

**FIRST VERIFIED RECORD FOR  
SHORTNOSE STURGEON,  
*Acipenser brevirostrum* LeSueur, 1818,  
IN MINAS BASIN, BAY OF FUNDY,  
NOVA SCOTIA, CANADA**

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A shortnose sturgeon was caught in fisherman Wayne Linkletter's intertidal fish weir in Minas Basin near Economy, Nova Scotia, on June 29, 2013. It was an adult, 73.7 cm fork length and weighed ~4.5 kg. Fishers in Minas Basin relate that they have captured shortnose sturgeons in their weirs in the past decade (1 or 2 fish/y) but this is the first sighting verified by photographic evidence. In Canada shortnose sturgeons were previously known only from the Saint John River and Harbour. The new record extends the coastal range of the species by approximately 165 km and is a new addition to the fish fauna of Nova Scotia.

## INTRODUCTION

The shortnose sturgeon, *Acipenser brevirostrum* LeSueur, 1818, is one of two anadromous sturgeon species that occur on the Atlantic coast of North America (Vladykov and Greeley 1963). It is a small-bodied species (for sturgeon) which seldom grows longer than 120 cm fork length (FL; Dadswell 1979). The Atlantic sturgeon, *Acipenser oxyrinchus* Mitchill, 1814, the other anadromous species on the Atlantic coast, is known to grow to 459 cm FL and weigh up to 365 kg (Scott and Scott 1988).

Shortnose sturgeon is an estuarine species that usually occupies the low salinity regions of its natal estuary (Dadswell et al. 1984a) but is also known to make limited coastal migrations (Fernandes et al. 2010, Peterson and Farrae 2011). Shortnose sturgeon was first identified from the Saint John River estuary in 1957 (Leim and Scott 1966) and this locality remains the only known spawning population in Canada (Usvyatsov et al. 2013). It was listed as a 'species of concern' by the

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Canadian Species at Risk Act (SARA) in 2012. Shortnose sturgeon also occurs in at least 28 watersheds along the east coast of the USA (Dadswell et al. 1984a) but has been listed as 'endangered' by the USA Endangered Species Act since 1973. Recently, perhaps because of 40 years of protection, studies have shown that there are some large estuarine populations (10,000+ adults) throughout its range (Dadswell 1979, Hastings et al. 1987, Bain et al. 2007). Possibly because of the increased populations in natal estuaries, more sturgeon may be entering coastal waters to forage. Our studies (Dadswell et al. 1984b) and fishers' observations suggest the presence of shortnose sturgeon in Minas Basin is a recent occurrence. Because of its limited range in Canada and its listing by SARA, we believe it is important to provide the details of its verified presence in Minas Basin, Bay of Fundy and its addition to the fish fauna of Nova Scotia.

### THE OCCURRENCE

The shortnose sturgeon was captured on June 29, 2013 in Wayne Linkletter's intertidal fish weir which is situated in Minas Basin near Carr's Brook, Economy, Nova Scotia (N45.38742; W063.96145). Intertidal weirs are a V-shaped construction of stakes, mesh and brush with each wing approximately 800 m long (Gordon 1993). There is a fish trap with a pool at the lower intertidal zone of the V where the catch accumulates at low tide. The weirs of Minas Basin capture numerous commercial fish species including Atlantic sturgeon, Atlantic herring, gaspereaux, American shad, winter flounder, Atlantic mackerel and striped bass (Dadswell et al. 1984b). Atlantic sturgeon catches occur from early May until late July each year. Catches vary annually from 10's to 100's of Atlantic sturgeon with about 2-10 captured on most low tides during the run period. Sturgeon captured in marine waters are required by the Canadian Department of Fisheries and Oceans to be released alive in which case all are handled manually by the fisher to allow them freedom as soon as the weir is fished. Our Acadia University crew was working with Mr. Linkletter tagging Atlantic sturgeon for an ongoing population study (McLean et al. 2013). In this way the shortnose sturgeon was identified during a midday tide (low water 12:33 pm). For comparison, there were also two Atlantic sturgeon in the weir on that tide.

