torda*) are also known to occur in winter in the Bay of Fundy and nearby Grand Manan Island, New Brunswick (Huettmann et al. 2005).

Seaducks (scaup, eiders, scoters, Long-tailed Duck, goldeneyes, mergansers), loons, grebes, cormorants, and alcids are all diving birds foraging for benthic invertebrates or fish. Although most species dive to shallow depths (2-10 meters), a few species can dive to depths of over 100 meters

(Table 1) and it is possible that these diving birds might interact with the bottom-mounted submerged TidGen™ Power System, which is expected to be approximately 25 meters below the surface at low tide. Because of this potential interaction, we were interested in documenting the number of diving birds that use the deployment area and Landing Site, along with these birds' behaviors. We paid specific attention to species known to dive to depths of 20 meters or more; these include: Long-tailed Duck, White-winged Scoter, Common Loon, Black Guillemot, and Razorbill (Table 1).

Table 1. Diving depths of waterbirds and seabirds known to occur in Cobscook Bay, North Lubec, Maine. [1] Diving depths taken from species accounts, Birds of North America (see Literature Cited).

WATERFOWL		**Diving Depth**	**Food Taken**	**Occurrence in Cobscook Bay**
Greater Scaup	Aythya marila	7.0 meters [1]	Benthic Invertebrates	Common
Common Eider	Somateria mollissima	+/- 10 meters [1]	Benthic Invertebrates	Common
Surf Scoter	Melanitta perspicillata	9 meters [1]	Benthic Invertebrates	Common
White-winged Scoter	Melanitta fusca	5-20 meters [1]	Benthic Invertebrates	Common
Black Scoter	Melanitta americana	3- <10 meters [1]	Benthic Invertebrates	Common
Long-tailed Duck	Clangula hyemalis	66 meters [1]	Benthic Invertebrates	Common
Bufflehead	Bucephala albeola	<3 meters [1]	Benthic Invertebrates	Common
Common Goldeneye	Bucephala clangula	2 - 9 meters [1]	Benthic Invertebrates	Common
Hooded Merganser	Lophdytes cucullatus	<10 meters [1]	Fish and crustaceans	Uncommon
Red-breasted Merganser	Mergus serrator	5 - 10 meters [1]	Fish and crustaceans	Common
LOONS AND GREBES				
Red-throated Loon	Gavia stellata	2 - 9 meters [1]	Fish and crustaceans	Rare
Common Loon	Gavia immer	to 60 meters [1]	Fish and crustaceans	Common
Horned Grebe	Podiceps auritus	< 10 meters [1]	Fish and crustaceans	Uncommon
Red-necked Grebe	Podicaps grisegena	< 10 meters [1]	Fish and crustaceans	Uncommon
CORMORANTS				
Double-crested Cormorant	Phalacrocorax auritus	<8 meters [1]	Fish	Common
Great Cormorant	Phalacrocorax carbo	<20 meters [1]	Fish	Common
ALCIDS				
Thick-billed Murre	Uria lomvia	to 210 meters [1]	FIsh and invertebrates	Rare
Razorbill	Alca torda	10 - >100 m [1]	Schooling fish	Occasional
Black Guillemot	Cepphus grylle	5 - 35 meters [1]	FIsh and invertebrates	Common

Finally, Goose Island, just north of the deployment area, is a nesting site for Common Eiders, Double-crested Cormorants, Herring Gulls, and Great Black-backed Gulls. The Maine Department of Inland Fisheries and Wildlife (MDIFW) has conducted periodic surveys of Goose Island to count the number of nesting birds. The last complete 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.). CER plans to assist MDIFW on future surveys (see Future Research Schedule).

STUDY OBJECTIVES

The objective of this study was to determine the species and numbers of seabirds, and other birds that use the proposed deployment area of the TidGen™ Power System. CER also wanted to determine which species used the onshore Landing Site where the bundled cables are likely to come ashore, and the waters immediately off the Landing Site. We also wanted to determine the behaviors of these seabirds.

SURVEY SITES

Deployment Area

ORPC had a research vessel moored within the TidGen™ Power System deployment area. We counted birds from the research vessel, or from its buoy, to get more precise information on bird usage in the area immediately surrounding the deployment area (Fig. 1). We also collected bird data on the waters adjacent to the nearshore Landing Site in North Lubec (A), and along the southern shore of Goose Island, just north of the deployment area.

The research vessel based surveys counted all birds in three defined areas:

1) The nearshore area off North Lubec (A)
2) The immediate area surrounding the deployment area out to a distance of 200 meters
3) The area north of the deployment area along the south shore of Goose Island beyond the 200 meter radius of the deployment area

To accurately determine the 200 meter radius for the deployment area surveys, we used a GPS unit (Garmin GPSmap 76CSx) to measure the distance to several local features (channel buoys, south shore of Goose Island) to calibrate our observations.

Figure 1. Vessel-based surveys were conducted at the proposed deployment area. Birds were counted within the 200 meter radius surrounding the ORPC research vessel, along the nearshore of North Lubec (A), at the Landing Site, and along the south shore of Goose Island.

