Boston Harbor Islands Volunteer Guide for Coastal Breeding Birds

Outer Boston Harbor from Outer Brewster Island looking west (2007, CLT).

Species Ecology and Survey Method Overview

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General Volunteer Information

What to expect: All survey trips will leave from the dock at UMASS Boston at 0700 on scheduled days. A field schedule, including make-up days, will be provided in advance, but is subject to change due to weather and nesting conditions. Survey trips will return to UMASS by approximately 1200 each day.

Surveys will not take place if wind or precipitation reduces visibility or if extreme temperatures create unnecessarily stressful conditions for nesting birds. Boat transportation will be provided by UMASS Boston using their 26ft landing craft, which is an open vessel that carries up to 6 passengers. Expect a bumpy, windy, and sometimes wet ride with variable weather conditions on the water.

UMASS Boston landing craft on Outer Brewster (2007, CLT)

Surveys will be conducted using both ground and boat-based methods. Landing on some of the islands can be precarious, and may involve wading a short distance in to shore. Expect to hike over rough and variable terrain.

What to wear: We recommend dressing in layers, as weather conditions can be highly variable on the islands. Covered shoes with good ankle support are a good choice and long pants and long-sleeved shirts are suggested to avoid exposure to sun, poison ivy, and brambles. Keeping in mind that many of the species surveyed will attempt to defecate on researchers as a defense mechanism, hats are also highly recommended!

What to bring: Although all necessary equipment will be provided by NPS, volunteers may wish to bring their own binoculars. Individuals are responsible for bringing their own water and snacks. Sunscreen and bug repellent may be desirable.

Directions & Parking: All scheduled trips will leave from the boat dock at UMASS Boston on Dorchester Bay. The campus is accessible by MBTA or parking is available for $6/day. See https://www.umb.edu/marineops/getting_here

Schedule Changes: Although we will do our best to stick to the schedule, weather and other factors may create changes. Whenever possible, we will make decisions about weather cancellations and notify participants by e-mail at least 12 hours in advance.

Questions about Coastal Breeding Bird Monitoring Protocol or Field Schedule?
Contact Carol Lynn Trocki!
cltrocki@gmail.com / (401) 952-2937

Questions about volunteering in the park or other park programs?
Contact volunteers@bostonharbornow.org

Common Eider *(Somateria mollissima)*

Common Eider, breeding male and female (Andreas Trepte).

Identification:

- length: 24”, wingspan: 38”
- largest sea duck
- large wedge-shaped head
- long bill, broad wings, heavy body
- male, strikingly tuxedo patterned
- female, dark gray or rusty brown with fine black barring

Range: year round resident of North Atlantic coast; winters south to New England; breeds throughout Arctic Canada, south to Maine coast with several small populations in Massachusetts

Diet/Feeding: dives for food; eats almost entirely mollusks, echinoderms, crustaceans, and a few fish

Nesting Habitat: often nests colonially, near rocky seacoast or on offshore islands

Nest Construction: concealed in sheltered spot on open grassy site under rock shelf or vegetation near the coast; nest made of matted seaweed, moss, grass or sticks; lined with down

Breeding Ecology: pairs are monogamous, female incubates and tends young; young are precocial

Number of Broods: 1

Clutch Size: generally 4-6 eggs

Eggs: shape variable, sometimes oval; smooth and slightly glossy; pale green, olive, grayish, or bluish; no spotting; 77 x 52 mm

Length of Incubation: 25-30 days

Days to Fledge: 65-75 days

Description of Chicks: precocial and downy; uniform grayish-brown; bluish gray bill and legs

Common Eider nest and eggs on Calf Island (2005, CLT).