The shortnose sturgeon was an adult, 73.7 cm FL and weighed approximately 4.5 kg (Weight-Length relationship; Dadswell 1979). Photographs of all the critical taxonomic characteristics were taken with a mobile telephone camera (head, top and bottom, body; iPhone-4) before the sturgeon was tagged with a yellow, FLOY FT-1 dart tag (Acadia #4057) under the anterior of the dorsal fin and released alive.

Shortnose sturgeon are easily recognized from Atlantic sturgeon because of their short, rounded snout (Fig 1, 2) and very slippery, smooth skin (Gorham and McAllister 1974). Atlantic sturgeon of a similar length (60-100 cm FL) has an elongated snout (Fig 1) and are very rough to the touch because of small, sharp dermal ossifications.

Taxonomic characteristics of the shortnose sturgeon easily discernible from our photographs are the wide mouth which exceeds 62% of the interorbital width (in our specimen 66%; Vladykov and Greeley 1963) and a large, triangular lower pectoral girdle (Fig 2). The lower



**Fig 1** Ventral view of an Atlantic sturgeon (left) and a shortnose sturgeon (right); note short, round snout, wide mouth and large, triangular pectoral girdle of the shortnose sturgeon (after Dadswell et al. 1984a).



**Fig 2** Ventral view of shortnose sturgeon captured in Minas Basin on June 29, 2013. Note the wide mouth (66% of interorbital width), rounded lateral protuberances of the lower lip, and wide, triangular pectoral girdle.

lip in the shortnose has rounded protubences at its lateral edges; in the Atlantic these are rectangular (Fig 1). In sturgeons the cleithrum of the pectoral girdle is fused to the clavicle (Vladykov and Greeley 1963) and the clavicle shows as a large flat, bony plate on the ventral side of the fish on each side of the body just behind the opercula (Hilton et al. 2011). In the shortnose sturgeon this plate is wide and triangular in shape, in an Atlantic sturgeon it is narrow and curves laterally on its inner side along the *linea alba* (Fig 1). Shortnose sturgeon have large nares that are set close to the eye (Fig 3). Atlantic sturgeon have smaller, less obvious nares.

## DISTRIBUTION OF SHORTNOSE STURGEON

Shortnose sturgeon populations are known from the Saint John River estuary, New Brunswick south along the Atlantic coast of the USA to the Saint John's River, Florida (Dadswell et al. 1984a). Although shortnose sturgeon largely remain in the lower salinity reaches of their natal estuary, they often make coastal movements between watersheds, particularly during the warm water period of the year. In the southern



**Fig 3** Lateral view of the head of the shortnose sturgeon captured in Minas Basin on June 29, 2013. Note the short, rounded snout and the large nares set close to the eye.

part of its range there is persistent movement between the Ogeechee and Altamaha rivers in Georgia, a distance of about 80 km (Peterson and Farrae 2011). In Maine, 83% of shortnose sturgeons tagged with acoustic tags in the Penobscot River were recovered by acoustic receivers in the Kennebec River, after moving an average distance of 120 km (Fernandes et al. 2010).

Minas Basin is warm during summer (18-20 C) and has lower salinity than the open Bay of Fundy (24-30; Bousfield and Liem 1959). The Basin has an abundance of intertidal shellfish (*Mya sp.*, *Macoma sp.*), which are the preferred food of adult shortnose sturgeon (Dadswell et al. 1984a). The distance between the mouth of the Saint John River and Economy is about 165 km, easily within the coastal migration distances known for this species. In addition, various weir fishers have told us they had seen shortnose sturgeon in their weirs in recent summers. We are thankful that we were able to verify their observations and extend the known Atlantic coast range of the shortnose sturgeon.

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