

Program for Regional and International Shorebird Monitoring

Atlantic Canada Shorebird Surveys



Photo © Alix d'Entremont

Survey protocol and guidelines

March 2014



Environment
Canada

Environnement
Canada

Program for Regional and International Shorebird Monitoring (PRISM)

The Program for Regional and International Shorebird Monitoring (PRISM) was designed in 2001 by biologists and researchers from the Canadian and United States Governments (Canadian Wildlife Service, U.S. Geological Survey and U.S. Fish and Wildlife Service) to provide a framework for shorebird monitoring in North America in response to a need for coordination and cooperation in the delivery of existing programs, and in the development of new surveys.

Specifically, the goals of PRISM are to: 1) estimate population size; 2) monitor trends in population size; 3) monitor shorebirds at stopover locations; 4) determine distribution, abundance, and habitats used throughout the year; and 5) assist local managers in meeting shorebird conservation goals.

To do this, PRISM draws from four survey components:

-  Arctic breeding, survey
-  Migration surveys
-  Neotropical surveys
-  Tropical surveys

At this time, the migration survey component is the only survey providing data annually for monitoring trends in shorebird population size. It is also the only survey providing information on trends of boreal breeding species.

Based on the analysis of shorebird migration data (1974-2009), it is estimated that of the 32 species that stop-over in Atlantic Canada during migration (Table 1), 19 are experiencing declining population trends. Several of these shorebird species are assessed by the Committee on the Status of Endangered Wildlife in Canada and listed under the *Species at Risk Act*.



Photo © Alix d'Entremont

THANK YOU FOR PARTICIPATING IN A PRISM SURVEY!

This project occurs on such a large scale that collecting information from volunteers such as you is the only way scientists are able to obtain the data necessary to assess the status of Canada's shorebirds. The field notes that you provide from your local study site will be analyzed with others from across North America to identify and conserve important habitat and stop-over areas and to measure population trends.

Participating in a PRISM Survey is also a great way to get out and explore natural areas. Birding can be both fun and rewarding, especially when you become part of a group that is dedicated to wildlife conservation.

Again, we thank you for your interest and dedication to shorebirds, and hope that you will enjoy taking part in a Migration PRISM Survey!



Atlantic Canada Shorebird Surveys (ACSS)

The Atlantic Canada Shorebird Survey is a migration PRISM survey

It was originally developed in 1974 as the Maritimes Shorebird Survey by Canadian Wildlife Service scientists at the same time as similar surveys in the province of Ontario (Ontario Shorebird Surveys) and the northeastern United States (International Shorebird Survey). In 2003, the Maritimes Shorebird Survey became the Atlantic Canada Shorebird Surveys to include Newfoundland and Labrador.

The survey was originally designed to identify important shorebird staging habitats and support their management and conservation. As such, the data have been used to guide the management of landscapes for shorebird species through programs such as Environment Canada's protected areas program, the Ramsar Convention, the Important Bird Areas program and the Western Hemisphere Shorebird Reserve Network.

Regular data collection at more than 100 ACSS sites is coordinated by the Canadian Wildlife Service of Environment Canada as a volunteer-based survey that relies on the skills, dedication and long-term support of birders throughout Atlantic Canada.



Photo © Julie Paquet, Environment Canada



Photo © Alix d'Entremont

Table 1: Shorebird species that stop-over in Atlantic Canada during fall migration (shaded species are experiencing declining trends).