ORPC Landing Site - North Lubec

We used the ORPC Landing Site in North Lubec as the location for our land-based observations because we wanted to determine the species composition, numbers, and behavior close to this proposed facility area where the place where the bundled power and data cables for the TidGen™ Power System is likely to come ashore. We conducted the land-based surveys from the defunct landing dock. We used these land-based surveys to determine which species use the Landing Site and the waters immediately adjacent to the Landing Site (Fig. 2; A). We used this position to survey birds in the mid-channel surrounding the deployment area (Figs. 1 and 2; B). Because the distance from the Landing Site to the center of the deployment area was so great, approximately 800 meters, it was not possible to accurately define the 200-meter deployment area radius from the North Lubec Landing Site. The land-based surveys covered a broader mid-channel area (B in figures 1 and 2) than the surveys from the ORPC research vessel. We also surveyed the beach and upland pond to the east of the Landing Site.

The land-based survey area for the nearshore Landing Site and the mid-channel was delineated by an imaginary line extending from the ORPC Landing Site to the east end of Goose Island (Figs. 1 and 2). The west side of the survey area was defined by a line extending from the western boundary of the Landing Site to a white building on a salmon farm directly northwest of the Landing Site. The northern edge of the inshore area (A) was marked by a green navigation buoy north of the Landing Site. The mid-channel area (B) was delimited by the green buoy and a yellow marker west of Goose Island. The beach and adjacent pond to the east of the Landing Site were clearly visible from this position.

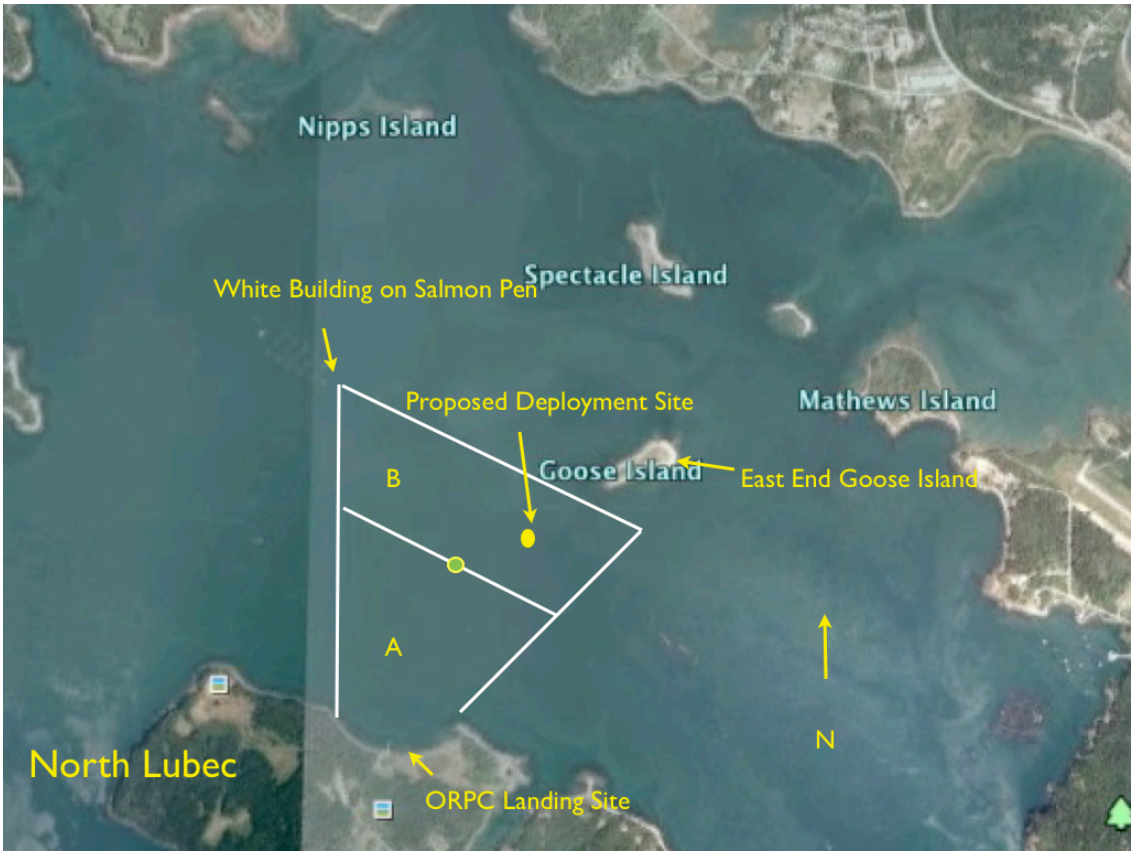

Figure 2. Land-based surveys were conducted from the Landing Site in North Lubec, Maine. The surveys were separated into the near shore area (A) just offshore from the Landing Site and the mid-channel area (B) where the TidGen™ Power System is likely to be deployed. The beach and pond east of the Landing Site (yellow arrow at ORPC Landing Site) were also monitored.

The four separate areas in the water surveys (deployment area, mid-channel, nearshore Landing Site, south side of Goose Island) were not independent. If one or more birds moved from one survey area to another area during a 15-minute survey, these birds were included in both areas because they occupied both areas during the survey period.

SURVEY METHODS

This present study was conducted in two phases. The first phase of the study documented the number of Bonaparte's Gulls, and Common Terns (*Sterna hirundo*), Arctic Terns (*Sterna paradisaea*), and other migratory feeding birds in the study area. The second phase of this study documented the number of migrant and wintering waterfowl and seabirds that used the North Lubec Landing Site, the deployment area, and Goose Island.

