

Sand Lance (*Ammodytes dubius*)

Common Names: Northern sand lance (launce),
Greenland sand lance, Arctic sand lance.

Description, Distribution and Biology

Northern sand lance is a small offshore semidemersal fish from the family Ammodytidae. This species is closely related to the inshore American sand lance (*Ammodytes americanus*) in body structure, life cycle, and distribution. It has an elongated, slender body that is laterally compressed towards the anus. The head is long and pointed with the lower jawbone slightly protruded and has no teeth. The anal and dorsal fins are long and the tail fin is forked (Fig.1). Colour varies but is typically an olive-brown or blue-green on the back, tapering to a silver or dull white on its sides. The northern sand lance displays a steel-blue iridescent luster along its longitudinal stripe. This species can grow to a maximum size of 37 cm (Scotian Shelf), but typically ranges from 28 to 30 cm, especially in waters off Newfoundland, and lives anywhere from 5 to 10 years.

Sand lance occur on both sides of the North Atlantic Ocean (Fig. 2). The northern sand lance and the American sand lance are common in the northwest Atlantic, ranging from west Greenland to Cape Hatteras, North Carolina. A.

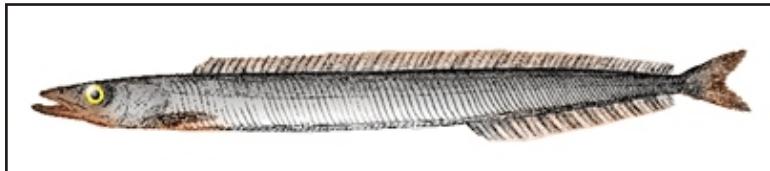


Figure 1. Northern Sand Lance. Source: Department of Fisheries and Aquaculture, St. John's, NL.

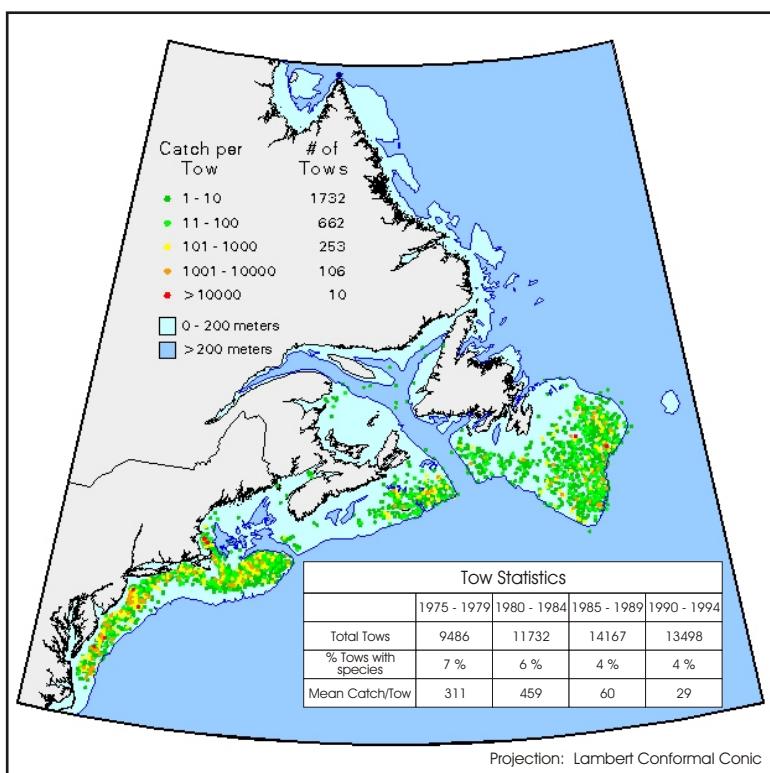


Figure 2. East Coast of North America Strategic Assessment Project. Distribution of Sand lance. Source: Science Sector, Department of Fisheries and Oceans, Canada Office of Ocean Resources Conservation and Assessment, National Oceanic and Atmospheric Administration, USA

americanus is generally considered an inshore species while *A. dubius* can be found in both offshore and inshore areas, particularly around Hudson Bay, the Labrador Shelf, Georges Bank, Grand Banks, and the Gulf of Maine. Bottom trawl and pelagic surveys in offshore waters of eastern Newfoundland indicate high density populations of northern sand lance on the eastern and southeast shoal of the Grand Banks and on the St. Pierre Bank. They are also abundant in coastal areas of the province, including Quirpon, White Bay, Notre Dame Bay, Bonavista Bay, Trinity Bay, Conception Bay, and Fortune Bay. The northern sand lance is considered a relatively non-migratory species, shifting to the deeper areas of the Banks during summer, followed by a return in autumn. Sand lance prefer sandy and fine gravel substrates with water depths less than 100 m. It has been found in depths in excess of 270 m and temperatures of 1 to 11 °C with a salinity range of 32 to 34 ppt.

In the northwest Atlantic, the northern sand lance matures between 1 and 3 years and 18 cm in length. Records report that the inshore population may mature earlier than those offshore. Spawning occurs over sandy or gravel bottoms on the Grand Banks and the Scotian Shelf between November and March. Recent studies in Fortune Bay indicate the northern sand lance also spawn in the inshore areas of Newfoundland from December to April. Fecundity of the northern sand lance increases with overall body length and range from 1,169 to 22,904 eggs per female for fish 13.7 to 21.3 cm in length. The eggs are demersal, adhesive, and between 0.92 and 1.02 millimetres (mm) in diameter. They hatch into pelagic larvae (4 mm long) and ascend to surface waters.

Sand lance larvae are most abundant and widespread of all fish larvae in the northwest Atlantic, occurring at the beginning of the year. Larvae will metamorphose into juveniles at a body length of 3 to 4 cm and develop a semidemersal existence. Juvenile and adult sand lance are known to form large schools and burrow, partly or totally, into sand or gravel substrates. Although both juvenile and adult sand lance feed on a variety of small planktonic organisms, the most important component of their diet consists of copepods, particularly *Calanus finmarchicus*. The factors determining feeding habits are largely unknown but the two main influences appear to be light; feeding near the bottom during the day and near the surface at night, and tidal current; favouring weaker current during feeding. Sand lance is prey to many commercially important fish including American plaice, cod, haddock, silver hake, yellowtail flounder, and Atlantic salmon, as well as fin and humpback whales and various species of seabirds.

The Fishery

There is no major commercial fishery for sand lance in Canada. A bait fishery exists on the east coast of the United States and there is active fishery in the North Sea. Sand lance is a major forage food for commercially important fish species, such as Northern cod, American plaice and haddock. Development of this fishery in eastern Canada is hindered by availability of resources, insufficient market demand, distance to potential markets, lack of efficient harvesting technology and knowledge of the surrounding fishing ground and resource abundance.

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