

Port of Halifax and Port of Sydney Waterbird Survey A Citizen Science Guide

Developed by: Nature Nova Scotia

c/o Nova Scotia Museum of Natural History

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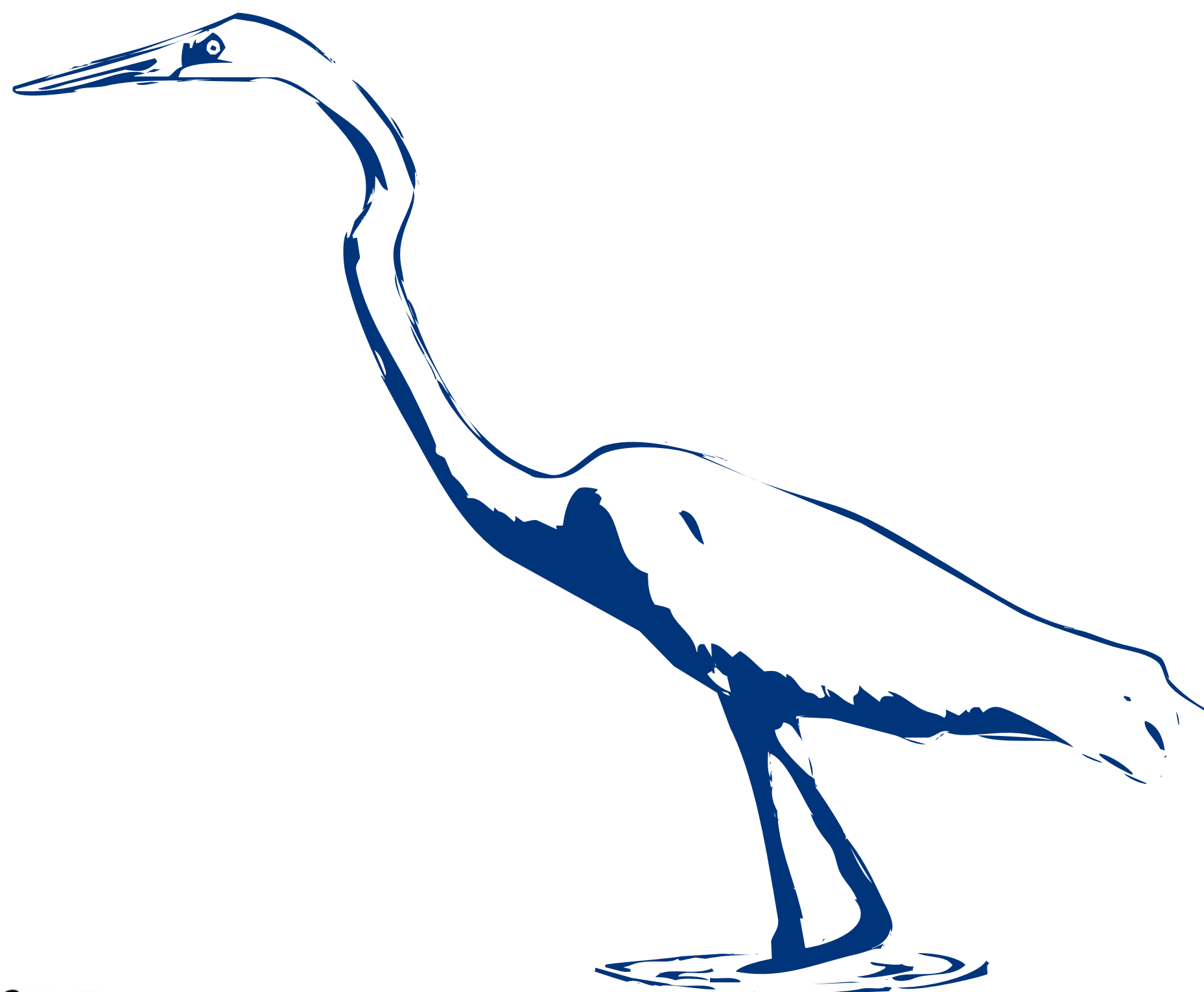
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GUIDE FOR CONDUCTING WATERBIRD SURVEYS IN THE PORT OF HALIFAX AND PORT OF SYDNEY CAPE BRETON