Bonaparte's Gulls and Terns

As an initial first step, CER wanted to determine peak activity periods for Bonaparte's Gulls and we thought the strong tides might affect this species' presence and activity. To determine whether this was the case, we conducted two 11-hour surveys from the North Lubec Landing Site to measure bird presence in relation to tidal activity. This allowed CER to survey two tide cycles. The August 19, 2010 survey appeared to reveal that Bonaparte's Gull peak activity occurred between 2.5 hours and 1.0 hour prior to low tide (Fig. 3). Bonaparte's Gull activity was recorded in the mid-channel area (Figs. 1 and 2; B). CER then conducted 1-2 surveys per week in August, starting August 16, 2010. Each survey lasted three hours and was timed to capture peak activity prior to low tide.

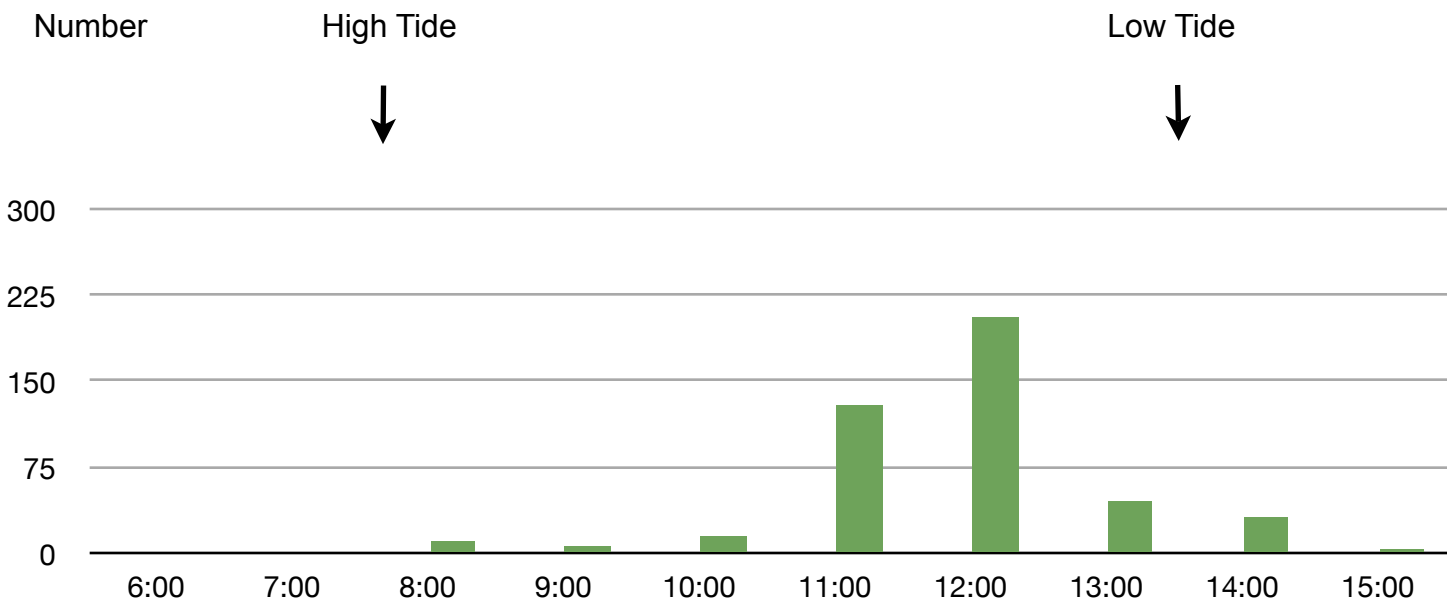

Figure 3. An 11-hour survey on August 19, 2010 appeared to demonstrate that Bonaparte's Gulls in eastern Cobscook Bay, Maine, were most numerous between 2.5 hours and 1.0 hour prior to low tide and were not present at high tide.

Late Migrant and Wintering Waterfowl and Seabirds

Starting in late October, CER continued surveys for late migrant and wintering waterfowl and seabirds from the Landing Site at North Lubec and from ORPC's research vessel in the deployment area. Each survey was conducted for a period of 3 hours.

CER also conducted 2 dawn surveys to determine whether there was a dawn feeding period for waterfowl and seabirds.

Behaviors

We registered all behaviors of birds on the water's surface. Birds were identified as Loafing (floating on the surface), Diving (active feeding below the surface), or Surface Feeding (active feeding on the surface) (Holm and Burger 2002). Birds that flew past the survey area but did not land on the water were counted but were not included in this report.

Observers used 8x or 10x binoculars and a 20-60x telescope for the land-based surveys. We used a continuous scan method to identify and count all species present (Martin and Bateson 1986).

Both land-based and vessel-based surveys were conducted during periods of peak bird activity and lasted for 3 hours. Each survey was divided into 15-minute periods and the maximum number of each species and its behavior was recorded during each period.

RESULTS

CER conducted ten land based surveys between August 19, 2010 and November 29, 2010 and six vessel-based surveys between September 22, 2010 and November 13, 2010 (Table 2).

Table 2. Surveys of the area of interest for ORPC in eastern Cobscook Bay, Maine were conducted from two sites, the Landing Site in North Lubec, and the deployment area in Cobscook Bay. This table provides the locality, date of survey, duration, and the time of high tide.