Conservation Status: low continental conservation concern, though Arctic population may be experiencing declines

Current BOHA Status: Over 200 pairs nesting on the outer islands with the densest colony site located on Calf Island

Double-crested Cormorant
(Phalacrocorax auritus)

Double-Crested Cormorant.
(Rodney Krey, USFW©)

Identification:
- length: 27”, wingspan: 50”
- large dark waterbird
- long, thin neck
- hooked bill
- gular area squared-off and orange
- often perches with wings spread to dry
- adults have small white plumes on head during the breeding season

Range: year round resident of Pacific, Alaskan, South Atlantic and Florida coasts; breeds throughout North America along coasts and throughout the interior northern US; migrating populations winter in Mexico, the Caribbean and Gulf coasts

Diet/Feeding: primarily schooling fish

Nesting Habitat: nests in trees or on cliff ledges overlooking water

Nest Construction: constructs platform nest of sticks, seaweed, and other drift, lined with finer materials

Breeding Ecology: pairs are monogamous, both sexes incubate and tend young; young are altricial

Number of Broods: 1, but lost clutch may be replaced

Clutch Size: generally 3-4 eggs, sometimes 2-7

Eggs: long; pale blue shell with uneven chalky outer layer; no spotting; 51 x 38 mm

Length of Incubation: 25-29 days

Days to Fledge: 35-42 days

Description of Chicks: altricial and naked on hatching; skin blackish-brown; thick short black wooly down appears at 6 days

Double-crested Cormorant nest (Middle Brewster, 2005, CLT).

Conservation Status: not currently at risk; populations have increased since the 1970s

Current BOHA Status: approximately 1100 pairs nesting on the outer islands; 80-150 pairs nesting on Sarah Island and approximately 15 on Sheep

Great Black-backed Gull
(Larus marinus)

Great black-backed gull (2007, CLT).

Identification:
- length: 30”, wingspan: 65”
- largest gull in North America
- dark gray back and wings
- bright yellow bill with red spot
- pink legs

Range: year round resident of North Atlantic coasts; winters south from New York to Florida; breeds north to arctic Canada

Diet/Feeding: scavenger; feeds on birds, eggs, fish (often pirated), squid, small mammals, carrion, offal, berries, grain

Nesting Habitat: nests colonially on bare or grassy areas, rock outcrops along rocky coasts, off shore islands, or grassy slopes; occasionally nests on lake margins and in salt marshes

Nest Construction: constructs saucer shaped nest of mounded seaweed, sod, moss and rubbish lined with fine grass

Breeding Ecology: pairs are monogamous, both sexes incubate and tend young; young are semiprecocial

Number of Broods: 1

Clutch Size: generally 2-3 eggs

Eggs: smooth, non-glossy with a fine granular surface; pale olive, buff or greenish marked with specks, spots or blotches of blackish-brown or olive-brown markings; 77 x 54 mm

Length of Incubation: 26 days

Days to Fledge: 49-56 days

Description of Chicks: semi-precocial and downy; spotted; heavy dark bill with light tip; heavy pinkish-gray legs and feet

Great black-backed gull chick and eggs pipping (2007, CLT).

Conservation Status: not currently at risk

Current BOHA Status: approximately 300 pairs nesting in BOHA, primarily on the outer islands, Hangman and Sarah Island

Herring Gull *(Larus argentatus)*

Adult Herring Gull.

Identification:
- length: 25”, wingspan: 58”
- relatively slender
- light gray back and upper wings
- black wing tips
- bright yellow bill with red spot
- pink legs

Range: year round resident of North Atlantic coasts and Great Lakes; winters throughout eastern US and along Pacific coast; breeds throughout Canada

Diet/Feeding: scavenger; omnivorous – eats anything from garbage to berries; opportunistic predator on adult birds, eggs, and young of other gulls

Nesting Habitat: nests colonially near water on rocky terraces, grassy hummocks, along lake margins and in salt marshes

Nest Construction: constructs saucer shaped nest of grass, moss and debris lined with fine grass and sometimes feathers; uses perennial nest sites constantly rebuilt

Breeding Ecology: pairs are monogamous, both sexes incubate and tend young; young are semiprecocial

Number of Broods: 1

Clutch Size: generally 2-3 eggs, but sometimes 1-4

Eggs: smooth and non-glossy with a fine granular surface; light olive, buff or greenish marked with specks, spots or blotches of blackish-brown, olive, or olive-brown markings; 70 x 48 mm

Length of Incubation: 24-28 days

Days to Fledge: 35 days

Description of Chicks: semi-precocial and downy; spotted; black bill with pink tip; legs and feet pinkish

Herring Gull nest with eggs and chicks on Sheep Island (2005, CLT).

