

The
Sandpipers
of Fundy



A Natural Attraction

Every summer, the upper Bay of Fundy hosts enormous flocks of migrating shorebirds. From late July to mid-August -- the peak of the fall migration -- over two million shorebirds converge on Fundy's energy-rich mud flats to feed. A flock often contains thousands of birds. Flying in unison, their bodies alternately reflect black and silver as the birds acrobatically dip and turn in tight formation.

Fundy is a major gathering or 'staging' area where migrating shorebirds regroup for the next leg of their journey. In New Brunswick, shorebirds are easily viewed at Johnson's Mills and Mary's Point on opposite sides of Shepody Bay. In Nova Scotia, Evangeline Beach and the Windsor Causeway, both located in the Minas Basin, are ideal viewing spots.

Flocks of shorebirds usually contain several different species, including the Least Sandpiper, Short-billed Dowitcher, Semipalmated Plover and Black-bellied Plover. However, the Semipalmated Sandpiper, *Calidris pusilla*, always far outnumbers all other species. Most of the global population of Semipalmated Sandpiper passes through the Bay of Fundy en route to the wintering grounds. Clearly, the Fundy mud flats serve a vital role in the lifecycle of the Semipalmated Sandpiper.



Cover Illustration:
Semipalmated sandpiper (*Calidris pusilla*)

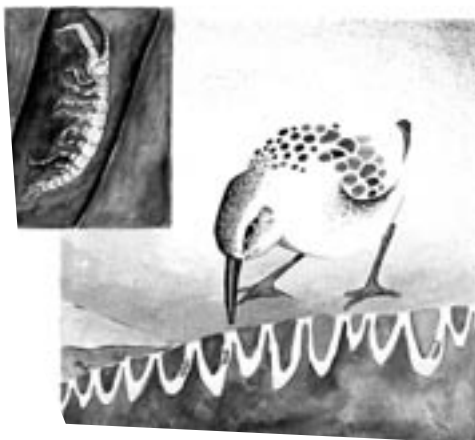
Black-bellied plover / Pluvier argenté
(*Pluvialis squatarola*)

The Fall Migration

Here in Fundy, shorebirds are readily seen during the fall migration. Migratory shorebirds fly non-stop from their breeding grounds in Canada's low Arctic to the Bay of Fundy, an extension of the north Atlantic nestled between New Brunswick and Nova Scotia and located close to Maine. Fundy's tides are among the highest in the world, rising 15 meters (50 feet) twice daily. A falling tide exposes vast expanses of oozy, red-brown mud. Although these mud flats appear lifeless, exhibiting no obvious animals or plants, they actually contain many organisms essential to migrating sandpipers.

Fundy's Mud Shrimp – Fuel for Flight

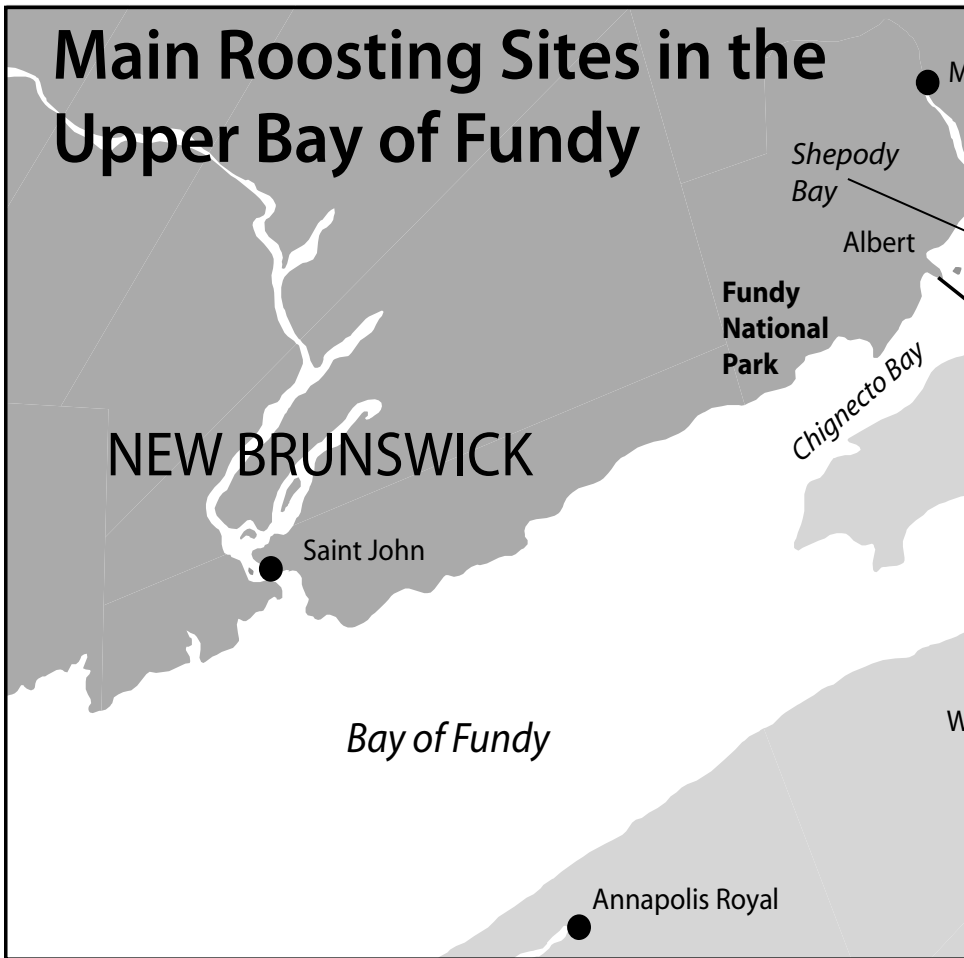
Mud flats are the habitat of creatures such as shellfish, mud worms and *Corophium volutator*, a tiny shrimp-like animal commonly referred to as a 'mud shrimp'. Without mud shrimp, there would be no sandpiper migration through Fundy. About 5 mm (3/8 in.) long, this ant-sized crustacean feeds on diatoms, detritus and other microscopic organic matter churned up daily by the tides.



