

**First record of a Freshwater Drum, *Aplodinotus grunniens*, in the
Rideau River, Ottawa, Ontario**

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A Freshwater Drum, *Aplodinotus grunniens*, family Sciaenidae, captured in the Rideau River, Ottawa, Ontario, on 28 July 1998, is the first reported capture of this species within the Rideau River. It increases the total number of fish species reported in the Rideau River and Canal to 56 species belonging to 19 families.

Key Words: Freshwater Drum, *Aplodinotus grunniens*, Rideau River, Ottawa.

A survey of the Rideau River fish community was conducted during the summer of 1998 as a part of the Rideau River Biodiversity Project, involving the Canadian Museum of Nature, the Rideau Valley Conservation Authority, and the University of Ottawa. As a result of this survey,

a Freshwater Drum, *Aplodinotus grunniens* Rafinesque, was captured in the Rideau River, between the Bank Street and Bronson Street bridges, Ottawa, Ontario, (45° 23' 12''N, 75° 41' 09''W), by Anne Phelps and Brent Campbell on 28 July 1998. This is the first reported capture of a Freshwater Drum within the Rideau River (Figure 1). The site of capture on the Rideau River is approximately 9 km upstream from its confluence with the Ottawa River, Rideau Falls. The base of Rideau Falls is the Freshwater Drum's nearest known site in the Ottawa River. The Rideau River record is 275 km from its nearest known site in the St. Lawrence River, Browns Bay and 200 km from its nearest known site in Lake Ontario, the Bay of Quinte (Mandrak and Crossman 1992). According to literature records (Small 1883; Prince et al. 1906; Halkett 1906, 1908; Dymond 1939; McAllister and Coad 1974; Coad 1983, 1987; City of Gloucester 1991*, 1992* and RMOC 1995a*, 1995b*, 1996a*, 1996b*, 1998*), 55 fish species (including the introduced Brown Trout *Salmo trutta*, Rainbow Trout *Oncorhynchus mykiss*, and Common Carp *Cyprinus carpio*) belonging to 18 families have been reported in the Rideau River and Canal (Table 1). The discovery of the Freshwater Drum in the Rideau River increases these numbers to 56 species belonging to 19 families. For comparison, 64 species from 21 families have been reported for the Ottawa River (Dymond 1939, McAllister and Coad 1974, Coad 1987).

The freshly captured Freshwater Drum measured 461 mm in standard length, 568 mm in total length and weighed 2.76 kg. The specimen is beyond the average range of total lengths for a Freshwater Drum, 457-508 mm (Scott and Crossman 1973). External and internal examination did not reveal the presence of parasites. A radiograph did not reveal any skeletal abnormalities.

The Freshwater Drum, a female, was 13 years old, as determined from scale samples taken from the right side, above the lateral line just below the origin of the dorsal fin and behind the pectoral fin. Scale impressions were made onto acetate slides and read twice by two individuals in addition to the authors. All individuals agreed on the age determination. Annuli were ascertained according to three criteria: the discontinuous ridges (circuli) were located between two continuous ridges (annuli), the cutting over of the ends of outcurved ridges by new ridges, and the crowding of circuli (Lagler 1949). The Freshwater Drum's digestive system was empty due to the length of time spent in the trapnet. The fish has been deposited in the collection at the Canadian Museum of Nature (catalog no. CMNFI 1999-4).

The Freshwater Drum was captured in a trapnet with a 1.83 m³ box, a multifilament stretched mesh size of 6.4 cm, and a 25 m x 1.83 m multifilament lead. The lead was attached to the shore with the net spanning approximately half the width of the river, perpendicular to the current. River width at this location was 60 m, and the river depth at the opening of the box was 3.5 m. The net was set for 24 hours. Other species caught in the same trapnet on that day include one Northern Pike (*Esox lucius*), eight specimens of Common Carp (*Cyprinus carpio*), one Silver Redhorse (*Moxostoma anisurum*), two Rock Bass (*Ambloplites rupestris*), and five Smallmouth Bass (*Micropterus dolomieu*). The shoreline vegetation was primarily long grass with few overhanging trees, bordering an area of urban development. There was a shopping centre on the eastern side of the river and parkland on the other. Aquatic vegetation covered approximately 20% of the bottom and consisted of mostly Wild Celery, *Vallisneria americana*, and some Water Milfoil, *Myriophyllum* species. The substrate type

was 75% sand, 15% rubble, and 10% large woody debris. The water temperature was 24° C at 20 cm from the surface.

