

NORTHERN PIKEMINNOW (*Ptychocheilus oregonensis*)

Ecology and Life History

Northern pikeminnows range throughout most of British Columbia, into Washington and Oregon, and occur primarily west of the Rocky Mountains (Scott and Crossman, 1973). Northern pikeminnows are the largest native cyprinid found in Okanagan Lake. In general, smaller immature individuals typically reside near the shallow, shoreline areas with silt, sand or gravel substrates (Coker et al, 2001), while large, mature individuals reside in deep water (Scott and Crossman, 1973; Coker et al, 2001). Northern pikeminnows are common along sandy, cobble, gravel, boulder or bedrock shorelines (Roberge et al, 2002; Scott and Crossman, 1973) in nearshore areas. In general, these fish tend to inhabit nearshore areas during the spring and summer and migrate to deeper waters during the winter months (McPhail and Lindsey, 1970).

Northern pikeminnows consume mainly insects and fish, but may also eat molluscs and other small items (Scott and Crossman, 1973). These fish have also been documented to consume large numbers of young fish, including salmonids (Scott and Crossman, 1973). Juveniles are insectivorous, switching to a piscivorous diet at sizes of 85 mm (McPhail and Lindsey, 1970). The highly predatory nature of these fish has resulted in numerous attempts to limit their numbers, through programs such as the Northern Pikeminnow Management Program on the lower Columbia River (Beamesderfer et al., 1996; Coker et al, 2001).

Northern pikeminnows spawn in the early springtime, usually between late May and July (Scott and Crossman, 1973) when water temperatures are between 12 to 18°C (Coker et al, 2001). Males tend to occur in larger numbers on the breeding grounds, and no nest is built (Scott and Crossman, 1973; Coker et al, 2001). Females move into spawning areas and multiple males will court a single female. Small adhesive eggs are deposited onto gravelly shallows (Scott and Crossman, 1973). Males may court multiple females, and females may have multiple spawning bouts with more than one male throughout the breeding season (Scott and Crossman, 1973). Eggs hatch between 8 to 10 days at 15 to 17 °C (Scott and Crossman, 1973; Coker et al., 2001).

Okanagan Lake System

Northern pikeminnows were sampled in both beach seines and gill nets. These fish consisted of 35.9, 46.2, and 38.0% of the community sampled in gill nets in the spring, summer, and fall, respectively. Adult pikeminnows were generally more abundant in deeper sites than in shallow sites, and were generally sampled along rockier shorelines (i.e., gravel, cobble, boulder, bedrock). Juvenile pikeminnows were associated with adults at most sites, but tended to occur closer to the shoreline. A significantly large proportion of juvenile pikeminnows were sampled around the Kelowna Yacht Club, Manhattan Point, and Sutherland Bay. It appears that juvenile pikeminnows may congregate around structure, whether it was artificial (e.g., docks) or natural (e.g., aquatic vegetation) based upon the number of individuals sampled using beach seines at the Kelowna Marina site (Site 8), Sutherland Bay (Site 10), and Manhattan Point (Site 11).

Spawning areas were identified during the survey, and it is probable that these fish will utilize any shoreline as long as there is sufficient cobbles and gravel present for egg deposition. Ripe males were found at nearly every site (all except Pauls Tomb area, Site 11), except for sites containing fine substrates. The largest numbers of ripe males were found in the northern and southern areas of the Kelowna Waterfront. The entire spawning season likely occurs between May and mid July, with peak spawning activity in June. Due to the

large number of fish sampled, and the number of sites where ripe adults were sampled, spawning habitat or juvenile recruitment do not appear to be limiting factors for this species.

These fish are a prominent predator in the system, and may consume the largest number of forage fish (e.g., reidside shiners, sculpins, and juvenile salmonids) within the system due to their high relative abundance. They are an important component of the Okanagan Lake fish community because they likely have a large contribution to the predator-prey relationships within the lake.

Several different parasites were found in these fish. There appeared to be low prevalence (<10%) of a parasitic infection based upon cursory analysis. However, our analysis focussed primarily on large, obvious parasites such as cestodes (members of the tapeworm class) and a complete investigation of the parasite assemblage in Okanagan Lake is recommended.

In general, it is believed that these fish are not affected by in-water structures or development to the same extent as more sensitive fish species (e.g., Kokanee). They tend to occupy most habitat types within the lake and there does not appear to be any habitat limiting factors. Based upon these observations, Northern pikeminnows are not considered to be species of significance.

References

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