

PORT OF SAINT JOHN WATERBIRD SURVEY A CITIZEN SCIENCE GUIDE

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GUIDE FOR CONDUCTING WATERBIRD SURVEYS IN THE PORT OF SAINT JOHN

INTRODUCTION

This citizen science guide contains instructions for the Port of Saint John Waterbird Surveys. The protocol used for the survey was developed by Nature NB from 2018-2021 for Fisheries and Oceans Canada's Coastal Environmental Baseline Program in the Port of Saint John, New Brunswick. The protocol was adapted from Birds Canada's BC Coastal Waterbird Survey with support from Birds Canada, Nature Trust of New Brunswick, and Canadian Wildlife Service. Thank you to all citizen scientists who have and continue to assist in this study. Information collected as part of this program is being used to better understand what waterbirds use as habitat in and around the Port of Saint John as well as their behaviour throughout the year.

RESOURCES

For survey protocols, data sheets, and our latest information, please visit: (www.naturenb.ca). For online data entry please visit: (www.naturenb.ca).

For additional bird identification resources volunteers are encouraged to use the following resources:

- www.natureinstruct.org/dendroica
- www.ebird.org
- www.allaboutbirds.org
- Ducks at a Distance: A Waterfowl Identification Guide by Bob Hines (PDF; <https://www.fws.gov/uploadedfiles/ducks%20at%20a%20distance-ocr.pdf>)
- Shorebird Identification by Jason Hoeksema (PDF; https://www.manomet.org/wp-content/uploads/2018/05/Shorebird_Identification_Jason-Hoeksema_Delta-Wind-Birds.pdf)

Prior to conducting your survey, please ensure that you have all necessary equipment (page 6). Please contact Nature NB if you have any further questions, are interested in volunteering, and for more information on the project.

Contact Information

Email: info@naturenb.ca

Telephone: (506) 459-4209

BACKGROUND

Nature NB, in collaboration with the Nature Trust of New Brunswick and the Saint John Naturalist Club, began a pilot project to survey waterbirds in the Port of Saint John Region. The pilot project was funded by Fisheries and Oceans Canada. The goal of the project was to collect baseline data of bird activity along the coastal region of Saint John to inform oil spill preparedness and industrial development proposals in the Saint John region. The project was

developed based on Birds Canada's British Columbia Coastal Waterbird Monitoring Program with advice from Birds Canada and the Canadian Wildlife Service. The pilot project spanned 2 years from Summer 2019 to Winter 2021 with surveys occurring five times a year (Winter, Spring, Summer, Early Fall Migration, and Late Fall). The success of the pilot project has resulted in this ongoing, volunteer-based project. The project has transitioned into a volunteer-based citizen science monitoring program which aims to continue surveys and develop a longer-term waterbird dataset. We need your help to achieve this goal!

SURVEY METHODS

Each site is surveyed five times a year during Winter (January to February), Spring (April and May), Summer (June and July), Early Fall Migration (August to early October), and Late Fall (November to early December). There are a few exceptions with select sites only surveyed in Winter or surveyed Summer to Late Fall because of road and water conditions. Sites can be surveyed at any time during each season, but we encourage you to survey during ideal weather conditions (see below). Each survey is at least 30-minutes of continuous surveying. Some sites are surveyed from a single point while others can be surveyed from multiple points. During a survey, all birds within a site are to be documented including birds flying over the site. Remember that bird abundance and diversity will change with the seasons. We are surveying year-round to incorporate seasonal variations within sites.

FINDING A SURVEY SITE

The Port of Saint John Waterbird project consists of 33 survey sites. The sites cover the study's target area from Musquash Estuary to Cape Spencer. Sites vary from open water surveys (e.g. Cape Spencer) to river surveys (e.g. Boar's Head Nature Preserve). Individuals interested in conducting waterbird surveys for the Port of Saint John Waterbird project are encouraged to contact Nature NB (info@naturenb.ca) to find available surveys.