Common name	Scientific Name	Stops-over in Atlantic Canada during migration?
American Oystercatcher	<i>Haematopus palliatus</i>	Yes (also breeds regionally in small numbers)
Black-bellied Plover	<i>Pluvialis squatarola</i>	Yes
American Golden Plover	<i>Pluvialis dominica</i>	Yes
Semipalmated Plover	<i>Charadrius semipalmatus</i>	Yes
Piping Plover	<i>Charadrius melodus</i>	Yes (also breeds regionally)
Killdeer	<i>Charadrius vociferus</i>	Yes (also breeds regionally)
Spotted Sandpiper	<i>Actitis macularius</i>	Yes (also breeds regionally)
Solitary Sandpiper	<i>Tringa solitaria</i>	Yes
Greater Yellowlegs	<i>Tringa melanoleuca</i>	Yes
Willet	<i>Tringa semipalmata</i>	Yes (also breeds regionally)
Lesser Yellowlegs	<i>Tringa flavipes</i>	Yes
Upland Sandpiper	<i>Bartramia longicauda</i>	Yes (also breeds regionally in small numbers)
Whimbrel	<i>Numenius phaeopus</i>	Yes
Hudsonian Godwit	<i>Limosa haemastica</i>	Yes
Ruddy Turnstone	<i>Arenaria interpres</i>	Yes
Red Knot	<i>Calidris canutus</i>	Yes
Stilt Sandpiper	<i>Calidris himantopus</i>	In small numbers
Sanderling	<i>Calidris alba</i>	Yes
Dunlin	<i>Calidris alpina</i>	Yes
Purple Sandpiper	<i>Calidris maritima</i>	Yes (also winters regionally)
Baird's Sandpiper	<i>Calidris bairdii</i>	In small numbers
Least Sandpiper	<i>Calidris minutilla</i>	Yes
White-rumped Sandpiper	<i>Calidris fuscicollis</i>	Yes
Buff-breasted Sandpiper	<i>Calidris subruficollis</i>	In small numbers
Pectoral Sandpiper	<i>Calidris melanotos</i>	Yes
Semipalmated Sandpiper	<i>Calidris pusilla</i>	Yes
Short-billed Dowitcher	<i>Limnodromus griseus</i>	Yes
Wilson's Snipe	<i>Gallinago delicata</i>	Yes (also breeds regionally)
American Woodcock	<i>Scolopax minor</i>	Yes (also breeds regionally)
Wilson's Phalarope	<i>Phalaropus tricolor</i>	Yes (also breeds regionally in small numbers)
Red-necked Phalarope	<i>Phalaropus lobatus</i>	Yes
Red Phalarope	<i>Phalaropus fulicarius</i>	Yes

About Shorebirds

SHOREBIRDS ARE HIGHLY MIGRATORY

Shorebirds are among the most migratory creatures on earth, travelling long distances between their breeding grounds in the north and their non-breeding grounds in the south. For example, some Red Knots migrate all the way from the high Arctic to wintering grounds that extend to southern Chile – a 26,000 km annual round trip flight (Figure 1)!



Figure 1. Red Knot migration route. Image courtesy of Larry Niles, USFWS.

Because of the astronomical amounts of energy required for such migrations, shorebirds need suitable areas where they can stop to refuel and rest for the next leg of their journey. These areas provide the abundant food resources necessary to sustain their long flights.



Photo © Bill Pratt, Photographer

MOST SHOREBIRDS STOP IN ATLANTIC CANADA FOR ONLY A BRIEF PERIOD OF TIME DURING MIGRATION

Most shorebirds breed and winter in remote areas that are not easy to access and survey. This is why in Atlantic Canada, we monitor shorebirds in the spring and fall, during their migration to and from these areas. At this time, they gather in large groups in suitable wetland areas where we can observe and count them.

This is where the Atlantic Canada Shorebird Surveys, and you, come in!



Photo © Julie Paquet, Environment Canada

Did you know that on migration, Semipalmated Sandpipers, a species weighing only 35 to 40 grams at time of departure, can fly at an average speed of 90 km/h, non-stop, for up to 4 days!!





Photo © Richard Stern, ACSS contributor

What first-time ACSS volunteers need to know

WHO ARE ACSS VOLUNTEERS?

ACSS volunteers enjoy bird watching but also understand the importance of following a survey protocol to collect information that can be used to help better understand and conserve birds. Skill levels vary, and new volunteers are given tools and support to help them learn to identify and census shorebird species.



Photo © Julie Paquet, Environment Canada

SELECTING A SITE

New volunteers are always needed in areas with low coverage or to take over from retiring volunteers. The survey sites are selected by the volunteers, with the ACSS coordinator to ensure the site is available and to provide guidance on the survey methods, which are unique to each site.