Conservation Status: low continental conservation concern

Current BOHA Status: between 700-1200 pairs nesting in BOHA, primarily on the outer islands and on Sarah Island

Great Egret *(Ardea alba)*

Great Egret, breeding adult.

Identification:

- length: 46”, wingspan: 72”
- largest white egret
- tall, slender, and long-necked
- black legs and feet
- long, thick yellow bill
- holds neck in an “S” curve in flight
- green lores during breeding season

Range: widespread species, a year round resident of southern US Atlantic and Pacific coasts south throughout Gulf and western Mexico; winters throughout Central and South America; breeds along US coasts and inland rivers and lakes

Diet/Feeding: stalks and strikes prey; eats primarily fish, but also small vertebrates and aquatic invertebrates

Nesting Habitat: nests colonially often with other species in trees and shrubs; nests near fresh or salt water in woodlands and thickets

Nest Construction: large platform nest of sticks twigs and stems; unlined or lined with fine materials

Breeding Ecology: pairs are monogamous, both male and female incubate and tend young; young are semialtricial

Number of Broods: 1

Clutch Size: 4-5 eggs

Eggs: pale greenish blue; lacking spots; smooth and non-glossy; 56 x 41mm

Length of Incubation: 23-26 days

Days to Fledge: 42-49 days

Description of Chicks: semi-altricial and downy white; bill pink on hatching, then yellow; legs gray-green

Great egret nest with chick & eggs (2009, CLT).

Conservation Status: widespread; not currently at risk

Current BOHA Status: Approximately 80 pairs generally nest in colonies on Sarah, Sheep, and Outer Brewster Islands

Snowy Egret *(Egretta thula)*

Snowy Egret adult in breeding plumage (Manomet).

Identification:

- length: 24”, wingspan: 41”
- medium-sized, long-legged wader
- small and slender compared to Great Egret
- yellow feet, black legs
- black bill
- yellow to red lores during breeding season

Range: widespread species, a year round resident of southern US Atlantic and Pacific coasts south throughout South America; winters throughout Central America; also breeds along US coasts and inland rivers and lakes

Diet/Feeding: stalks and strikes prey; eats primarily fish, but also small vertebrates and aquatic invertebrates

Nesting Habitat: nests colonially often with other species; nests near fresh or salt water in woodlands, thickets, or marsh

Nest Construction: flat and flimsy platform nest of sticks twigs and stems; unlined or lined with fine twigs and rushes

Breeding Ecology: pairs are monogamous, both male and female incubate and tend young; young are semialtricial

Number of Broods: 1

Clutch Size: usually 3-4 eggs, sometimes up to 6

Eggs: pale greenish blue, lacking spots; smooth and non-glossy; 43 x 32mm

Length of Incubation: 20-24 days

Days to Fledge: 30 days

Description of Chicks: semi-altricial and downy white; bill and feet pale yellow; skin light green

Snowy Egret chicks in nest on Sheep Island (2005, CLT).

Conservation Status: high continental conservation concern

Current BOHA Status: Approximately 50 pairs generally nest in colonies on Sarah, Sheep, and Outer Brewster Islands

Black-crowned Night-Heron
(Nycticorax nycticorax)

Adult Black-crowned Night-Heron.

