

A New Record of Deepwater Sculpin, *Myoxocephalus thompsonii*, in Northeastern Alberta

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We present the first documented records of Deepwater Sculpin, *Myoxocephalus thompsonii*, from northern Alberta, and the second record for the province. Three specimens of Deepwater Sculpin were taken in gill nets set at 17 to 20 m depth in Colin Lake, Alberta, on 15 September 2001. Colin Lake, located in the Canadian Shield region of northeastern Alberta about 125 km north-east of Fort Chipewyan, drains into Lake Athabasca via the Colin River. The only other known Alberta population of Deepwater Sculpin inhabits Upper Waterton Lake in the southwestern corner of the province. This record is approximately 300 km SSE of the nearest verified record in the Northwest Territories and 400 km NW of the nearest verified record in Saskatchewan.

Key Words: Deepwater Sculpin, *Myoxocephalus thompsonii*, distribution, Colin Lake, Alberta

Three individuals of Deepwater Sculpin, *Myoxocephalus thompsonii*, were collected in two separate gill net sets in Colin Lake, Alberta (59°34'N, 110°08'W) on 15 September 2001. One set was in 17 m of water, and fished for a period of 15 hours. The other was set at 18–20 m depth for 14 hours. Each net set consisted of one 60 m multi-mesh net with six 10 m panels ranging from 10 to 25 mm bar mesh and one 60 m net with six 10 m panels of 10 to 50 mm bar mesh. All nets were

1.8 m in depth. The two nets were fished in series on the bottom of the lake. Both collecting sites were located on the gently sloping periphery of the two deep basins in the lake (Figure 1). The maximum depth of the lake is approximately 25 m. The composition of the substrate at the sampling sites was not determined.

Species taken syntopically with the sculpins included Lake Whitefish (*Coregonus clupeaformis*), Cisco (*Coregonus artedii*), Burbot (*Lota lota*), Northern Pike

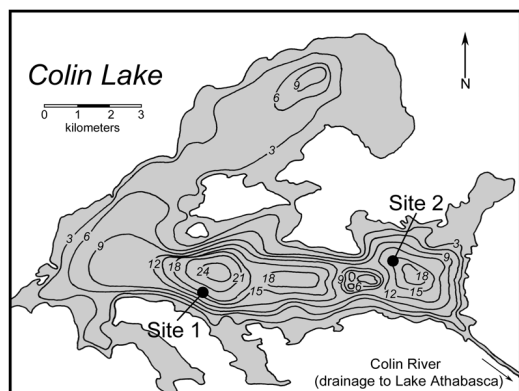


FIGURE 1. Bathymetric map of Colin Lake, with Deepwater Sculpin capture localities indicated. Depths given in metres.

(*Esox lucius*), Lake Trout (*Salvelinus namaycush*), and Longnose Sucker (*Catostomus catostomus*). Lake Whitefish, Cisco, and Longnose Suckers were the most common species.

All three specimens of Deepwater Sculpin are gravid females, ranging from 62–74 mm SL (Standard Length), with four prominent, large, and straight preopercular spines, a large gap between the dorsal fins, and the gill covers free at the isthmus. Meristic counts of these specimens are consistent with data presented by McAllister (1961) for adjacent populations in Saskatchewan and the Northwest Territories. Dorsal fin spines were (number of specimens in parentheses) 7(2) or 8(1); dorsal fin rays 14(1), 16(1), or 17(1); anal fin rays 14(1), 15(1), or 17(1); pelvic rays 3(6); pectoral rays 16(2) or 17(4). Two of the three had an incomplete lateral line (ending under the last dorsal fin ray) with 32 pores; in the remaining specimen the lateral line continued posteriorly to the caudal peduncle and had 36 pores.

These specimens represent the first record of Deepwater Sculpin from northern Alberta, and only the second record for the province (Roberts 1988). The only other known population in Alberta occupies Upper Waterton Lake (49°02'N, 113°54'W) on the Alberta/Montana border (McAllister and Ward 1972) (Figure 2). Nelson and Paetz (1992) suggested the likely presence of Deepwater Sculpin in northeastern Alberta, given the proximity of populations in adjacent Saskatchewan and the Northwest Territories. The closest populations supported by voucher specimens are Great Slave Lake, Northwest Territories (~300 km NNW) and Wollaston (400 km SE) and Reindeer Lakes (520 km SE), Saskatchewan (COSEWIC 2006*). Records from Lake Athabasca in northwestern Saskatchewan (~100 km ESE, COSEWIC 2006*) are not supported by voucher specimens. The specimens from Colin Lake fill this gap, and further suggest that additional populations of this enigmatic cottid remain undiscovered in the northern portions of its range. New populations con-