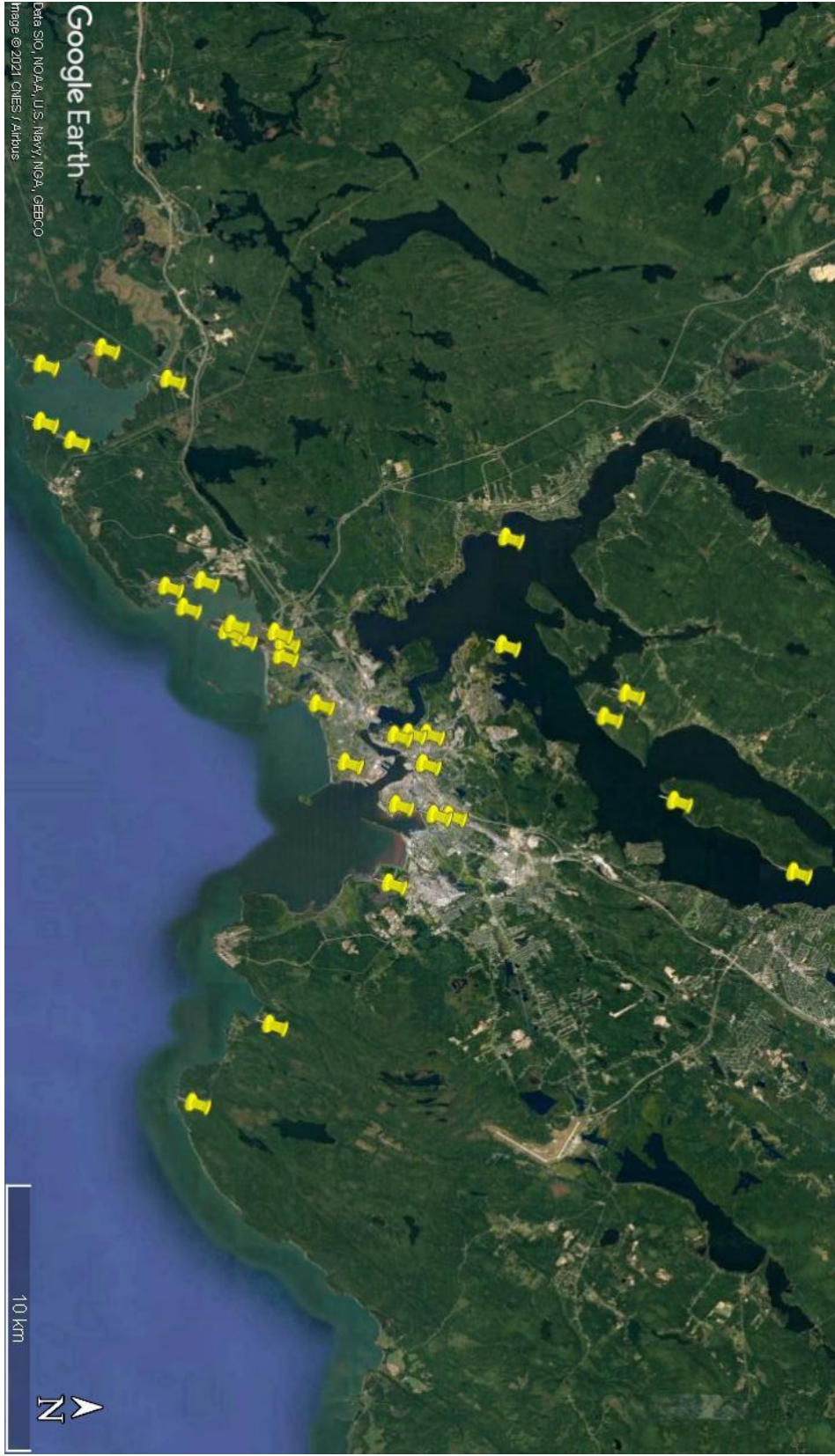


Figure 1 Map of all 33 sites in the Port of Saint John Waterbird project.

SURVEY MATERIALS

The following materials are provided by Nature NB:

- Data forms
- Survey Site Description

The following materials will not be provided by Nature NB, the volunteer surveyor will need to provide themselves:

- Pencil/Pen
- Binoculars
- Scope
- Reliable Tidal Application
 - <https://www.waterlevels.gc.ca/eng/find/region/5>
- Watch

DETAILED INSTRUCTIONS

WHEN TO SURVEY

Please complete the 30-minute survey continuously on a single day. The survey must be completed during the seasonal survey windows listed below. Five surveys should be completed each year at each site. For Spring, Summer, and Early Fall surveys are to be conducted during the day at high tide (± 2 hours of highest point of tide at closest tidal station). Surveys in the Late Fall and Winter are conducted during daylight hours at any tidal cycle.

Survey Window

Winter: Surveys are to be conducted between January 18th and February 28th.

Spring: Surveys are to be conducted between April 14th and May 28th.

Summer: Surveys are to be conducted between June 15th and July 31st.