Introduction and Background

The Migratory Birds Regulations make it illegal to harm migratory birds in Canada. However, marine birds face dangers in coastal waters, especially from oil spills. Places like Halifax Harbour and the Port of Sydney have a lot of ship traffic and oil facilities, putting birds at risk. The Ocean Protection Plan is working to improve our understanding of where these birds are and when they're there, so we can better protect them during oil spills. Currently, there aren't any bird monitoring programs in Nova Scotia like there are in New Brunswick. Under the Ocean Protection Plan 2.0, the Canadian Coast Guard is planning emergency responses in high-risk ports, starting with Halifax Harbour and Port of Sydney. This project aims to gather data on bird populations in Nova Scotia's high-risk ports, using methods similar to those used in New Brunswick. This information is crucial for the Canadian Wildlife Service to assess and protect birds during oil spills.

This citizen science guide provides instructions for conducting water bird surveys at the Port of Halifax and Port of Sydney. Developed by Nature Nova Scotia for the Canadian Wildlife Service and Environment and Climate Change Canada's oil spill preparation plan, it has received support from various organizations including the Nova Scotia Bird Society, Dalhousie Birding Society, Nature New Brunswick, Birds Canada, Cape Breton Naturalists and ACAP Cape Breton. The protocol is based on a survey originally created by Nature NB for Fisheries and Oceans Canada's Coastal Environmental Baseline Program in the Port of Saint John, New Brunswick, from 2018 to 2021. It was adapted from Birds Canada's BC Coastal Waterbird Survey.

Nature NS, along with numerous nature organizations, has collaborated on this project. Community scientists' contributions are greatly appreciated, as the information gathered helps us better understand waterbird habitat and behavior in and around the Port of Halifax and Port of Sydney throughout the year.

Resources

For survey protocols, data sheets, and our latest information, please visit www.naturens.ca. please send data sheets to info@naturens.ca

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

- www.ebird.org
- <https://www.nsbirdsociety.ca/library/resources/the-of-birds-of-ns>
- www.allaboutbirds.org
- <https://novascotia.ca/natr/wildlife/wns/wns7e.asp>
- <https://www.ducks.ca/assets/2021/10/waterfowl-ID-guide-2020-EN-reader-spreads.pdf>
- <https://www.allaboutbirds.org/guide/browse/shape/Shorebirds>

if you have any further questions, are interested in volunteering, and for more information on the project.

Contact Information

Email: info@naturens.ca
Telephone: (709)763-4052

Survey Methods

Each site is surveyed four or five times a year during Winter (Jan to February), Spring (April and May), Summer (June and July), and Early Fall Migration (August to early October). 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 and birds surrounding 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 Halifax water bird project consists of 15 different sites in the targetted area from Harlen Point to herring cove. sites vary from open water coves, rivers and freshwater ponds. Individuals interested in conducting waterbird surveys for the Port of Saint John Waterbird project are encouraged to contact Nature NS at infor@naturens.ca to find available surveys. See below the port of halifax survey site locations.

The Port of Sydney Cape Breton water bird project consists of 15 different sites in the targetted area from Glace Bay to point anconi. sites vary from open water coves, rivers and freshwater ponds. Individuals interested in conducting waterbird surveys for the Port of sydney cape breton Waterbird project are encouraged to contact Nature NS at info@naturens.ca to find available surveys. Figure 2 for port of sydney available sites.



PORT OF HALIFAX, NOVA SCOTIA WATER BIRD SURVEY SITE LOCATIONS.



Figure 1: Waterbird Survey Sites in Port of Halifax, Nova Scotia

- | | |
|----------------------------|-----------------------------------|
| 1.) Hartlen point | 9.) Africvillie park |
| 2.) McCormack's Beach | 10.) Halifax Waterfront |
| 3.) Dartmouth Cove | 11.) Point Pleasant Park |
| 4.) Sullivans Pond | 12.) Horseshoe island park |
| 5.) Tufts Cove- Nootka Ave | 13.) Flemming Park |
| 6.) Wrights Cove | 14.) Purcles cove |
| 7.) Sackville river mouth | 15.) Herring Cove Provincial Park |
| 8.) Dewolf Park | |

PORT OF SYDNEY, CAPE BRETON WATERBIRD SURVEY SITE LOCATIONS.