ACSS sites can be beaches, tidal flats, saltmarshes, freshwater marshes, and sometimes even fields and heathlands. Every year, sites that have been monitored for many years become available to new volunteers. Picking up a previously monitored site may give new volunteers a chance to monitor an area with a historic data set to which they can compare their own counts.

When selecting a survey site, choose one that is easily accessible to you and can be conveniently reached on a regular basis. To keep long term interest, it is ideal to pick a site that is close to home and does not take too long to survey (1 to 2 hours).

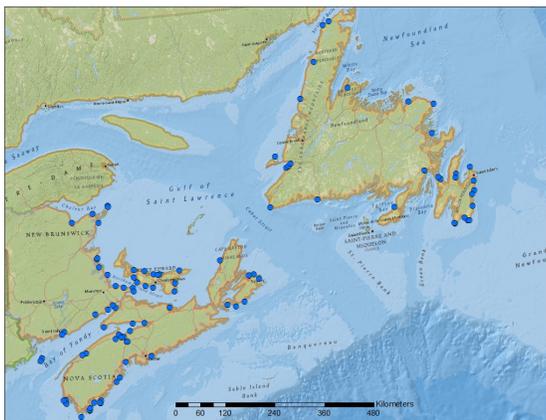


Figure 2. ACSS sites for trend estimation

In 2013, a series of new randomly selected sites were added to the ACSS to help expand the scope of the survey and enhance its value for assessing migratory shorebird population trends (Figure 2). If you choose to survey one of these new sites, you will be provided with a site description and a survey method specific to your site and will be the first ever to survey that site!

CONDUCTING SURVEYS

Survey seasons and dates

Fall surveys are conducted annually, every 10 days between July 20th and November 20th. Although spring migration does

not produce high shorebird numbers or diversity, interested contributors can conduct surveys between April 20th and June 9th. In general, the more surveys that are conducted at an ACSS site, and the longer the record of years, the more valuable the census series becomes as a scientific record.



Photo © Alix d'Entremont

Surveys should be conducted when counts are most accurate

At many coastal sites, this will occur at high tide when shorebirds gather on the upper shore and are easier to see. However at other sites, it may be during low tide while they are feeding. Once this has been established, surveys should always be conducted at the same stage of tide and during comparable weather conditions (with good visibility) to ensure consistency.

Collect data about birds and survey conditions

All birds observed during a survey should be identified, counted and noted. Additionally, a record should be made of disturbances (ATVs, bikes, boats, predators, significant weather changes, etc.) with an indication of its effect on the count. Providing us with information on the birds present at your study site is important, but so is the absence of birds at that site, or at any other site that you may notice. It helps us to know when birds fail to use a stretch of seemingly suitable habitat, and we welcome your notes on these types of observations. There may be an underlying reason that shorebirds are avoiding an area that can be effectively managed.

Note that if a rare shorebird is observed outside the site boundary; add it to your survey report with a note that it was seen outside your survey site.

WHAT YOU'LL NEED WHEN SURVEYING SHOREBIRDS:

- Binoculars
- Bird Field Guide or Bird App (see quick reference on p 10-11)
- ACSS Data Sheets (provided, see example on p. 12-13)
- Site Map (provided)
- Compass
- Pen and Pencil
- Clipboard or field log
- Spotting Scope (if available – a great aid in identifying small shorebirds, or those at a distance)



Use estimates for large groups of shorebirds

When high numbers of shorebirds are present, and counting each individual is not possible, it is recommended to make a systematic estimate. A systematic estimate is one where a portion of the flock is counted (e.g. what looks like 10% of the flock), and the total number of birds present is extrapolated from this count (in this case the count number is multiplied by 10).

Counting all species in large groups of shorebirds

When large numbers of shorebirds are present at a roost site, it is not always possible to identify them all to species. For example, it is not always practical to look at each one of 1000 peeps (small shorebirds) in a large flock to verify that they are all Semipalmated Sandpipers. To obtain an estimate for other species present, take the time to scan that flock of 1000 peeps for birds that are obviously not Semipalmated Sandpipers, such as Semipalmated Plovers, and count these individuals if you can. Look for slightly larger (White-rumped Sandpiper or Dunlin?) or “rustier” birds (Least Sandpiper) and either count or estimate their numbers. We know that the ACSS underestimates some of these hard-to-find species, but our goal is to have a consistent estimate of their numbers, even if it is low. Unless these less-frequent species make up a substantial proportion of the birds present, you can record the rest of that flock as 1000 Semipalmated Sandpipers.

