

Key Points:

Taimen are resident river-fish that do not migrate long distances in groups as do Pacific salmon or Baikal omul.

The average home range size for the tracked taimen was 17 river kilometers.

Taimen move the most after spring ice-melt and in the fall as water temperatures cool.

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Fish Ecology: *Hucho taimen*



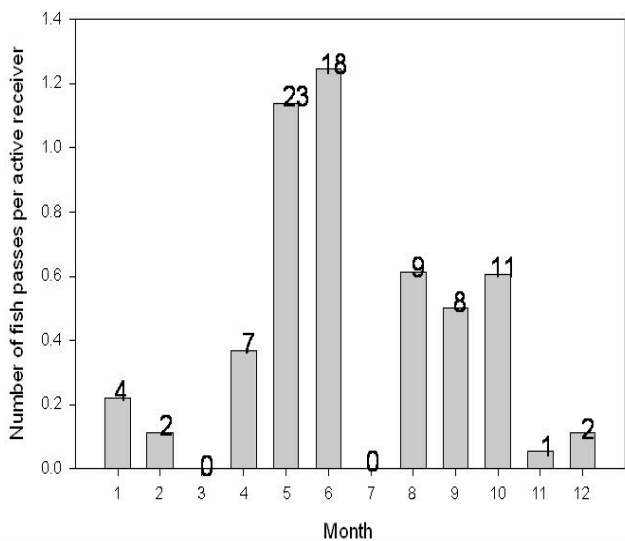
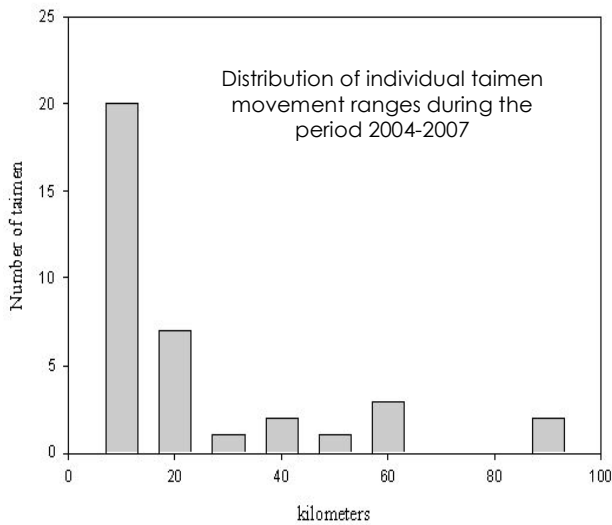
Taimen Habitat

Introduction:

Studying the home range of fish is important for both understanding the space requirements of a species but also to help determine the appropriate scale for management planning, regulations and restoration efforts. Throughout their native range, taimen are predominantly found in fluvial environments, with individuals occasionally being caught in the littoral zone of lakes and reservoirs^{1,2}. In Mongolia, taimen are found in larger streams and rivers (5th order or greater) in the Arctic and Pacific drainages. They are thought to have an upstream spawning migration in the spring and a downstream migration to wintering pools in the early to mid-fall³. Though there have been some studies on their broad-scale habitat use, quantitative evidence of distances traveled during any of their annual movements, essentially their home range, has not been available¹.

Eg-Uur Watershed taimen movement study

The goal of this study was to determine the taimen's home range and movement patterns as an aid in the development of a management system for recreational fishing operations in Mongolia's Eg-Uur watershed. We used telemetry to monitor the movements of adult *Hucho taimen* in the Eg and Uur Rivers. Forty-six taimen (mean length 82 cm) were caught and tagged with transmitters in Mongolia's Eg-Uur watershed during 2004. Fish were tracked approximately every 40 days during the ice-free months, with radio tracking continuing on the ice throughout the winter. An array of remote acoustic receivers continually logged the movement of acoustic-tagged fish at stationary points throughout the year.



References:

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Matveyev, A. N., N. M. Pronin, V. P. Samusenok, and C. R. Bronte. 1998. Ecology of Siberian taimen *Hucho taimen* in the Lake Baikal Basin. *Journal of Great Lakes Research* 24:905-916.

Results

Taimen in the Eg-Uur watershed did not exhibit any migrations en masse over the course of the study. The mean home range of individual taimen over the course of this 3-year study was 16.8 km ($n = 40$, range from 0.1 km – 84.7 km). Of the fish with the over 10 relocations ($n=16$), 90% moved within a range of 38 km. Four distinct movement patterns were detected among the individuals: 1.) restricted core home range; 2.) core range with seasonal departures; 3.) two core ranges; and 4.) home range shifts. Movement was greatest in May and June (spawning and post spawning period) with another peak period of movement in September and October (water temperature cooling). Maximum movement rates were measured at 4 km per hour in both upstream and downstream directions.

Implications for Management & Future Research

- Taimen have exhibited one-way movement of over 80 river km, travel extensive enough to cross soum (county) and even aimag (provincial) boundaries in the Eg-Uur watershed.
- All taimen with sufficient relocation data exhibited core areas of heavy use (>50% of time) that were of less than 3 river km in size. These regions of intensive use are important for identifying important habitat characteristics for taimen as well as investigating interactions with other taimen individuals in these regions.
- Of the four different movement patterns observed, the home range shift provides opportunity for dispersal and recolonization, but also for susceptibility to areas of less protection.
- The periods of increased movement make taimen more vulnerable to passive fishing efforts such as gill netting.
- The movement data from the Eg-Uur is the best available knowledge about taimen movements at this time. It is likely that there is some variability in taimen movements in different habitats. We recommend additional studies in other regions and more research addressing the drivers of movement at different scales.