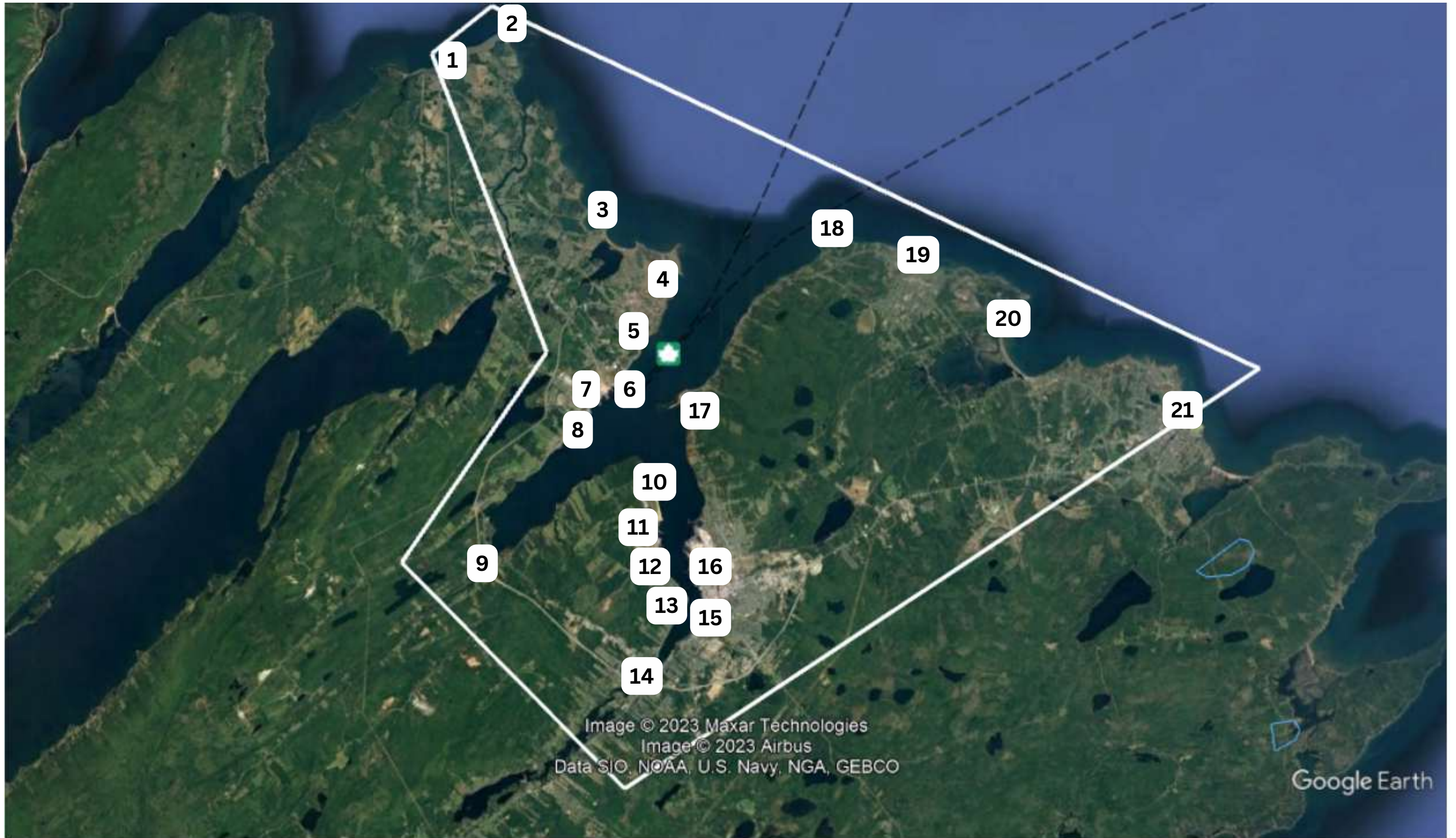


Figure 2: Waterbird Survey Sites in Port Sydney, Cape Breton.