Tips for identifying shorebirds

The best way to identify shorebird species is to use the simplest, most easily observed characteristics—size, structure, behavior, and general color patterns—plumage details should only be used last.

Look at the size and shape of the bird:

- 1) How big is it? Use an item of known size nearby as reference (e.g. seaweed, known bird, etc.).
- 2) Is it skinny, fat, long or short?
- 3) Look at the bill- is it long, short, curved, de-curved or straight?
- 4) Are the legs long or short relative to the body?

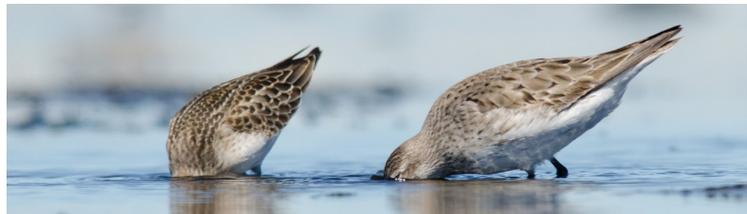


Photo © Alix d'Entremont

- Look around- What type of habitat are you in— ocean or inland, forest or saltmarsh
- Listen— shorebird calls may seem similar at first, but after several surveys the calls become very distinctive

Sometimes you will see shorebirds with fading breeding plumages. BEWARE! Colours may play tricks on your eyes depending on the light levels and direction as well as the habitat type .



Photo © Julie Paquet, Environment Canada

LEARNING OPPORTUNITIES

A number of workshops have been offered to interested groups throughout Atlantic Canada since 2001, often in collaboration with conservation partners (Nature Conservancy of Canada, Canadian Parks and Wilderness Society, Naturalist Clubs, Wildlife and Nature Trusts, National Parks, etc). Please contact the Canadian Wildlife Service or one of our partner organizations for information on future workshops.

RECORDING AND SUBMITTING DATA

When surveying in the field, record your observations in a notebook or on an ACSS datasheet. When you return home with the counts from the completed survey, you should immediately copy the data onto a clean datasheet. Do this while the survey is still fresh in your mind, and remember to complete both sides of the sheet. Then, check over your data for any mistakes you may have made when copying over the numbers.

ACSS data is collected throughout the survey period and at the end of the field season, the data can be mailed or emailed to the ACSS coordinator or uploaded via an online data entry portal <http://www.birdscanada.org/birdmon/prism/main.jsp>.

All data should be returned by 15 January of the following year to ensure that the data is used in the analysis of population trends, and for the preparation of our annual reports and newsletter.

New survey forms for the next shorebird monitoring season will be sent out with your copy of our annual newsletter *Calidris* the following spring.

Happy shorebirding!



Photo © John Chardine, Environment Canada



Photo © Paul Linegar, ACSS contributor



Photo © John Chardine, Environment Canada



Photo © Bill Pratt, Photographer

What happens to your data?

Once in the database, the data you provide will be part of our long-term monitoring dataset and it will remain useful for shorebird research and conservation for many years to come. The ACSS database is used by Environment Canada, provincial governments, academics, students, NGO's and other interested groups.



Reporting banded shorebirds



Understanding Coloured Flags

Colour Flags are used on the legs of shorebirds to help identify shorebird migration routes, nesting and wintering areas. Each colour represents a different country in which the bird was banded.

