

PRICKLY SCULPIN (*Cottus asper*) and SLIMY SCULPIN (*Cottus cognatus*)

Ecology and Life History

Prickly sculpins range from western British Columbia to California (Scott and Crossman, 1973), while slimy sculpins occur in southeastern and northern BC, across Canada to the Gulf of St. Lawrence (Scott and Crossman, 1973). Although these two species are distinct, they will be discussed together because both species have similar life histories, occupy similar habitats, and their range overlaps. Sculpins are generally benthic organisms being negatively buoyant, typically inhabiting the bottom of lakes or streams on sandy, cobble, or boulder shorelines (Scott and Crossman, 1973; Roberge *et al*, 2002).

Sculpins are benthic foragers, consuming small fish, insects, and other small prey items (Scott and Crossman, 1973). Adults likely consume larger prey, including young of the year fish. Prey items are highly variable and likely dependant upon availability (Scott and Crossman, 1973). Eggs are also a key prey item for sculpins (Scott and Crossman, 1973). It has been documented that *C. cognatus* will migrate to sockeye (*Onchorhynchus nerka*) shore spawning areas, where there may be as many 100 individuals per sockeye nest (Foote and Brown, 1998).

Sculpins spawn in the early springtime, usually between March and June (Scott and Crossman, 1973) when water temperatures reach 10°C (Coker *et al*, 2001). Males are the first to arrive on breeding grounds (Scott and Crossman, 1973), and guard a nest on the underside of small rocks, or other items (Scott and Crossman, 1973; Coker *et al*, 2001). Females move into spawning areas and deposit adhesive eggs on the undersides of the nest (Scott and Crossman, 1973). Males may court multiple females in the nest and as many as 30,000 eggs have been observed in a single nest (Scott and Crossman, 1973). Males guard eggs until they hatch, providing parental care by fanning the eggs to oxygenate them (Scott and Crossman, 1973).

Okanagan Lake System

Beach seine results indicated that sculpins consisted of 20.3, 38.0, and 48.8% of the community sampled in the spring, summer, and fall, respectively. The increase in abundance of sculpins during the fall is most likely the result of a significant number of young of the year fish (YOY) being sampled. Adult sculpins were generally most abundant in stream mouth areas, but were also very common on gravel beaches and low rocky shorelines. Juvenile and YOY sculpins were most common on sites with sandy substrates or in stream mouth areas. Sculpins were also sampled in several streams, including Francis Brook and Thompson Brook and they appear to make up a large component of the fish assemblage in heavily urbanized streams.

No spawning areas were identified during the survey, although it is probable that these fish will spawn along any shoreline as long as cobbles or other substrates they can nest under are present. Sculpins most likely spawned sooner than spring sampling, as young of the year were identified during the spring sampling event in several shoreline areas (YOY <= 1 cm in spring). Timing for spawning in Okanagan Lake would likely occur between mid March and June when temperatures typically reach 10 °C. Due to the wide range of habitats where YOY and adult fish were sampled, spawning and rearing habitat does not appear to be limiting factors for this species.

A few larger individuals were sampled in gill nets (up to 17.0 cm), and diets of these fish consisted primarily of small bodied cyprinids such as red side shiners. In general, it is believed that these fish are opportunistic, and occupy a wide range of habitats.

Sculpins are believed to be an important forage fish in this system and were common prey items of rainbow trout and northern pikeminnows. Also, common mergansers (*Mergus merganser*) and Great Blue Herons (*Ardea herodias*) are known to prey on sculpins (Scott and Crossman, 1973), indicating that they are an important component of the Okanagan Lake fish community for a variety of reasons. However, due to their abundance and general success, with few limiting factors, they are not considered to be species of significance along the Kelowna waterfront at this time. EBA has previously documented significantly reduced numbers of sculpins in systems containing bass to the south. It is difficult to predict the effects of the loss of this forage fish on fish or piscivorous birds but it is assumed to be relatively high.

References

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