- | | |
|------------------------------------|------------------------------------|
| 1.) Point Anconi power plant beach | 12.) Petersfield Provincial Park |
| 2.) Point Anconi- Lighthouse | 13.) Westmouth- Dobsons Yacht Club |
| 3.) Florence Beach - Shore Road | 14.) Westmount- Sydney river |
| 4.) Lockmans Beach | 15.) Sydney- Wentworth Park |
| 5.) Sydney Mines, Fraser Avenue | 16.) Sydney Waterfront |
| 6.) North Sydney- Indian beach | 17.) Sydney South Bar |
| 7.) North Sydney- Downtown | 18.) Low Point lighthouse |
| 8.) Monro Park | 19.) New Waterford- The Barachois |
| 9.) Balls Creek- Oak Farm Road | 20.) Lingan Wharf |
| 10.) Keating Cove | 21.) Glace Bay Wharf |
| 11.) Sydney Port Beaver Pond | |

Survey Materials

The following materials are provided by NatureNS:

- Data forms
- Survey Site Description

Nature NS will not provide the following materials, the volunteer surveyors will need to provide themselves:

- Pencil/Pen & notepad
- Binoculars
- Scope
- Reliable Tidal Application
- Watch/timer

DETAILED INSTRUCTIONS

When to Survey

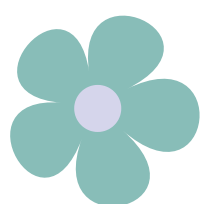
Please complete the 30-minute survey continuously on a single day. The survey must be completed during the seasonal survey windows listed below. Five surveys should be completed each year for most sites. For Spring, Summer, Early Fall, Late Fall and Winter surveys are to be conducted during the day at any tidal cycle.

Volunteers are responsible for their safety. Please assess local weather conditions before surveying, and stop surveying if you feel uncomfortable or unsafe in any way. Contact Nature NS with any safety concerns 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 surveying to ensure accuracy.

Survey Window



Winter: Surveys are to be conducted between December 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.

HOW TO FILL OUT THE SURVEY

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

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. Never conduct surveys in potentially hazardous weather conditions, such as thunderstorms, snow storms, high winds, etc. Stop a survey at any point if the weather becomes unfavorable.

When surveying, record all weather conditions at the start time of the survey. If the weather changes significantly while surveying, note these changes.

Species information

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. If the acronym for the species is not listed feel free to make up your own and add in the notes or side column the full species name

Record all individuals in the survey area during the survey period. Record the individuals down to species when possible. If individuals are too far away 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).

Behavior

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.