Identification:
- length: 25”, wingspan: 44”
- very stocky
- large-headed with short neck
- yellow legs and feet
- black bill
- distinctive red eye
- tucks neck in close to body during flight

Range: widespread species; breeds across most of the US and southern Canada, south to southern South America; winters along coasts from middle US and south throughout Central and South America

Diet/Feeding: stalks and strikes prey; eats primarily fish, but also insects, eggs, and young birds, small mammals, amphibians, and other lower vertebrates

Nesting Habitat: nests colonially sometimes with other species; nests in all kinds of fresh and salt water wetlands and coastal habitats; may nest on the ground or in trees

Nest Construction: variable, but usually a platform with shallow hollow of twigs, reeds, or similar material lined with finer materials

Breeding Ecology: pairs are monogamous, both male and female incubate and tend young; young are semialtricial

Number of Broods: 1

Clutch Size: usually 3-5 eggs

Eggs: pale greenish blue, sometimes more green or wholly blue; lacking spots; smooth and non-glossy; 53 x 47 mm

Length of Incubation: 24-26 days

Days to Fledge: 42-49 days

Description of Chicks: semi-altricial and downy; grayish-brown; bill gray; legs and feet gray-green

Black-crowned Night-Heron egg and chick in outer island colony (2005, CLT).

Conservation Status: moderate continental conservation concern

Current BOHA Status: approximately 330 pairs nest in colonies on Calf, Middle Brewster, Outer Brewster, Sheep and Sarah Islands

Glossy Ibis *(Plegadis falcinellus)*

Adult Glossy Ibis.

Identification:

- length: 23”, wingspan: 36”
- medium-sized, long-legged, long-necked wader
- decurved bill
- body plumage iridescent purplish-red but appearing black at a distance
- iridescent green wings and tail

Range: year round resident of south Atlantic US coast, Florida Gulf coast, and throughout the Caribbean; breeds along Atlantic coast north to New England

Diet/Feeding: gleans and probes for prey; eats primarily aquatic invertebrates, but also insects and small vertebrates

Nesting Habitat: nests colonially often with other species in marshes and swamps; may nest on the ground or in shrubs or trees

Nest Construction: large, shallow, cupped platform of sticks, twigs, and dried plant material; well-lined with finer materials

Breeding Ecology: pairs are monogamous, mainly the females incubate, but males also; both sexes tend young; young are semialtricial

Number of Broods: 1

Clutch Size: usually 2-4 eggs

Eggs: dull blue or greenish blue; lacking spots; darker than heron eggs; 53 x 37 mm

Length of Incubation: 21 days

Days to Fledge: 28+ days

Description of Chicks: semi-altricial and downy; black and white patches on crown; bill pink with black bands; feet yellowish

Glossy Ibis nest in outer island colony (2005, CLT).

Conservation Status: low continental conservation concern

Current BOHA Status: approximately 8-25 pairs nest in colonies on Outer Brewster and Sheep Islands

American Oystercatcher
(Haematopus palliatus)

American Oystercatcher
(Snake Island, 2005, CLT).

Identification:
- length: 17.5”, wingspan: 32”
- large shorebird
- stocky shape
- heavy red bill
- pink legs
- yellow eye
- piping call

Range: year round and winter resident of coastal Florida, Central America, Carribean, and South America; also breeds along the US Gulf and Atlantic coasts, north to Masssachusetts

Diet/Feeding: feeds exclusively on aquatic invertebrates

Nesting Habitat: nests on sandy or rocky coasts and islands

Nest Construction: shallow scrape in loose substrate, often amid shells, peddles, or grass; sometimes lined with shells

Breeding Ecology: pairs are monogamous, both sexes incubate and tend young; young are precocial

Number of Broods: 1

Clutch Size: usually 3 eggs

Eggs: smooth, glossy; yellowish with stone, grayish, or buffy tints; boldly spotted or blotched with brownish-black markings that vary in size; 56 x 39mm

Length of Incubation: 24-29 days

Days to Fledge: 35+ days, but bill not fully developed for prying apart shellfish until 8-9 weeks

Description of Chicks: precocial and downy; dark on top, white underneath; legs and feet gray; bill dark with pinkish base; subadults with dark tip at end of bill

American Oystercatcher nest (Sheep Island, 2007, CLT).