Flag Colours

	Canada (white)
	USA (green)
	Mexico (purple/red))
	Central America (grey)
	Northern South America (black)
	Peru, Ecuador and Bolivia (yellow)
	Brazil and Paraguay (blue)
	Argentina and Uruguay (orange)
	Chile (red)

5 Steps to Identify & Report Banded Shorebirds

1. **Band Type** - identify the type of band (i.e. metal, colour band, flag)
2. **Colour** - (see Pan American Shorebird Program at www.ec.gc.ca/ppl-ppsp/ for more colour descriptions).
3. **Location** - Note the location of the band on the bird (i.e. upper or lower leg, left/right).
4. **Species/Location** - Note the name of the species and the location of sighting.
5. **Report** - White or Green colour band sightings to :

Canadian Bird Banding Office

National Wildlife Research Centre
Canadian Wildlife Service
1125 Colonel By Drive (Raven Road)
Ottawa, Ontario, K1A 0H3
Tel: (613) 998-0524
Email: BBO_CWS@ec.gc.ca



Keep an eye out for flagged shorebirds!!!

Every winter, biologists capture and band hundreds of shorebirds (Red Knot, Ruddy Turnstone, Semipalmated Sandpiper, and more) in Canada, the USA, Mexico, Central and South America and the Caribbean. Each bird is fitted with coloured leg flags bearing a unique three character code that, if seen by observers, could provide valuable information about migration routes and breeding areas.

Please let us know if you see any of these birds!

You can also report your resightings on
www.bandedbirds.org

OR....

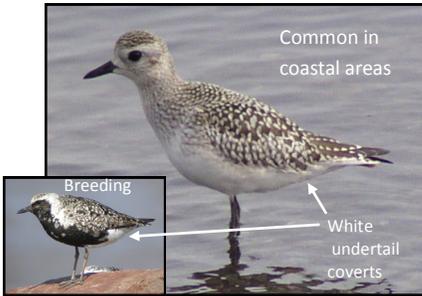
Contact the ACSS coordinator for more information!
ACSS-RORA@ec.gc.ca

Frequently observed shorebirds in Atlantic Canada

Plovers

Black-bellied Plover

Juvenile, very similar to non-breeding adult



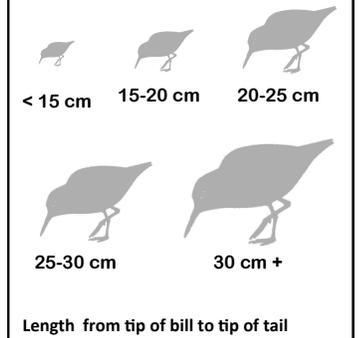
Pluvialis squatarola

Semipalmated Plover



Charadrius semipalmatus

Length Guide:



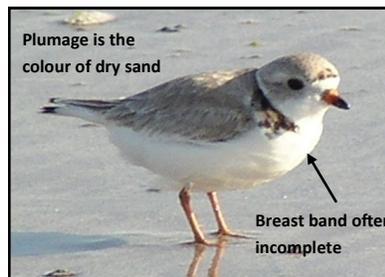
American Golden Plover

Non-breeding



Pluvialis dominica

Piping Plover



Charadrius melodus

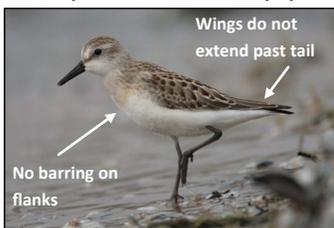
Killdeer



Charadrius vociferus

Sandpipers

Semipalmated Sandpiper



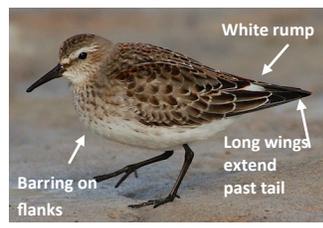
Calidris pusilla

Least Sandpiper



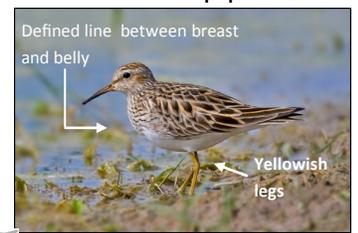
Calidris minutilla

White-rumped Sandpiper



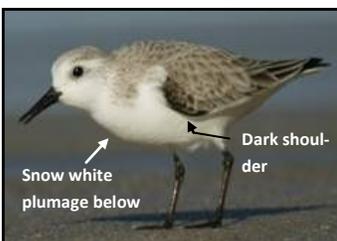
Calidris fuscicollis

Pectoral Sandpiper



Calidris melanotos

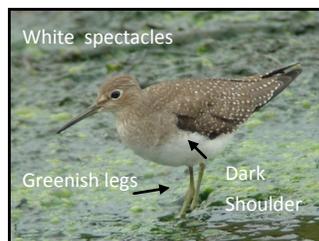
Sanderling



Calidris alba

Very active, run along the shore

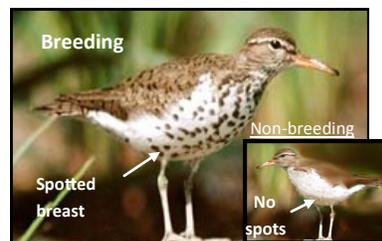
Solitary Sandpiper



Tringa solitaria

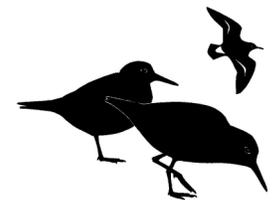
Found inland at ponds and spruce bogs

Spotted Sandpiper



Actitis macularia

Found inland at rivers ponds and stream edges
Teeters and bobs



Sandpipers continued

Greater Yellowlegs



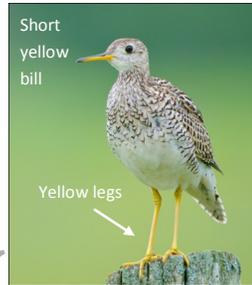
Tringa melanoleuca

Lesser Yellowlegs



Tringa flavipes

Upland Sandpiper

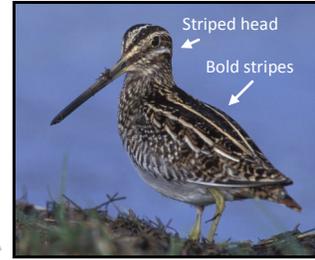


Bartramia longicauda

Small head
Big eye
Thin neck

Found in grasslands

Wilson's Snipe



Gallinago delicata

Outer tail feathers produce a "winnowing" sound in display flight

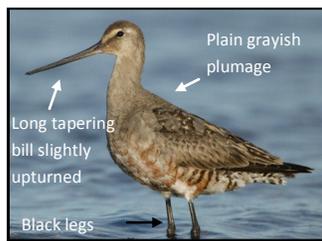
Found inland

Purple Sandpiper



Calidris maritima

Hudsonian Godwit



Limosa haemastica

Short-billed Dowitcher



Limnodromus griseus

Whimbrel



Numenius pheopus

Ruddy Turnstone

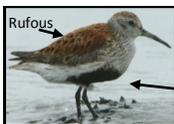


Arenaria interpres

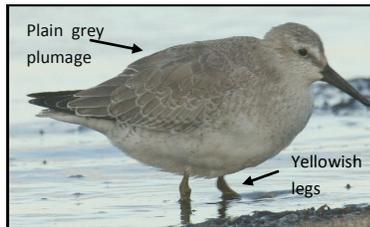
Dunlin Non-breeding



Calidris alpina



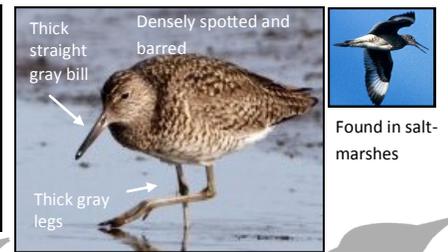
Red Knot Non-breeding



Calidris canutus



Willet Breeding



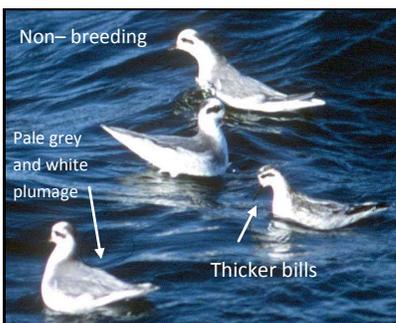
Tringa semipalmata



Found in salt-marshes

Phalaropes

Red Phalarope



Phalaropus fulicarius

Red-necked Phalarope

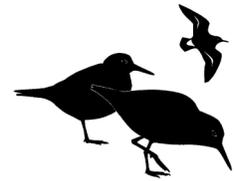


Phalaropus lobatus

Phalaropes are pelagic migrants. They are mainly seen at sea over deep waters.