Mud shrimp require a unique combination of sand, fine silt and clay particles for building their protective U-shaped burrows. Portions of the Fundy mud flats contain the proper mixture. In North America, *Corophium volutator* occurs only in sections of the Bay of Fundy and Gulf of Maine. One square metre of mud may contain up to 60,000 mud shrimp, though 10,000 – 20,000 is typical. When the falling tide exposes the flats, mud shrimp busily crawl about the muddy surface in search of mates, leaving themselves vulnerable to foraging birds.



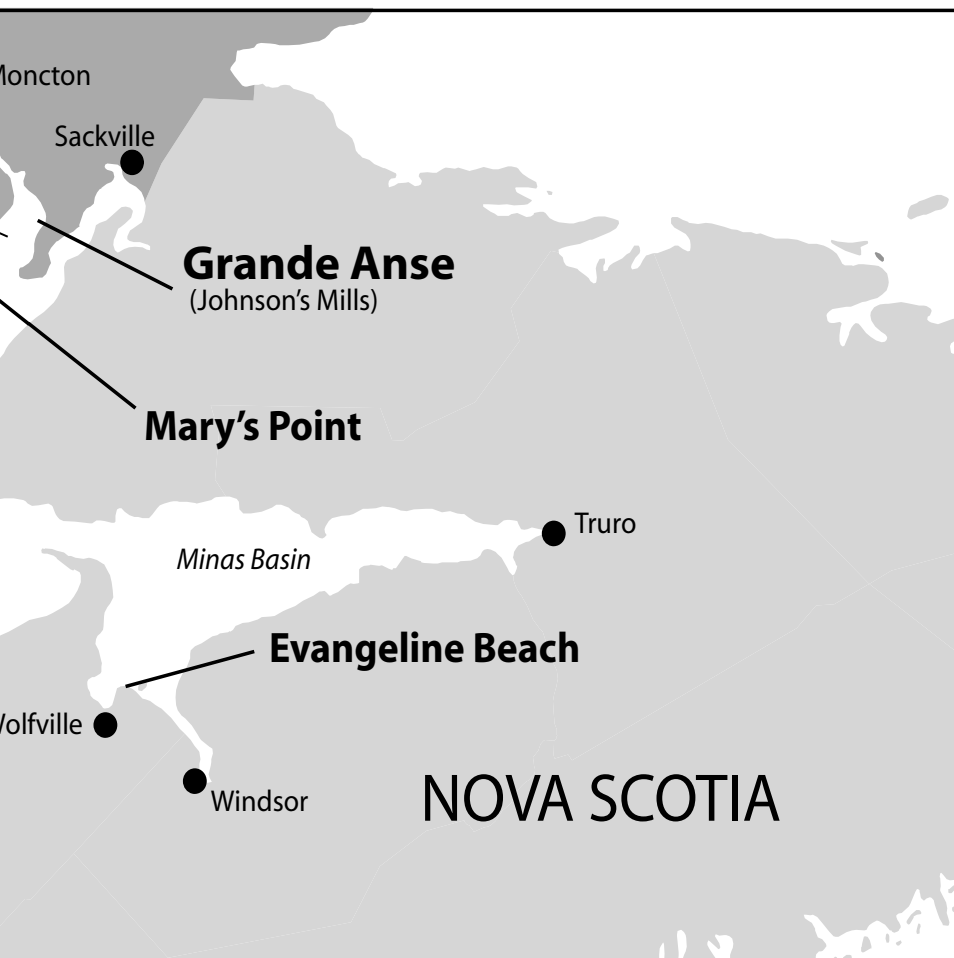
Semipalmated plover / Pluvier semipalmé
(*Charadrius semipalmatus*)