Conservation Status: North American population listed as a species of high concern under the US Shorebird Conservation Plan

Current BOHA Status: approximately 21 breeding pairs on 13-14 islands in BOHA

Willet *(Catoptrophorus semipalmatus)*

Willet (2006, CLT).

Identification:

- length: 15”, wingspan: 26”
- large long-legged shorebird
- drab gray body
- obvious black & white wing pattern in flight
- long, thick, straight bill
- bill black or blue-gray with darker tip
- blue-gray legs

Range: Eastern North American population strictly coastal; year round resident of South Atlantic and Gulf coasts; breeds north to Maritime Canada; winters along coast south to Northern Chile

Diet/Feeding: aquatic insects, worms, crustaceans, mollusks, fish

Nesting Habitat: nests in salt marshes, beaches and islands

Nest Construction: shallow scrape on bare ground, in short grass, under a plant tuft, or well-concealed in vegetation; lined with grasses, shells, or other debris

Breeding Ecology: pairs are monogamous, both sexes incubate and tend young; young are precocial

Number of Broods: 1

Clutch Size: usually 4 eggs, rarely 5

Eggs: oval, smooth, and moderately glossy; very pale greenish,olive, buff, stone or slightly pinkish-buff; finely speckled, spotted or blotched with medium to dark brown, purplish-brown, pale gray, or purple; 55 x 39 mm

Length of Incubation: 22-29 days

Days to Fledge: estimated at 28 days

Description of Chicks: precocial and downy; buff head and undersides, dark stripe through eye; dark patches on flanks and wings

Willet nest on Snake Island (2007, CLT)

Conservation Status: listed as a species of moderate concern under the US Shorebird Conservation Plan

Current BOHA Status: Approximately 5 breeding pairs on Snake Island

Spotted Sandpiper *(Actitis macularia)*

Spotted Sandpiper.

Identification:

- length: 7.5”, wingspan: 15”
- short-necked, long-tailed
- exaggerated bobbing motion
- spotted breast

Range: breeds throughout central and northern US, north to Canada; winters from southern US south through Central and northern South America

Diet/Feeding: flying insects, worms, crustaceans, mollusks, fish, carrion

Nesting Habitat: semi-open vegetation near water

Nest Construction: scrape on elevated site in grass, rocks, or shrubs; nest lined with grass, moss, or occasionally feathers

Breeding Ecology: pairs are polyandrous, male incubates and tends young; young are precocial

Number of Broods: 2-3

Clutch Size: usually 4 eggs

Eggs: smooth, slightly glossy; creamy or pale creamy buff; fine profusely speckling or sparser spots or blotches; 43 x 32 mm

Length of Incubation: 20-24 days

Days to Fledge: 17-21 days

Description of Chicks: precocial and downy; underside white; dark streak from bill through eye

Spotted Sandpiper nest.

Conservation Status: listed as a species of low concern under the US Shorebird Conservation Plan

Current BOHA Status: breeding pairs on many islands; up to 11 territorial adults detected on Rainsford Island

Least Tern (*Sterna antillarum)*

Adult least tern.
(Rainsford, 2005, CLT)

Identification:

- length: 8.5”, wingspan: 20”
- smallest tern
- sexes similar
- relatively long, very narrow wings
- short, forked tail
- black cap with white forehead, breast, and belly
- pale gray back and upperwing
- unique yellow bill

Range: long distance migrant; winters in Central and South America; breeds throughout the US, along both coasts, and inland lakes and rivers.