Survey Site	Date (2010)	Duration (hrs)	High Tide
Landing Site	19 Aug	11	07:18
Landing Site	5 Sep	11	08:23
Landing Site	19 Sep	3	08:48
Deployment Area	22 Sep	3	11:17
Deployment Area	2 Oct	3	05:58
Landing Site	3 Oct	3	07:00
Landing Site	11 Oct	3	01:39
Landing Site	17 Oct	3	07:17
Deployment Area	22 Oct	3	11:02
Deployment Area	29 Oct	3	16:01
Landing Site	30 Oct	3	04:36
Deployment Area	3 Nov	3	08:37
Landing Site	7 Nov	3	10:59
Landing Site	13 Nov	3	15:10
Deployment Area	13 Nov	3	15:10
Landing Site	27 Nov	3	02:55

Bonaparte's Gulls and Terns

Large numbers of Bonaparte's Gulls were only observed on August 19 and later in the fall, on November 7, 2010 (Fig. 4). This species was only observed in the mid-channel of Cobscook Bay (green histograms) and did not occur in the nearshore Landing Site. When Bonaparte's Gulls were present, they were observed actively surface feeding in the mid-channel. We did not observe any terns in the deployment area or the Landing Site.

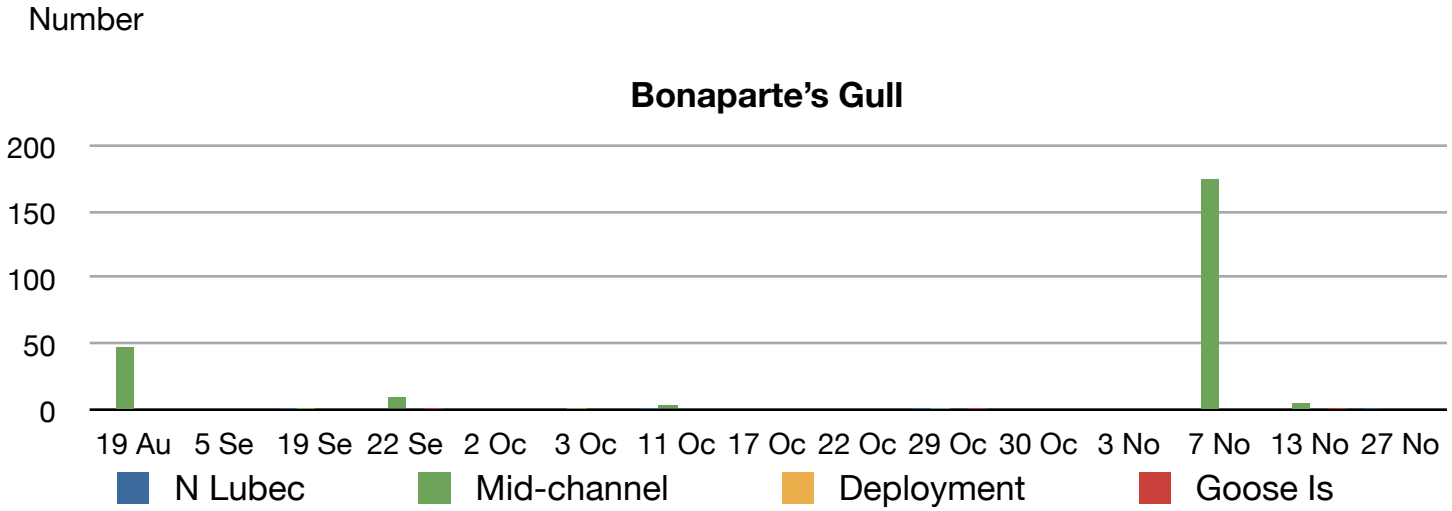

Figure 4. The average number of Bonaparte's Gulls varied substantially in eastern Cobscook Bay in the fall of 2010. We only observed large numbers of birds on August 19, 2010 and November 7, 2010. These small gulls were almost exclusively in the mid-channel of Cobscook Bay (green histograms).

Waterfowl and Seabirds

CER conducted two dawn surveys to determine whether there is a dawn feeding period for waterfowl and seabirds. CER found no evidence of waterfowl or seabirds concentrating in the study area to feed at dawn. We recorded numbers of waterfowl flying west into Cobscook Bay at dawn but these ducks flew over and past the deployment area and did not remain in the survey area.

Common Eider was the only species of waterfowl to use the mid-channel, deployment area and Landing Site in any numbers (Fig. 5). There were fewer than 30 Common Eiders until mid-November 2010. The peak count (average) at the Landing Site was 40.5 individuals on November 13, 2010. Peak average counts within 200 meters of the mid-channel were 53.0 eiders on November 13 and 113.8 individuals on November 27, 2010. The highest count on the south side of Goose Island was 20.8 eiders on October 11, 2010.

