

Prior to 1954, most of the data on spawning habits of grayling were obtained from stream fish. Therefore, the 1954 season was spent gathering spawning data on lake grayling. The following data were obtained:

1. Dates the streams used for spawning started to flow.
2. Dates the fish entered the streams.
3. Temperature and other physical conditions of the stream at the time fish entered.
4. Length of time fish remained in the stream.
5. Dates of spawning.
6. Sex and age composition of spawners.
7. Spawning sites.
8. Data on whether all grayling spawn in streams, or whether some spawn in the lake.
9. Number of eggs per female, and quantity of milt per male.
10. Percent fertility.
11. Dates of hatching.

The major portion of this study was conducted at one of the inlets of Fielding Lake. Grayling were observed moving upstream through channels in the ice as soon as the stream started flowing; about May 15, 1954. When water conditions were suitable (May 24), an upstream trap was set. It was kept in operation for 12 days, in which time, 87 grayling were taken. Pertinent data were collected from these fish, and then they were tagged and released.

The migrants continued upstream and distributed themselves throughout the stream. On June 1, the males became active and established territories. Fighting was common although not vehement.

Spawning was first observed on June 3, and continued for 3, and possibly 4, days. The water temperature was 38° F. at the start of spawning and reached a maximum of 46° F. at the end of spawning.

Spawning occurred primarily in slow, shallow backwaters, and not in riffles as had been supposed. Resting females lay in the riffles above the spawning area, but moved down when ready for egg deposition. Males remained in or very near the spawning area for the entire spawning period. Spawning observations agreed closely with those recorded for grayling in Montana, Canada, and Europe. However, preferred spawning sites in Interior Alaska appear to differ from the sites used elsewhere.

As soon as the fish had shed their sex products, they drifted downstream to the lake. The first downstream movement was observed on June 4, and continued through June 11. As soon as the downstream movement was observed, the upstream trap was reversed. The downstream trap was kept in operation for 8 days, in which time, 297 grayling were examined and tagged.

Two batches of eggs were collected and fertilized. These were set into a trough fed by water from the inlet. After 2 days, 1 batch of eggs was given to the Alaska Department of Fisheries, and one batch was kept at Fielding Lake. Thus, hatching data at two different water temperatures were obtained. The eggs kept at Fielding Lake eyed in 14 days and hatched in 18 days, at an average water temperature of 46° F. The eggs hatched by the Alaska Department of Fisheries hatched in 8 days at an average water temperature of 60° F.

The spawning habits study will be continued next spring and all data on hand will be presented upon completion of the project.