Diet/Feeding: dives from the air or skims the water surface to obtain fish and aquatic invertebrates

Nesting Habitat: nests in colonies on broad expanses of open sandy or gravelly beach; open areas with short sparse vegetation are preferred

Nest Construction: shallow scrape on the ground, generally unlined but occasionally lined with shells or pebbles

Breeding Ecology: pairs are monogamous, both sexes incubate and tend young; young are semiprecocial

Number of Broods: 1, may re-nest if first brood lost

Clutch Size: 2-3 eggs, laid 1 per day on consecutive days

Eggs: smooth, non-glossy; very pale, tinted olive or buff; spotted in brown, blackish-brown or shades of gray; 32 x 23mm

Length of Incubation: 20-22 days

Days to Fledge: 19-20+ days

Description of Chicks: semi-precocial and downy; sandy buff on head and underparts; legs, feet, and bill pinkish-gray

Least tern nest with one egg and one day-old chick. Eggs are approximately the size of a quarter. (Rainsford, 2005, CLT)

Conservation Status: High continental conservation concern; inland population federally endangered; species of special concern in Massachusetts

Current BOHA Status: small shifting colonies moving between Winthrop Beach, Rainsford and Lovells Islands; approx. 40-120 nests annually

Common Tern (*Sterna hirundo)*

Adult Common Tern in breeding plumage. (Spinnaker, 2007, CLT)

Identification:

- length: 14”, wingspan: 31”
- medium sized tern with slender pointed bill
- sexes similar
- long, deeply forked tail
- black cap, white face
- red legs
- orange-red bill with black tip

Range: long-distance migrant; winters in South America; breeds in fresh and salt water habitats throughout the US

Diet/Feeding: dives from the air or skims the water surface to obtain fish; occasionally eats other aquatic invertebrates

Nesting Habitat: nests in colonies on islands or coastal beaches with sparse matted vegetation; also well adapted to artificial platforms

Nest Construction: shallow scrape in sand, shells, pebbles, or beach wrack; sometimes lined with grass, shells, or seaweed

Breeding Ecology: pairs are monogamous, both sexes incubate and tend young; young are semiprecocial

Number of Broods: 1

Clutch Size: 2-3 eggs, laid 1 per day on consecutive days

Eggs: smooth, non-glossy; creamy or tinted very pale yellowish, greenish or olive; spotted in brown, blackish-brown or shades of gray; 42 x 30mm

Length of Incubation: 21-27 days

Days to Fledge: 26-27 days

Description of Chicks: semi-precocial and downy; buff underparts with blotching on head; legs and feet pink to yellow-orange; orange bill with black tip

Common tern nest on Snake Island (2005, CLT).

Conservation Status: low continental conservation concern; species of special concern in Massachusetts

Current BOHA Status: small colony of approximately 15 nests on Snake Island in some years historically; large colony (~150-400 nests) on platform off Spinnaker Island, in Hull (outside park boundaries) that has been vacant in recent years

Survey Methods – Common Eider

Target Species: Common Eider (COEI)

Survey Frequency: every 3 years

Survey Type: complete ground-based survey of incubating females; secondary count with a boat-based survey of ducklings on the water

Target Islands: Calf, Little Calf, Green, Middle Brewster, Outer Brewster, Great Brewster, The Graves, Shag Rocks

Target Breeding Stage: incubation; secondary count post fledging

Approximate Survey Dates: May 15 – June 1; secondary count June 15 – July 15

Survey Instructions:
In BOHA, eider have generally been found nesting under overhanging vegetation (primarily sumac) near shore on the outer islands. With 4-5 observers, spread 10-15' apart, walk in a line and progress through suitable vegetation on each island, watching for flushing females.

Sumac habitat used by nesting COEI on Calf Island (2005, CLT).

When a female is flushed, search the immediate area to locate the nest. Record the nest's contents (# eggs and/or chicks) when possible. Maintain constant vocal communication with other observers as you search to assure complete coverage of each island and reduce the chances of double-counting nests. To reduce disturbance and increase the likelihood of finding nests, time surveys appropriately for the peak incubation period.

Incubating female COEI on Calf Island (2003, CLT).

Approximately two-three weeks following ground-based surveys, return to the Outer Harbor to record the numbers of ducklings observed on the water rafting in crèches.