Early Fall: Surveys are to be conducted between August 1st and October 15th.

Late Fall: Surveys are to be conducted between November 1st and December 15th.

Survey Timing

Surveys should be conducted during daylight hours to ensure accurate identification of species. Surveys are a minimum of 30 minutes but can be longer, at the discretion of the surveyor, if many birds are present. Please take your time in conducting the survey to ensure accuracy.

Weather Conditions

Weather conditions influence our ability to see and hear bird species. Calm, clear weather conditions are the ideal surveying condition. Visibility, sea conditions, precipitation, and glare

may reduce detectability of birds. Fog may make it difficult to detect and identify birds. Try to conduct surveys during times of high visibility and minimal precipitation.

Species Identification

Please identify birds down to the species, if possible (e.g. Semipalmated Sandpiper, American Black Duck). If individuals are too distant or move too quickly to identify accurately, please identify to the closest family/genus/subfamily (e.g., Gull spp., Sandpiper spp., Tern spp.). Accuracy is important so please be conservative if unsure. We recommend taking pictures to assist with identification when possible.

HOW TO SURVEY YOUR SITE

Prior to beginning the survey, fill out the Site Name, Season, Date, Surveyor/Assistant Information, weather condition data, and start time. Then, begin to survey your site for a continuous 30-minutes. The survey may last longer than 30-minutes but not shorter. As you survey, fill out the data sheet with all birds that are seen in the survey area. At the end of the survey, record the End Time.

Weather Information

When surveying, record all the requested weather conditions at the start time of the survey.

Species Information

Record all individuals in the survey area during the survey period. Record the individuals down to species when possible. If individuals are too far or fly through too quickly to get an accurate identification, please record down to the closest group (e.g., waterfowl spp., plover spp.). When possible, please include the sex and age of the birds.

If there are multiple individuals of the same species, age, and sex presenting the same behaviour in one location you can record these on one line (e.g., 5 adult female buffleheads resting offshore; see sample data sheet at end of this document).

Location

For each bird/group of birds, please record the approximate location. Locations are as follows:

- OS – offshore, from 500m from high tide line out to sea,
- NS – nearshore, from high tide mark to 500m offshore,
- IN – inshore, from high tide mark inland.

For sites with complex, inshore systems (e.g., marshes, rivers; Saint's Rest Marsh - Boardwalk), please also use the following:

- IN-L – inshore, on land,
- IN-M – inshore, in marsh,
- IN-W – inshore, in water (excluding marsh).

Behaviour

Bird behaviour is classified into five behaviours. Please indicate the behaviour of individuals and/or groups:

- FE – feeding,
- RE – resting/roosting,
- FL – flying (as well as direction e.g. N, S, E, W),
- D – disturbed,
- O – other.

Please note that the behaviour flying (FL) you must also indicate the direction of flight. If the bird is circling, first determine if it is feeding (FE). If it is not feeding, indicate the last direction it travels within the survey. If individuals show multiple behaviours (e.g., flying to feeding) please note the last behaviour the individual displays.

Disturbance

There are many disturbances that may impact birds during your survey. A disturbance should be noted when it directly affects birds. For instance, if there is a person walking on the beach only record them if their presence disturbs the birds. Please note when birds are affected by the disturbance. Disturbances include:

- 1 – Walkers,
- 2 – Swimmers,
- 3 – Commercial Boat,
- 4 – Recreational Boat,
- 5 – Dog/pet disturbance,
- 6 – Noise pollution,
- 7 – Non-motorized Boat,
- 8 – Predator,
- 9 – Other species interaction (e.g., seal),
- 10 – Other (please specify)

Direction

The direction should be filled out when a bird or group of birds are flying. Please indicate the direction the individual or group of birds is flying (e.g., NE). If there are multiple individuals of the same species flying the same direction, but not as a group, they can be included as a group (e.g., 12 HERG flying S throughout the survey period).

HOW TO COMPLETE THE SURVEY FORM

The Surveyor/Assistant section on page 1 of the survey form can be completed before starting the survey. The Site Information and Weather Conditions sections on page 1 should be completed at the beginning of the survey period. Detailed instructions for filling out the forms as well as sample survey forms are included below. Please review the sample survey forms prior to your survey to ensure the data are collected accurately.

Once the survey is completed, please send the completed data form to Nature NB at info@naturenb.ca.

Survey Information

Site Name: The site name provided to you by Nature NB

Start Time: Provide the time the survey period began using 24-hour time (e.g., 13:30).