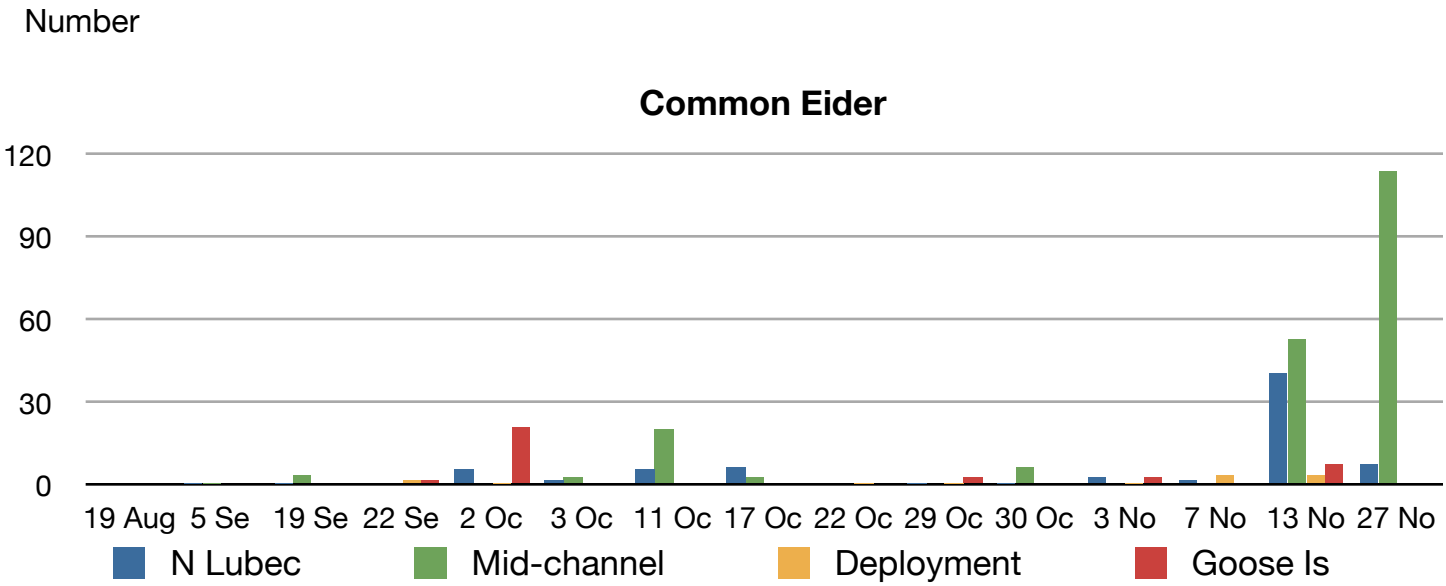

Figure 5. The average number of Common Eiders in eastern Cobscook Bay, Maine, was small from August through early November but increased by mid-November. Most eiders were observed in the mid-channel.

Other ducks were generally uncommon and irregular. A total of four Surf Scoters were recorded in the Landing Site: one on October 11, 2010 (Diving), one on November 7 (Diving), and two on November 13, 2010 (Loafing). We observed a total of four White-winged Scoters; these included: 1 on October 17, 2010 (mid-channel, Diving), one on Oct 29, 2010 (Landing Site, Diving), two on Nov 7, 2010 (Landing Site, Diving). The only observations of Long-tailed Duck involved four individuals in mid-channel, November 13, 2010 (Loafing) and a single duck in the Landing Site Zone, November 27, 2010 (Diving). Red-breasted Mergansers were first observed in November; they were observed in the Landing Site on three occasions with a maximum of ten individuals on November 27, 2010 (Diving). Red-breasted Mergansers were seen in mid-channel on November 27, 2010 (Diving). This species was seen along Goose Island twice: two individuals on November 3 (Diving) and one individual off Goose Island (Loafing). Two Hooded Mergansers were observed in the Landing Site, November 13, 2010 (Diving).

Common Loons and Black Guillemots were both regular in the study area. Small numbers of Common Loons appeared to be resident throughout the fall (Fig. 6).