The Freshwater Drum is the only freshwater species of the family Sciaenidae in North America (Barney 1926, Robins et al. 1991) and has the greatest latitudinal range of any of the North American freshwater fishes (Fremling 1980). The Freshwater Drum has large molariform pharyngeal teeth well adapted for crushing mollusc shells (French 1997). The diet of individuals greater than 250 mm in total length consists of larval dipterans, cladocerans, and fishes, with pelecypods (native bivalve molluscs) and decapods (crayfishes) added to the diet of individuals over 350 mm in total length (Bur 1982). Within the last decade, the exotic Zebra Mussel, *Dreissena polymorpha*, has also become an important food item for Freshwater Drum inhabiting the Great Lakes (French and Bur 1993, Morrison et al. 1997).

The southernmost extension of the Freshwater Drum's range spans the coast of the Gulf of Mexico through eastern Mexico to the Rio Usumacinta Basin of Guatemala. In the United States, it is found throughout the Mississippi drainage basin (Fremling 1980). In Canada, the Freshwater Drum is found in southern Saskatchewan, throughout Manitoba as far north as Hudson Bay, in southern and eastern Ontario, and in southern and western Quebec (Scott and Crossman 1973). In Ontario, it is found in the St. Lawrence River, the Ottawa River, Lake Abitibi, and the Great Lakes, except Superior (Mandrak and Crossman 1992). In the Ottawa area, the Freshwater Drum is not commonly captured. Small (1883) stated that the Freshwater Drum was not prevalent in the Ottawa River although several were captured near Templeton in

1882. Dymond (1939) noted that the species was found in the Ottawa River upstream and downstream of the Chaudière Falls. McAllister and Coad (1974) reported two specimens captured by P. Rubec in the Ottawa River; one off the western tip of Upper Duck Island in July 1972 and the other off the western tip of Kettle Island in August 1972 (Canadian Museum of Nature catalog nos. NMC72-142 and 72-143). No other records were reported for the Ottawa region until June 1984 when L. Jutasi and C. Szabo captured two specimens in the Ottawa River at the base of Rideau Falls (NMC84-257). In the present study, between the 20 July and the 10 September 1998, over 6900 fishes were captured in the Rideau River using seines, hoopnets, trapnets, and backpack electrofishing. Of that total, 332 fishes, including the Freshwater Drum specimen, were caught in 14 trapnets set for 24 hours each.

The natural outlet of the Rideau River is a 15 m drop, Rideau Falls, an impassable barrier to the movement of fishes from the Ottawa River to the Rideau River. However, the construction of locks along the length of the Rideau Canal System between 1826-1832 have made access possible from both the Ottawa River and the Lake Ontario - St. Lawrence River. If the Freshwater Drum had strayed into the Rideau River from Lake Ontario - St. Lawrence River it would have traveled through 33 locks, upstream through the Cataraqui River, then downstream through the Rideau River towards Ottawa. This is what has occurred in the case of the Alewife, *Alosa pseudoharengus* (Coad 1983). If the Freshwater Drum had strayed in from the Ottawa River it would have traveled upstream through only 12 locks. The available data do not permit us to establish which of the two possible scenarios has occurred. However, it is clear that the

creation of the Rideau River Canal System has made possible the movement of fishes from other watercourses.

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Fig. 1. Distribution map for the Freshwater Drum, *Aplodinotus grunniens*, in eastern Ontario.

The black triangle indicates the new Rideau record, the white triangles indicate past records within the region. The dashed line indicates the divide between the Rideau and the Cataraqui rivers, which together constitute the Rideau River Canal System.