End Time: Provide the time the survey period was completed using 24-hour time (e.g., 14:00).

Season: Indicate the season in which the survey is being completed. Please note that for the survey seasons include Winter, Spring, Summer, Early Fall, and Late Fall.

Date: Provide the date the survey was completed in YYYY-MM-DD format.

Surveyor/Assistant Information: Please provide the name, mailing address, phone number, and email for both the surveyor and assistant (if present). Please provide the phone number and email that is best to reach you at.

Weather Conditions

Cloud Cover: Estimate the percent of cloud cover at the survey site.

Precipitation: Check the appropriate precipitation type(s). One or more may be selected. If no precipitation is present, select NA.

Wind/Sea Condition: Check the appropriate weather condition (one each). The wind scale is based on the Beaufort Scale.

Tide: Provide the tide level (high or low).

Tide Movement: Provide the tidal movement during the survey period. If tide is rising then falling during the survey period, select High Slack. If tide is lowering then rising during the survey period, select Low Slack.

Visibility: Estimate and select the visibility range during the survey period (select one).

Glare: Estimate the percent of glare on the water. If no glare record 0%.

Data Sheet

Species: Clearly write the common name OR the four-letter species code (e.g., ABDU) in the space provided. There may be multiple rows for the same species if there are individuals displaying different behaviours or if there are individuals of different ages/sex. See the sample survey data sheet for examples.

Sex: If possible, provide the sex of the counted individual. Leave blank if unsure.

Age: If possible, provide the age (A = adult, I = immature) of the counted individual. Leave blank if unsure.

Number: Clearly indicate the number of a species at the site in the survey period in number format (e.g., 13, not thirteen). If there are multiple individuals of a species displaying different behaviours or if there are individuals in a species of different ages/sex ensure there is a row for each. See the sample survey data sheet for examples.

Behaviour: Provide one behaviour code per row (e.g., FE = feeding). Please use the abbreviated code provided on the data sheet.

Flight Direction: If individuals are flying, indicate the approximate direction of flight. Leave blank if behaviour is not FL (flying).

Location: Indicate the approximate location of individuals using the provided locations (OS, NS, IN).

Disturbance: If birds are disturbed, please indicate the form of disturbance using the provided disturbance codes.

Notes: Please provide any notes that may include useful information. Information may include species/bird specific or environmental/survey location.

SEND IN DATA/RETURNING FORMS

To send the survey data to Nature NB, please email the data sheets. Please ensure all data entered is correct before entering. Data can be sent in after each completed survey or after each season. Please use a new data sheet for each survey.

Online

To submit the data online, please fill in the form-fillable data sheet (www.naturenb.ca). Email the completed data sheet to Nature NB at info@naturenb.ca with the subject line “Waterbird Survey Data”.

MOST COMMON SPECIES

Species Code	Common Name	Scientific Name
DCCO	Double-crested Cormorant	<i>Phalacrocorax auratus</i>
SESA	Semipalmated Sandpiper	<i>Calidris pusilla</i>
RBGU	Ring-billed Gull	<i>Larus delawarensis</i>
HERG	Herring Gull	<i>Larus argentatus</i>
ABDU	American Black Duck	<i>Anas rubripes</i>
GBBG	Great Black-backed Gull	<i>Larus marinus</i>
CAGO	Canada Goose	<i>Branta canadensis</i>
SEPL	Semipalmated Plover	<i>Charadrius semipalmatus</i>
LESA	Least Sandpiper	<i>Calidris minutilla</i>
MALL	Mallard	<i>Anas platyrhynchos</i>
COEI	Common Eider	<i>Somateria mollissima</i>
AMCR	American Crow	<i>Corvus brachyrhynchos</i>
BUFF	Bufflehead	<i>Bucephala albeola</i>
SUSC	Surf Scoter	<i>Melanitta perspicillata</i>
COGO	Common Goldeneye	<i>Bucephala clangula</i>
COME	Common Merganser	<i>Mergus merganser</i>
BBPL	Black-bellied Plover	<i>Pluvialis squatarola</i>
RBME	Red-breasted Merganser	<i>Mergus serrator</i>
GBHE	Great Blue Heron	<i>Ardea Herodias</i>
COLO	Common Loon	<i>Gavia immer</i>
SPSA	Spotted Sandpiper	<i>Actitis macularius</i>
SAND	Sanderling	<i>Calidris alba</i>
AGWT	Green-winged Teal	<i>Anas crecca</i>