Data Collected for each Island

- species
- island surveyed
- date of survey
- weather conditions (temperature, cloud cover, precipitation/visibility, wind speed & direction)
- location and contents of each nest (# eggs, chicks)
-

Survey Methods – Gulls and Cormorants

Target Species: Double-crested Cormorant (DCCO), Great Black-backed Gull (GBBG), Herring Gull (HERG)

Survey Frequency: every 3 years

Survey Type: boat-based estimate of visible active nests

Target Islands: Outer Islands, Georges, Gallops, Sheep, Hangman, Sarah, Ragged

Target Breeding Stage: incubation

Approximate Survey Dates: May 10 – June 5

DCCO colony on Middle Brewster Island (2007, CLT).

Survey Instructions: Circle the entire perimeter of each island, where gulls or cormorants are present, in a small boat traveling at approximately 3 miles per hour as close to shore as the boat Captain will allow (between 30-150 feet offshore).

Use two independent observers to record the number of active nests determined by the presence of an incubating adult, an adult standing on or in a recognizable stick nest, or the presence of visible chicks within a stick nest. Be careful not to overestimate the number of active nests by counting nearby adults that are not on a nest.

Record the approximate location of each nesting colony, noting the date and species present, on a field map.

Note any available evidence indicating the breeding stage for each species (presence of eggs or chicks, adults engaged in nest building, feeding chicks, etc.)

High resolution digital photography will also be explored.

Nesting colony on offshore rocks in Outer Boston Harbor (2007, CLT).

Data Collected for each Island

- species
- island surveyed
- date of survey
- weather conditions (temperature, cloud cover,
- precipitation/visibility, wind speed & direction)
- # visible, active nests (2 counts, 1 from each observer)

Survey Methods – Wading Birds

Target Species: Great Egret (GREG), Snowy Egret (SNEG), Black-crowned Night-Heron (BCNH), Glossy Ibis (GLIB)

Survey Frequency: every 3 years

Survey Type: complete ground-based survey of active nests

Target Islands: Calf, Middle Brewster, Outer Brewster, Sarah, Sheep Islands

Target Breeding Stage: incubation

Approximate Survey Dates: May 15 – June 5

Juvenile GREG on Sarah Island colony (2005, CLT).

Survey Instructions: Determine the location of active colonies by observing wading bird activity, such as adults delivering food.

Record colony location and site conditions. Carefully approach the colony site, noting the estimated # of adults present, by species, as they flush. Be sure to obtain a gps track of your progress through the colony. Record your starting time.

With 2-3 observers, work through the colony systematically, recording nests and nest contents as you go. Identify active nests by species whenever possible based on nest/egg characteristics, nestlings, or by the attending adult.

Make sure to distinguish wading bird nests from those of other species (like DCCO or gulls), which may nest nearby, especially on Sarah and Sheep.

Black-crowned Night-Heron nest, Outer Islands (2005, CLT).

Upon exiting the colony, record your ending time and any additional notes. Note: Surveys will be discontinued if signs of stress are observed, such as hypothermic or overheated young, branching older young, or harassment by potential predators – be sure to report any observations of stress immediately.

Data Collected for each Island / Colony

- species
- island surveyed
- date of survey
- weather conditions (temperature, cloud cover, precipitation/visibility, wind speed & direction)
- # adults estimated to be present, by species (count number flushed on approach)
- location and contents of active nests (# eggs, chicks)

Survey Methods – Large Shorebirds

Target Species: American Oystercatcher (AMOY), Willet (WILL)

Survey Frequency: annually

Survey Type: boat-based estimate of nesting pairs

Target Islands: all islands (AMOY); Snake (WILL)

Target Breeding Stage: adults defending nest, incubating or brooding chicks

Approximate Survey Dates: May 15 – July 15

Breeding AMOY on Rainsford Island (2005, CLT).

Survey Instructions:
Circle the entire perimeter of each island in a small boat traveling at approximately 3 miles per hour as close to shore as the boat Captain will allow (between 30-150 feet offshore).

While circling, scan the shoreline carefully for the presence of American Oystercatchers or Willets. Note evidence of breeding pairs, such as agitation and defensive maneuvers as you approach a particular location, the presence of an incubating adult, or the presence of unfledged chicks on the shore.

