



Meet the authors . . .

The Brynildson brothers—Oscar (above) and Cliff (left)—have been fisheries biologists with the Wisconsin Department of Natural Resources for 25 and 30 years, respectively. Said one person who reviewed this manuscript: “I think it is just tremendous that the Brynildson brothers, in the twilight of their careers, will have a publication together. It means a lot to all of us.”

Oscar Brynildson is a retired fish researcher, formerly with the WDNR, Bureau of Research. His current address is Route #2, Box 25-1, Black River Falls, WI 54615. Cliff is currently Area Fish Manager for the Madison Area, WDNR, 3911 Fish Hatchery Rd., Madison, WI 53711.

ABSTRACT

To eliminate severe channel erosion caused by flooding, a dry floodwater-retarding structure (FRS) was installed in 1964 on Trout Creek in southwestern Wisconsin. Because this FRS was built at a valley constriction that was also a prime spawning area for wild brown trout (*Salmo trutta*), a study was initiated on the impacts of the FRS on the trout population. These impacts were determined primarily through comparison of trout population response upstream from the FRS with that downstream during 16 years after construction of the FRS (1964-79), but also through comparison of some preconstruction data on trout populations (1960-64) with the postconstruction data.

During the years studied, the FRS had occasional but no overall adverse effects on wild brown trout populations in Trout Creek. Population characteristics evaluated for possible impact by the FRS included reproduction, survival, production, and distribution.

Trout reproduction at stations 20 and 21 just upstream from the FRS was eliminated because the FRS resulted in standing silt-laden water which deprived eggs and nonswimming sac-fry of oxygen, and sedimentation which covered gravel spawning sites. Elimination of reproduction at this particular site—the prime spawning ground on Trout Creek—did not lower reproduction for the entire stream reach studied

because spawning trout compensated by using spawning grounds above the flood pool at stations 23-29 more extensively and intensively than they had prior to construction of the FRS. At this area, spawning gravel is inferior but winter water temperatures and sedimentation are moderate. Of significant benefit to wild brown trout above the FRS is the fact that the FRS blocked upstream migration of fish that compete with and prey upon trout.

In addition to increased use by trout of spawning grounds above the FRS, the limited trout reproduction that occurred below the FRS generally stabilized because of controlled water flow through the FRS during winter floods.

Average survival of wild brown trout from potential February-March fry to September fingerlings in Trout Creek was similar to that in 2 area coulee streams. Likewise, production in Trout Creek was similar to that in 1 of these other area streams.

KEY WORDS: Wild Trout, Brown Trout, Trout Streams, Wisconsin, Flood Control, Dams, Reproduction, Survival, Movement, Growth, Production.