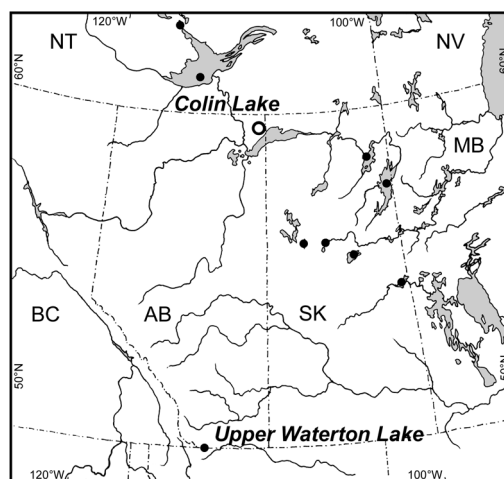


FIGURE 2. Distribution of Deepwater Sculpin in western Canada (data from Scott and Crossman 1973, and Murray et al. 2003). Colin Lake records indicated by open circle.

tinue to be discovered as deepwater habitats are systematically sampled (i.e., Murray et al. 2003; COSEWIC 2006*).

Although typically encountered at depths greater than 44 m (Scott and Crossman 1973), this species is occasionally found at much shallower depths, especially as larvae and juveniles (COSEWIC 2006*); Rawson (1951) collected specimens in 1 m of water in Great Slave Lake, while McPhail and Lindsey (1970) documented specimens from 4–6 m in Great Bear Lake. Alex Peden (*in* McPhail and Lindsey 1970) suggested that this fish is probably concentrated in deep water during the summer and moves inshore in the fall. The discovery of Deepwater Sculpin in Colin Lake is thus somewhat unusual in that the lake is not particularly deep, with a maximum depth of only 25 m. Further studies to determine seasonal distribution patterns within the lake and any unique biological characteristics of this population would be valuable. It is worth noting that Colin Lake is connected via the Colin River to the Saskatchewan side of Lake Athabasca (approximately 20 km to the SE) where depths can reach 124 m. It is likely that trapping efforts in deepwater habitats of Lake Athabasca will provide additional records. However, there are currently no data to support the use of the Colin River as a post-glacial movement corridor between Colin Lake and Lake Athabasca.

The only populations of Deepwater Sculpin currently given protective status in Canada are the Great Lakes – Western St. Lawrence populations, which were listed as Threatened by the Committee on the Status of Endangered Wildlife in Canada [COSEWIC] (Parker 1988) but have recently been downgraded to Special Concern (COSEWIC 2006*), and are on schedule 2 of

the Canadian Species At Risk Act (SARA). Western populations (which include the new population discussed herein) were designated Not at Risk in 2006 (COSEWIC 2006*).

The gill nets used to capture these Deepwater Sculpins were deployed as part of a Shortjaw Cisco (*Coregonus zenithicus*) survey in the Canadian Shield region of Alberta (Steinhilber 2004*). Our recent experience suggests that deployment of cyalume light stick-baited wire minnow traps in deepwater habitats is more effective at sampling Deepwater Sculpin than are small-mesh gill nets. The effectiveness of this technique has not been previously discussed in the literature. Long-term surveys of Lake Saganaga on the Ontario/Minnesota border have primarily used small-mesh gill nets (Etnier and Skelton 2003). Between 1986 and 2003, only one specimen of *M. thompsonii* was taken. Use of light stick-baited cylindrical wire minnow traps during summer 2004 per our request resulted in capture of 10 specimens (D. A. Etnier, personal communication). Similarly, during 2003 we provided Fisheries and Oceans Canada personnel on Lake Nipigon with light sticks and traps that were set simultaneously with their gill nets, with similar results (A. Van Ogtrop, personal communication). Other researchers working on Deepwater Sculpins have had similar experiences (T. Sheldon, personal communication; COSEWIC 2006*). We thus strongly recommend the use of this technique over small-mesh gill nets for assessing presence/absence of Deepwater Sculpin.

Acknowledgments

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Materials Examined

All specimens are deposited in the holdings of the Royal Alberta Museum, Edmonton. PMA L01.33.319, *Myoxocephalus thompsonii*, *n*=1 (74.0 mm SL), Colin Lake, 59°33'12"N, 110°9'30" W. 15 September 2001. Collectors: M. Steinhilber, B. Meagher. PMA L01.33.311, *M. thompsonii*, *n*=2 (62.7-73.0 mm SL), Colin Lake, 59°33'28"N, 110°5'8" W. 15 September 2001. Collectors: M. Steinhilber, B. Meagher.

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