American oystercatcher nest (2007, CLT).

Record the number of breeding pairs observed on each island by species. Also be sure to record the approximate location and date of your observations on a field map. While you may wish to include records of presumed non-breeding adults, be sure to list these as such in the 'Notes' column.

Be on the lookout for banded oystercatchers. Follow instructions for recording and reporting sightings.

Data Collected for each Island

- species
- island surveyed
- date of survey
- weather conditions (temperature, cloud cover, precipitation/visibility, wind speed & direction)
- # nesting pairs by species
- note nesting behavior, presence of AMOY chicks, and presence of presumed non-breeding adults

Survey Methods – Small Shorebirds

Target Species: Spotted Sandpiper (SPSA); can also be used to gather information on American Oystercatchers (AMOY) and possible future colonization by Piping Plovers (PIPL) when implemented

Survey Frequency: every 3 years

Survey Type: walking survey; estimate of incubating adults flushed from nests, direct nest counts

Target Islands: all islands (SPSA)

Target Breeding Stage: incubation

Approximate Survey Dates: May 15 – June 15

Nesting Spotted Sandpiper.

Survey Instructions:
With 3-4 observers, spread out in a line and progress through suitable vegetation on each island, watching for flushing male snadpipers.

When a individual is flushed from a nest, search the immediate area to locate the nest. Record the nest's contents (# eggs and/or chicks) and gps its location, when possible.

Maintain constant vocal communication with other observers as you search to assure complete coverage of each island and reduce the chances of double-counting nests. To reduce disturbance and increase the likelihood of finding nests, time surveys appropriately for the peak incubation period, which is difficult for this species because they generally double, or even triple, brood.

While conducting shorebird surveys, be on the lookout for Piping Plovers, which are not currently known to nest in Boston Harbor, but may colonize the area in the future.

Data Collected for each Island

- species
- island surveyed
- date of survey
- weather conditions (temperature, cloud cover, precipitation/visibility, wind speed & direction)
- total # of active nests and contents (# eggs, chicks)
- contents and location of each nest, when possible
-

Survey Methods – Terns

Target Species: Least Tern (LETE), Common Tern (COTE)

Survey Frequency: annually, with 2-3 counts for LETE colonies

Survey Type: complete, ground-based nest count

Target Islands: Rainsford (LETE), Lovells (LETE); Snake (COTE)

Potential Future Colony Sites: Spectacle

Target Breeding Stage: peak egg laying; 2-3 eggs in most nests

Approximate Survey Dates: June 10 – June 25

LETE colony on Lovell's Island (2005, CLT).

Survey Instructions:
Determine the location of active colonies by observing tern activity from a distance (note incubating adults or adults delivering food).

Record colony location and site conditions. Carefully approach the colony site, noting the estimated # of adults present as they flush. Be sure to note the gps location of the colony boundary as you enter. Record your starting time.

Working in pairs (or groups of 3 or more for particularly wide colonies), divide the beach into swaths approximately 10 feet wide. Designate a recorder to walk with you below the high tide line, or outside of the colony, but within earshot to avoid stepping on nests. Working as a team, call out nest locations and contents as you proceed through the colony. Communicate with your partner(s) to avoid double-counting or under-counting nests.

CAUTION: Tern eggs and nests are extremely well-camouflaged and very easily stepped on. Carefully scan the ground below your foot with every single step, then scan the area around you for nests before stepping again.

COTE chicks on Snake Island (2005, CLT).

Upon exiting the colony, note your gps location again. For irregularly shaped colonies, you may also want to obtain additional gps points along the edges. Record your ending time and any additional notes.

Data Collected at each Colony Site

- species
- island surveyed
- date of survey
- weather conditions (temperature, cloud cover, precipitation/visibility, wind speed & direction)
- # adults estimated to be present (count number flushed on approach)
- total count of occupied nests, tallied by nest contents (empty scrape; 1, 2, or 3 eggs; 1, 2, or 3 chicks present)

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