Shorebirds must “budget” their energy carefully while in the Bay of Fundy. Because *Corophium* are plentiful, energy-rich, and easy to catch, they are the prey of choice among visiting sandpipers. The presence of *Corophium* allows sandpipers to efficiently rebuild energy reserves needed for completing the long flight to wintering areas. In this way, the fate of shorebirds is closely linked with the health of *Corophium*. Should the conditions of the mud become unfavourable for the mud shrimp, be it from natural or man-made events, then migrating shorebirds would suffer accordingly.



Red knot / Bécasseau maubèche
(*Calidris canutus*)



The Roosting Beaches

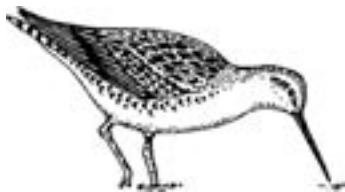
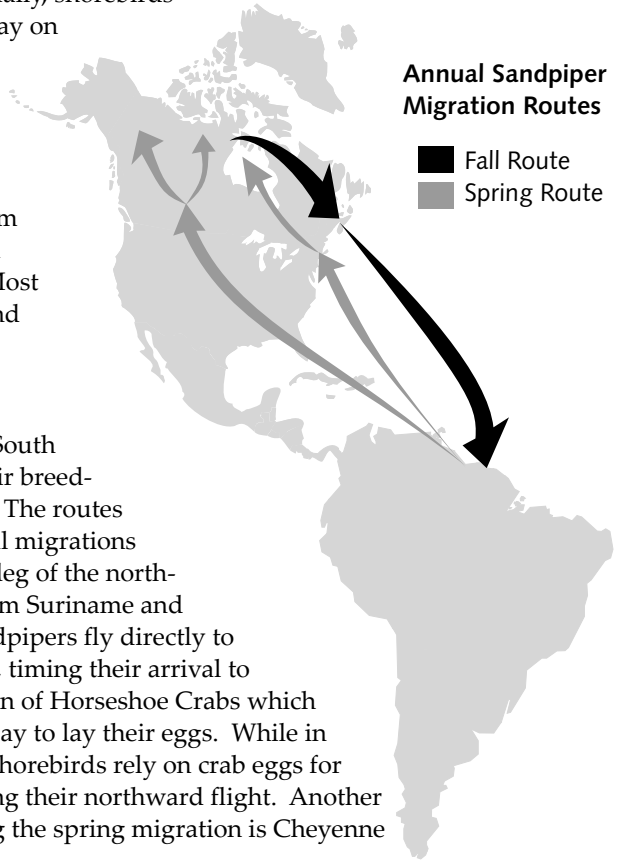
Each day, when the Fundy tides are at their highest, sandpipers and other shorebirds roost in tight groups on whatever scrap of beach affords them a clear view of potential predators. In places, thousands of bodies mass together on a beach, appearing as a feathery carpet. While huddled together, resting birds are particularly vulnerable to predators, people and pets, and highly sensitive to any disturbance. It is important that shorebirds be able to conserve their energy between feedings. The slightest intrusion may send them aloft, thereby depleting precious energy stores needed for the 72-hour non-stop flight to northeastern South America.

The Southbound Trek

Individual sandpipers remain in the Bay of Fundy staging area for 10 to 20 days to rest and feed. Shorebirds grow increasingly restless as the time to resume the migration nears. With the arrival of a cold front and proper prevailing winds, a large flock will orient itself south-southeast, gradually spiral upwards very high and finally move out. Usually, shorebirds depart Fundy late in the day on an evening that coincides with a high tide. Their flight path takes them out to sea over the north Atlantic where they catch trade winds that carry them to landfall on the northern coast of South America. Most overwinter in Suriname and French Guiana.

