

Summer Spawning in the Fourhorn Sculpin, *Myoxocephalus quadricornis*, from Alaska

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Goldberg, Stephen R., William T. Yasutake, and Robin L. West. 1987. Summer spawning in the Fourhorn Sculpin, *Myoxocephalus quadricornis*, from Alaska. Canadian Field-Naturalist 101(3): 457.

Histological ovarian analysis indicates summer spawning occurs in *Myoxocephalus quadricornis* (Fourhorn Sculpin) from Alaska. Previous studies have shown this species spawns during winter in the Baltic Sea; the data presented herein suggests that geographical variation may occur in the timing of spawning of this species.

Key Words: Fourhorn Sculpin, *Myoxocephalus quadricornis*, summer spawning, Alaska.

The fourhorn sculpin, *Myoxocephalus quadricornis*, which inhabits cold, brackish and moderately saline water (Morrow 1980) has a circumpolar distribution. It is a common species in the Beaufort Sea (Craig 1984). In the Baltic Sea, spawning takes place from mid-December through January (Westin 1968, 1969). The purpose of this note is to provide histological information on the time of spawning for this fish in Alaska.

Sixteen fish (four females and twelve males) were collected using fyke or gill nets from the Beaufort Lagoon (69°50'N, 142°15'W) Beaufort Sea, Alaska between 26 and 29 July 1984. Gonads were preserved in Bouin's fixative and embedded in paraffin. Histological sections were cut at 5 μ m and stained with Harris' hematoxylin followed by eosin counterstain. Ages were estimated by reading otoliths.

Histological ovarian analysis indicates that summer spawning activity occurs in *M. quadricornis*. Three of four females examined contained hydrated eggs. These fully hydrated eggs averaged 728 μ m in diameter. During hydration the oocyte may enlarge as much as four times (Wallace and Selman 1980). Hydration occurs just prior to spawning. The three females with hydrated eggs were between 4 and 7 years of age and averaged 220 mm fork length (FL). One of these females also contained eggs with early yolk deposition. This suggests the possibility that some *M. quadricornis* may spawn more than once during a reproductive season in the Beaufort Sea. A fourth female contained vitellogenic eggs (yolk deposition in progress). It was between three and four years of age and measured 154 mm FL.

Histological analysis revealed eight of twelve males were undergoing sperm formation. These were between three and five years of age and averaged 160 mm FL. Four, presumably juvenile, males between two and three years of age contained

spermatogenic cysts in the testes but no sperm. The four juvenile males averaged 95 mm FL.

Previous work from the Baltic Sea off Sweden (Westin 1968, 1969) has shown *M. quadricornis* to be a winter spawner (December-January). Our work has indicated that *M. quadricornis* spawns during summer in northern Alaska. Therefore, our data have shown the possibility that geographic variation may exist in the timing of the reproductive cycle of this species. Subsequent studies will be required to determine the total length of the Beaufort Sea *M. quadricornis* spawning period as well as how many times a female spawns in a reproductive season.

Acknowledgments

Histological slides were prepared by Douglas W. Eib.

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Received 9 December 1985

Accepted 25 June 1986



Goldberg, Stephen R., Yasutake, William T., and West, Robin L. 1997. "Summer spawning in the Fourhorn Sculpin, *Myoxocephalus quadricornis*, from Alaska." *The Canadian field-naturalist* 101(3), 457–457.

<https://doi.org/10.5962/p.355956>.

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DOI: <https://doi.org/10.5962/p.355956>

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