

Fish Community Composition and Habitat Use in the Eg-Uur River System, Mongolia

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Abstract

Mongolian rivers and their fish communities have suffered severe impacts from anthropogenic activities. However, the remoteness of some systems has allowed for the conservation of unique fish faunas, including robust populations of *Hucho taimen*. Conservation of *H. taimen* requires understanding the composition and ecology of other fishes in the community. Using multiple sampling techniques, direct observation, and existing literature, we assessed the composition, relative abundance, and ecological attributes of fishes in the Eg-Uur watershed (Selenge basin). We collected 6 of 12 species known in the watershed. *Phoxinus* cf. *phoxinus* and *Lota lota* were the most and least abundant species, respectively. We failed to detect *H. taimen*, indicating low abundance or unknown habitat requirements for juveniles. We compared the effectiveness of different sampling techniques (with electrofishing producing the highest species richness), constructed length-weight relationships for four species, and identified ecological attributes (i.e., trophic guild, preferred habitat) for resident fishes.

Key words: *Barbatula* sp., *Brachymystax lenok*, *Cobitis* sp., habitat use, *Phoxinus* sp., Selenge river

Introduction

Northern Mongolia's rivers are among the most unimpacted river systems in the world. The country's largest system, the Selenge River, flows north into Lake Baikal and includes a fish fauna consisting of at least 22 species (Matveyev *et al.*, 1998), including *Hucho taimen*, which is one of the world's largest salmonid species (Holcik *et al.*, 1988, Baasanjav & Tsend-Ayush, 2001). *H. taimen* populations have declined across their range due to anthropogenic impacts - primarily dam-building, pollution, deforestation, mining, and overharvest (Bazuin *et al.*, 2000). However, some parts of the Selenge River basin are extremely remote, and have not been subject to anthropogenic impacts. As such, they retain intact aquatic communities, including robust populations of *H. taimen*. The Eg-Uur is one such system.

The Taimen Conservation Fund has spearheaded a conservation program in the Eg-Uur aimed at conserving the river ecosystem while promoting a sustainable catch-and-release

fishery for *H. taimen* that would raise revenue for local communities and conservation initiatives through licensing fishing concessions. Research efforts have focused primarily on the ecology of *H. taimen*, and include assessments of critical habitat, population sizes, and movement and migration, all with an emphasis on sustainable fishery management (e.g., Vander Zanden *et al.*, 2007). While focus has been on the ecology of *H. taimen*, it is critical to recognize that they are just a part of the river ecosystem. *H. taimen* interact with other fishes in the ecosystem, and these species may also benefit from conservation efforts as *H. taimen* are considered an 'umbrella species' in rivers of this region (Frankel & Soulé, 1981, Roberge & Angelstam, 2004). With this in mind, we present a description of the fish communities of the upper Eg-Uur river basin focusing on species composition, ecological attributes, relative abundance, and habitat use. As large central Asian rivers and *H. taimen* in particular are increasingly threatened by anthropogenic pressures (Allen & Flecker, 1993; Dudgeon *et al.*, 2006), our study