Photographs © Images by Ferrin, Richard Stern, Cliff Thornley, Peter Thomas, G.W. Beyersbergen, Dan Busby, Dave Fifield, Merv Cormier, Paul Evans, Arthur Morris/VIREO, John Chardine.

Atlantic Canada Shorebird Surveys datasheet- front



Survey Site Name: _____

Surveyor name: _____

Email: _____

Year: _____

Species	Date	Date	Date	Date	Date
Black-bellied Plover					
American Golden-Plover					
Semipalmated Plover					
Piping Plover					
Killdeer					
American Oystercatcher					
Spotted Sandpiper					
Solitary Sandpiper					
Greater Yellowlegs					
Willet					
Lesser Yellowlegs					
Upland Sandpiper					
Whimbrel					
Hudsonian Godwit					
Ruddy Turnstone					
Red Knot					
Sanderling					
Semipalmated Sandpiper					
Least Sandpiper					
White-rumped Sandpiper					
Baird's Sandpiper					
Pectoral Sandpiper					
Purple Sandpiper					
Dunlin					
Stilt Sandpiper					
Buff-breasted Sandpiper					
Short-billed Dowitcher					
Common Snipe					
Time at beginning of survey					
Time at end of survey					
Tide (see back)					
Inland water levels (see back)					
Disturbance events (see back)					
Temperature (see back)					
Wind (km/h) (see back)					
Cloud Cover (see back)					
Precipitation (see back)					

Atlantic Canada Shorebird Surveys datasheet- back

Disturbance events:

Date: _____

Event: _____

Date: _____

Event: _____

Date: _____

Event: _____

Remarks:

<p>Wind On the Beaufort land scale: 0 = Calm. Smoke rises vertically. Wind speed 0 km/h. 1 = Light air. Wind motion visible in smoke. Wind speed 1-6 km/h. 2 = Light breeze. Wind felt on exposed skin. Leaves rustle. Wind speed 7-11 km/h. 3 = Gentle Breeze. Leaves and smaller twigs in constant motion. Wind speed 12-19 km/h. 4 = Moderate Breeze. Dust and loose paper raised. Small branches begin to move. Wind speed 20-29 km/h. 5 = Fresh breeze. Smaller trees sway. Wind speed 30-39 km/h. 6 = Strong breeze. Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult. Wind speed 40-50 km/h. 7 = Near gale. Whole trees in motion. Effort needed to walk against the wind. Wind speed 51-62 km/h. 8 = Gale. Twigs broken from trees. Cars veer on road. Wind speed 63-75 km/h.</p> <p>Inland Water levels Normal = N High = H Low = L Not applicable = NA</p> <p>Temperature 1 = < 0°C 2 = 0°C - 9°C 3 = 10°C -19°C 4 = 20°C+</p>	<p>Tide 1 = high tide 2 = almost high and rising 3 = almost high and falling 4 = half-tide and rising 5 = half-tide and falling 6 = almost low and rising 7 = almost low and falling 8 = low tide 9 = not recorded, not applicable</p> <p>Cloud Cover 1 = clear 2 = overcast (>50%) 3 = partial cloud (<50%)</p> <p>Precipitation 0 = none 1 = drizzle 2 = rain 3 = snow</p>
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Photo © Bill Pratt, Photographer

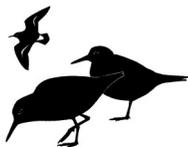
Atlantic Canada Shorebird Surveys

c/o Shorebird Biologist
17 Waterfowl Lane
Sackville, NB E4L 1G6

506-364-5037
Email: ACSS-RORA@ec.gc.ca

<http://www.ec.gc.ca>

Atlantic Canada Shorebird Surveys



Relevé des oiseaux de rivage de l'Atlantique