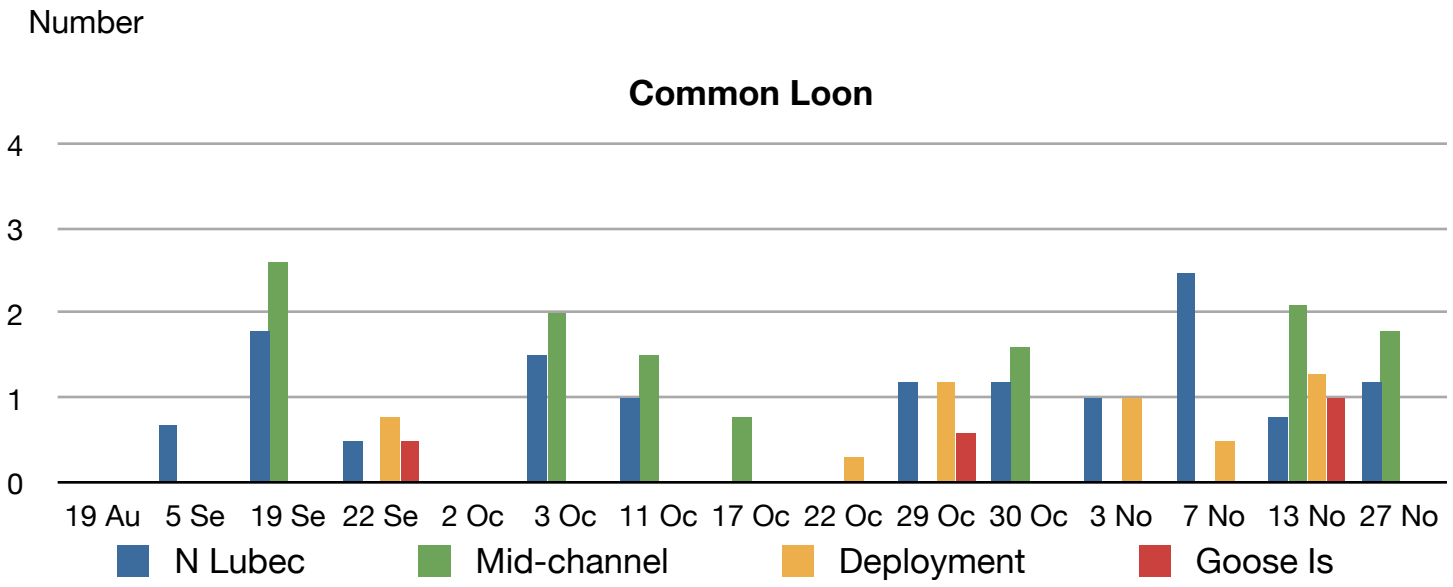

Figure 6. Small numbers of Common Loons were regular in the study area and were found in the nearshore area of North Lubec (blue histograms), the mid-channel (green), and the deployment area (yellow) but were irregular near Goose Island (orange). These birds appeared to be resident and we detected no obvious movement of wintering loons.

Surveys in August and early September revealed peak activity periods for Black Guillemots (*Cepphus grylle*) from low tide to 1.5 hours post low tide and also from high tide to 1 hour post high tide. Black Guillemots were more numerous between August and October but declined in late October and November 2010 (Fig. 7).

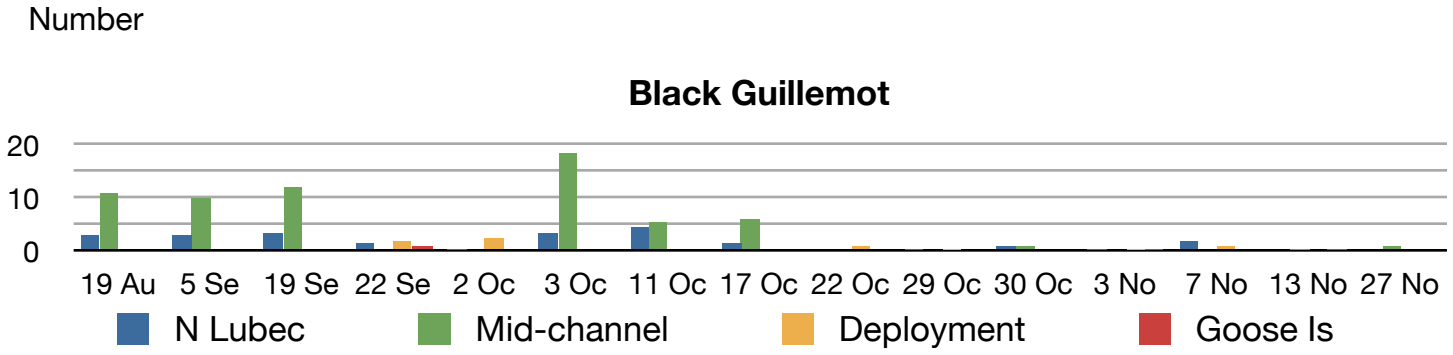

Figure 7. The average number of Black Guillemots in the mid-channel (green histograms) in Cobscook Bay was greatest from mid-August to early October 2010. The blue histograms indicate the number of guillemots in the Landing Site of North Lubec where the cable bundle from the TidGen™ Power System is expected to come ashore.

Red-necked Grebes appeared off the Landing Site at North Lubec on October 3, 2010. Thereafter, one to four individuals were regular in this area, one to three individuals were regular in the mid-channel, and single individuals were observed near Goose Island on two occasions.

Diving Behavior

We found two patterns in the amount of active diving. Several species were usually observed diving actively for prey whereas Common Eiders spent little time diving. Common Loons were observed diving 81% and loafing 19% of the time. Black Guillemots were observed diving 77% and loafing 23%, and Red-necked Grebes were observed diving 93% and loafing 7% of the time, respectively. When considered together, the less common waterfowl (page 10) were observed diving 82% and loafing 18% of the time. Diving activity for the three common species was widespread. There was no specific feeding area where most diving was observed.

Common Eiders were observed diving 29% and loafing 71% of the time. Large eider counts on November 13, 2010 and November 27, 2010 (Fig. 5) involved loafing flocks. The larger eider flocks that were observed diving included: 15 individuals on Oct 30 (mid-channel); 27 ducks on Nov 13 (Goose Island); 138 individuals on Nov 27 (mid-channel). When feeding in the mid-channel, the eiders were observed just east of the salmon pen in the western section of area B (Figs. 1 and 2).

Beach and Pond Area

Small numbers of shorebirds, Great Blue Herons, and Belted Kingfishers were found in the beach - pond area to the east of the Landing Site in North Lubec (Table 3). Most of the shorebirds, Great Blue Herons, and Belted Kingfishers were found feeding in close proximity to the small pond above the shoreline. Bald Eagles were regularly seen flying over the North Lubec Landing Area and over the mid-channel and deployment area. This species was seen on 12 of 16 survey days. Formerly, Bald Eagles were listed as federally and state endangered, but this species was downlisted to threatened and is no longer listed at any level (http://www.maine.gov/ifw/wildlife/species/endangered_species/state_federal_list.htm). Migrant hawks were limited to one Peregrine Falcon (September 5; Landing Site), one Merlin (October 17; Landing Site), and a single Osprey (September 22; over the deployment area).