The Breeding Cycle

In May, sandpipers leave South America and return to their breeding grounds in the Arctic. The routes used for the spring and fall migrations are different. On the first leg of the northward spring migration from Suriname and French Guiana, many sandpipers fly directly to Delaware Bay, New Jersey, timing their arrival to coincide with the migration of Horseshoe Crabs which enter the shallows of the Bay to lay their eggs. While in Delaware Bay, migrating shorebirds rely on crab eggs for refuelling before continuing their northward flight. Another important stopover during the spring migration is Cheyenne Bottoms, Kansas.



Short-billed dowitcher / Bécassin roux
(*Limnodromus griseus*)

In the case of the Semipalmated Sandpiper, males arrive on the breeding grounds several days ahead of females to establish territories. Although breeding pairs of Semipalmated Sandpipers migrate separately and probably spend the winter apart, pairs re-establish each year at the breeding area until a partner fails to return. If the previous year's nest was successful, a male re-establishes at the exact same site or nearby. The female lays a clutch of four eggs in a depression scraped out by the male and lined with bits of sedge, moss, and leaves. Both sexes incubate the eggs; young hatch in 20 to 22 days.

Semipalmated Sandpiper chicks begin venturing from the nest within hours of hatching. Nevertheless, both parents continue brooding them for several more days. The females, their body stores depleted by the long migration northward and the stress of egg development, are first to leave the breeding ground. Adult males continue to parent their offspring by themselves for several days before heading south to Fundy. Last to leave are the young of the year, who migrate southward several weeks after the adults.

Some Semipalmated Sandpiper Facts

Wing span (adult)	~28 cm
Body length (adult)	~17 cm
Weight (adult)	22 g – 48 g
Clutch size	4 eggs
Egg weight	8 g
Incubation period	~21 days
Age at first flight	~17 days
Age at first breeding	1 – 2 years
Oldest recorded wild bird	~16 years
Longest non-stop migration	4 500 km
Longest migration (one way)	15 000 km
Maximum flight altitude	unknown
Normal flight Altitude	500 m - 1 000 m

A Subtle Beauty

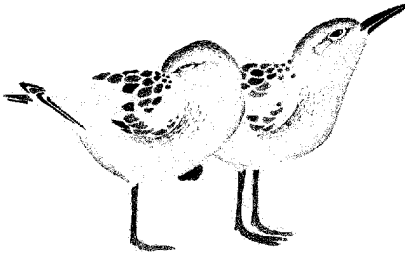
Named for the partial webbing between their toes, Semipalmated Sandpipers are distinguished by their black legs and straight, blunt-tipped black bill. In autumn their plumage is indistinctive. The subtle colouring – brownish-grey and white – blends perfectly with the pebbled beach. In flight, a manoeuvring flock transforms into streaks of brilliant light and soft shadows and resembles a large aerial precision team.



Ours to Protect

During both the spring and fall migrations, the majority of the world's population of Semipalmated Sandpipers rely on a single, localized food source. Biologists studying the birds have raised concerns and, with the cooperation of conservation organizations and governments, have taken steps to protect sites vital to the birds' welfare. The Western Hemisphere Shorebird Reserve Network (WHSRN) raises awareness for critical shorebird sites throughout North and South America. The Provinces of New Brunswick and Nova Scotia, the Government of Canada, and The Nature Conservancy of Canada have combined efforts to protect key sites in the upper Bay of Fundy. In Suriname, similar efforts have been made by Wetlands International – the Americas (based in Argentina) and the Government of Suriname to protect the birds' wintering habitat.

As more people learn about the birds and come to admire this magnificent annual spectacle, potential conflicts of interest arise. A well-informed public is necessary for fostering the protection of sensitive wildlife habitat. However, the pressures of curious onlookers at a critical time for the birds can be detrimental to the birds' well-being. When visiting the coast, please respect shorebirds and other wildlife by keeping your distance and closely supervising your pets. Late summer would not be the same without the mesmerizing flocks flashing of silver in the big Fundy skies.



*For more information contact the Canadian Wildlife Service
PO Box 6227, 17 Waterfowl Lane, Sackville, NB E4L 1G6
Tel: 506-364-5044*

Illustrations by Robert Lyon and Gerald Gloade

Text by Lee Calkins - revised (2005) by Nova Scotia Department of Natural Resources



Environment
Canada

Environnement
Canada

Canadian Wildlife
Service

Service canadien
de la faune


NOVA SCOTIA
Natural Resources