Disturbances

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,

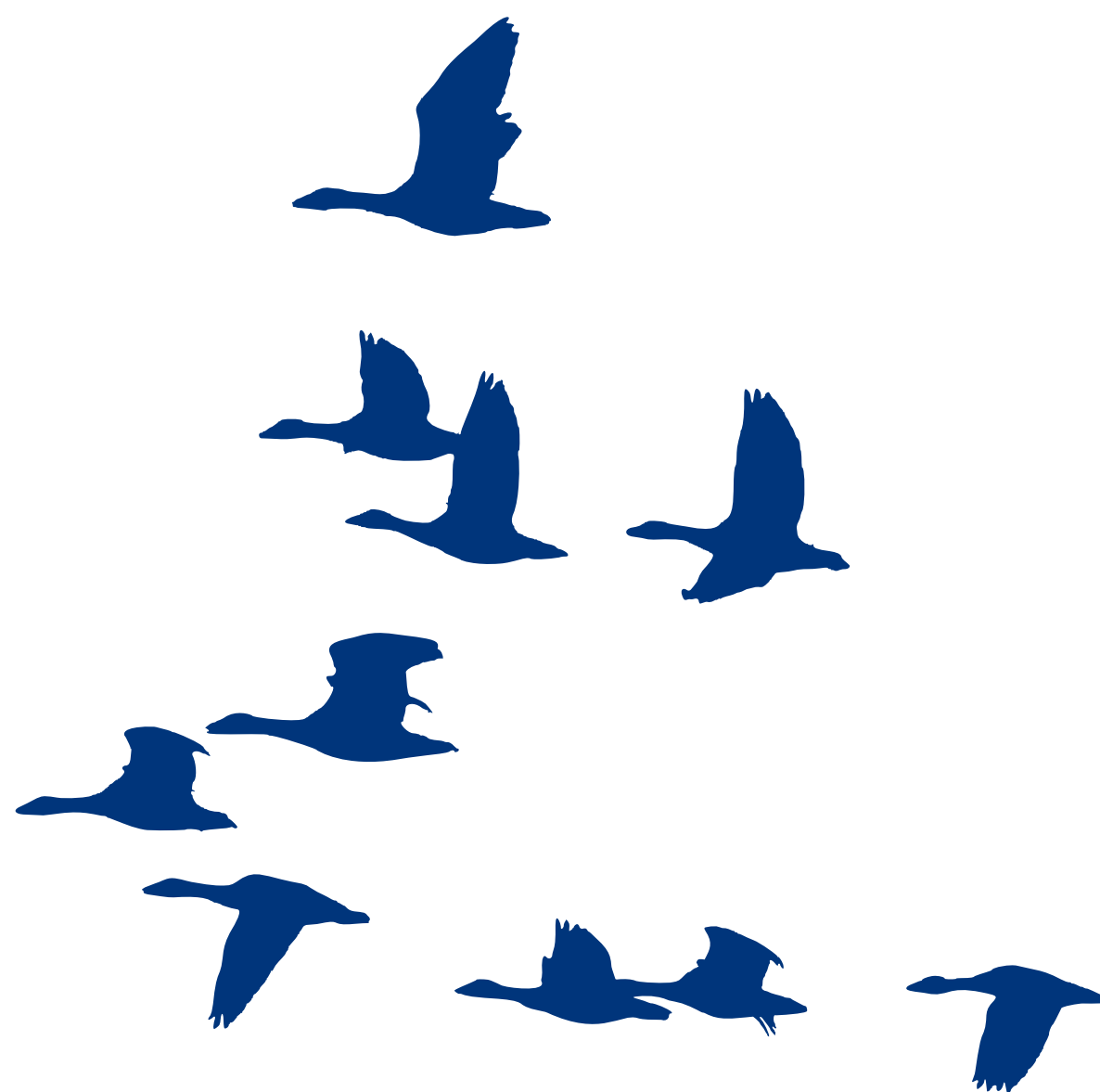
6 – Noise pollution,

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

Survey Information

- Site Name: The site name provided to you by Nature NS
- 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. 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).

Survey Information

- 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 conditions. 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 the tide is rising then falling during the survey period, select High Slack. If the tide is lowering and 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: 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 individuals are displaying different behaviours or if there are individuals of different ages/sex.
- 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: Indicate the number of 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.
- Behaviour: Provide one behaviour code per row (e.g., FE = feeding). Please use the abbreviated code provided on the datasheet.
- Flight Direction: If individuals are flying, indicate the approximate direction of flight. Leave blank if 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.

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>

[Figure 3: Waterbird Survey Sites in Port Sydney, Cape Breton.](#)

**More species codes available at [birdpop.org](https://www.birdpop.org)
https://www.birdpop.org/docs/misc/Alpha_codes_eng.pdf**

SEND IN DATA/RETURNING FORMS

To send the survey data to Nature NS please email the data sheets. Please ensure all data entered is correct. Data can be sent in after each completed survey or after each season. Please use a new data sheet for each survey. Email the completed data sheet to Nature NS at info@naturens.ca to submit the data online with the subject line "Waterbird Survey Data".

SAMPLE SURVEY FORM

Port of Halifax Waterbird Survey Data Sheet

Species	Sex	Age	Number	Behaviour	Flight Direction	Location	Disturbance	Notes
BBGAU		A	9	FE		IN-M	5	
TRBGU		I	3	FE		IN-M	5	
ABDU	M		4	FE		IN-W		
ABDU	F		6	FE		IN-W		
GULLSP			2	FL	N	IN		Flying Separately
CDLO			3	FE		IN-W		Diving
CDMC	M		1	FE		IN-W		
AMCR			6	D	E	IN-L	10+8	Disturbed by Bald Eagle
BAEA		A	1	FL	E	IN-L		

How confident are you in your distance estimates?

<100m very confident confident uncertain 250m very confident confident uncertain 500m very confident confident uncertain 1km very confident confident uncertain >1km very confident confident uncertain