Table 3. Small numbers of shorebirds, Great Blue Herons, and Belted Kingfishers were found in the beach - pond area on the eastern edge of the Landing Site in North Lubec. Bald eagles were regular in this area. Single Peregrine Falcon, Merlin, and Osprey were also observed.
FB = Fly By, Site: N L = North Lubec, Mid = mid-channel; Dep = deployment area, G = Goose Island.

Month	Au	Se	Se	Se	Se	Oc	Oc	Oc	Oc	Oc	Oc	Oc	Oc	No	No	No	No	No
Date	19	5	19	19	22	2	3	11	17	22	29	29	30	7	13	13	13	27
Site	N L	N L	N L	Mid	Dep	N L	Mid	N L	N L	Dep	N L	G	Mid	N L	N L	Dep	G	N L
Great Blue Heron (*Ardea herodias***)**	2	2	3	3-FB							1				1-FB			
Osprey (*Pandion haliaetus***)**					1-FB													
Bald Eagle (*Haliaeetus leucocephalus***)**		1-FB			3-FB	2-FB	1-FB	1-FB	1-FB	1-FB		2-FB	2-FB	3-FB	1-FB	1-FB	1-FB	2-FB
Merlin (*Falco columbarius***)**									1-FB									
Peregrine Falcon (*Falco peregrinus***)**		1-FB																
Semipalmated Plover (*Charadrius semipalmatus***)**		1																
Spotted Sandpiper (*Actitis macularia***)**	5																	
Lesser Yellowlegs (*Tringa flavipes***)**		1																
Semipalmated Sandpiper (*Calidris pusilla***)**	3																	
Least Sandpiper (*Calidris minutilla***)**	3	9																
Belted Kingfisher (*Ceryle alcyon***)**	2	1																

DISCUSSION

Bonaparte's Gulls and Terns: Bonaparte's Gulls were surprisingly irregular at the study site. Our initial observations on August 19, 2010 seemed to indicate that this species would be regular in the mid-channel prior to low tide but this was not the case. The only other large aggregation of Bonaparte's Gull was recorded on Nov 7, 2010. This species feeds on invertebrate prey near the surface and it appears that foraging conditions were consistently better in Passamaquoddy Bay than in the study area. Although we did not survey Passamaquoddy Bay systematically, we repeatedly found thousands on Bonaparte's Gulls in the bay. Between 1,550-6,000 Bonaparte's Gulls were present during four transects of Head Harbor Passage from October 5 – 29, 2010. Head Harbor Passage is a section of Passamaquoddy Bay that is nine kilometers from our study area in Cobscook Bay. Terns were also completely absent in the Cobscook Bay study area, while 15-85 were observed during the transects of Head Harbor Passage. Given the irregularity of these species in this general area, we do not anticipate any interaction between Bonaparte's Gulls and terns at the deployment area or at the Landing Site.

Wintering Waterfowl and Seabirds: Generally, few ducks and seabirds used this section of Cobscook Bay. Ten to twenty Black Guillemots were present in the mid-channel in August until early October 2010 but the number of guillemots declined after that period. Although Common Eiders breed on Goose Island, we did not observe many eiders or other seaducks in this area. Most of the Common Eiders were near the salmon pen west of the deployment area. Common Loons were present in small numbers, typically 2-4 individuals, throughout the survey period. Red-necked Grebes arrived in early October and 1-3 individuals were regular in this general area.

Diving Behavior: We observed three common species diving frequently: Common Loon, Red-necked Grebe, Black Guillemot. These species feed primarily on fish at this season but also consume other marine invertebrates (BNA accounts). Black Guillemots were common in August to October (peak count, 18 on October 3, 2010) but diminished thereafter. Common Loons and Red-necked Grebes occurred in small numbers only. Common Eiders dive for invertebrate prey such as Blue Mussels (*Mytilus edulis*) and other invertebrates. Although we saw this species regularly in the study area, it was usually loafing on the surface. The small number of birds actively diving in the deployment area indicates that the deployment area is not a major feeding site for these species. It seems unlikely that there will be substantial interaction between these diving birds and the TidGen™ Power System.

Land Observations: CER found small numbers of shorebirds, Great Blue Herons, and other birds along the pond east of the proposed Landing Site in North Lubec. Given that this pond is at least 200 meters from the Landing Site, it seems unlikely that standard ORPC operations will affect feeding or roosting behavior at the pond. To assure the smallest degree of potential disturbance during installation of the cable bundle, it would be prudent to avoid the peak shorebird fall migration between July and September.

Endangered and Threatened Species: CER surveys did not find and federally or sate endangered or threatened species. We did regularly observe Bald Eagles. This species was removed as a threatened species in 2009 (Charles Todd, pers. comm.; Appendix 1).

Future Monitoring Schedule

Calendar of expected TidGen™ Power System installations in Cobscook Bay:

October 2011: the single-device TidGen™ Power System is deployed:

CER monitoring schedule:
- All surveys will be a standard 3-hour period.

Continue monitoring 1-2 times/month, weather permitting, from present (Feb 2011) through expected deployment, Oct 2011.

During deployment, monitor 2-3 times/week with standard 3-hour surveys to determine potential disturbance of this installation.

Continue post-deployment monitoring for 12 months - 1-2 times/month, weather permitting.

October 2012: four additional TidGen™ devices are deployed to create a five-device TidGen™ Power System:

During deployment, monitor 2-3 times/week with standard 3-hour surveys to determine potential disturbance of this installation.

Continue post-deployment monitoring for 12 months - 1-2 times/month, weather permitting.

Interim Report Schedule

Interim report for first winter seabird surveys: Dec 2010 - April 2011 - due July 2011.

Interim report for first spring and summer 2011 - due October 2011.
CER will assist MDIFW to conduct a complete nesting seabird survey in June 2011.

Interim report for deployment monitoring, post-deployment monitoring, and second fall period - due Feb 1012.

Further reports to be determined.

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Appendix 1. Communiction from Charles Todd, Wildlife Biologist, Maine department of Inldnad Fisheries and Wildlife 17 Feb 2011 concerning the accuracy of the MDIFW web site for endangered and threatened species.

From: "Todd, Charlie" <Charlie.Todd@maine.gov>
Date: February 17, 2011 4:36:07 PM EST
To: "Chris Bartlett" <cBartlett@maine.edu>
Subject: RE: request information on Eagle nests in Cobscook Bay

Hi Chris: You are indeed on the correct link for species listed under the Maine Endangered Species Act. Likely you will want to have a dialogue with our regional wildlife biologists for that area in the Jonesboro office.

I've attached a graphic that depicts all bald eagle nests located in the project vicinity since 1962. Currently intact nests appear as red dots, while green reflects former (often alternate) nests used by a breeding pair. It's in GIS so we can do different map / photo products easily but I thought a simple graphic might be best for starters. At least you get the idea that even though eagle recovery has spread throughout Maine, Cobscook Bay remains a remarkable area for the exceptional density of breeding eagles.

I can explain further if questions arise, and we do have data on eagle residency, nesting, and reproduction at most of these sites through 2009.

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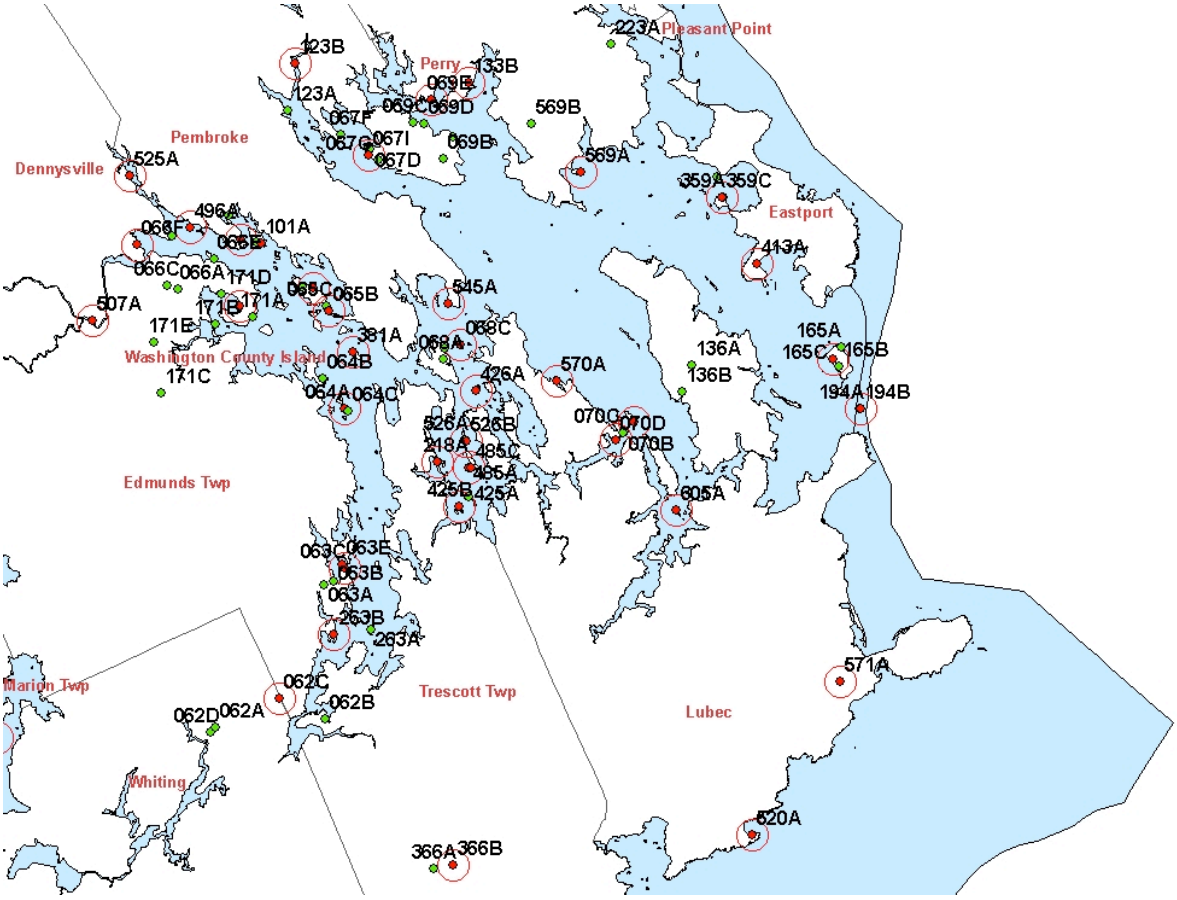
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Perry
Pembroke
Dennysville
Eastport
Washington County Island
Edmunds Twp
Marion Twp
Trescott Twp
Lubec
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223A
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