ARC- 48/59 - 12

MONTANA FISH AND GAME DEPARTMENT
FISH DIVISION
INVESTIGATIONS PROJECT

Game Fish Loss Associated with Highway Construction

In 1955 it was learned that plans for highway improvement in Granite County, Montana included a wide sweeping curve which would involve some channel changes on Flint Creek in the vicinity of the junction of U. S. 10A with Montana No. 38. The fish population in this and adjacent portions of Flint Creek had been determined annually each spring by electric shock census as part of a federal aid investigations project (Montana F-13-R) initiated in 1954.

Flint Creek averages about 20 feet in width, 6 inches in depth with holes up to 4 feet deep, and has an average flow of about 15 cubic feet per second. It has good trout cover provided by overhanging willows and undercut banks.

The direct current 230-volt machine used for the fish population census was efficient at capturing approximately 90 percent of the catchable-sized game fish present in Flint Creek. Sections of stream to be shocked were blocked off with the aid of ¼-inch mesh seines placed a measured distance (usually 300 feet) apart.

The new highway construction was begun the fall of 1956 and continued through the summer of 1957. The bulldozer operator observed several trout killed while cleaning and straightening approximately 350 feet of the stream channel adjacent to the new highway. Such channel changes are common along new highway construction in mountainous terrain and affects many miles of stream each year in Montana.

In 300 feet of stream at the proposed highway construction site, there were 91 catchable-sized game fish weighing a total of 18.74 pounds in June 1955 (Table I). In April 1956 the fish captured were not weighted but 69 catchable-sized trout were counted in 300 feet of stream. After the highway construction in May 1957, a 300-foot section within the total 350 feet actually "improved" by the dozer contained only 6 catchable game fish weighing a total of 1.19 pounds. This was a 94 percent reduction in both numbers and weight of catchable-sized game fish. The loss of smaller fish was less than that of catchable fish.

Table 1. Game fish captured by electric shocker from 300-foot sections of Flint Creek, 1955-1957

Species	1955 No.	1955 Wt.	1957 No.	1957 Wt.
	Catchable-sized fish (6 inches or over in length)			
Rainbow & Cutthroat trout	68	12.63	6	1.19
Eastern brook trout	7	3.86	0	0.00
Whitefish	16	2.25	0	0.00
	91	18.74	6	1.19
	Subcatchable fish (less than 6 inches long)			
Rainbow & cutthroat trout	46	1.32	6	0.26
Eastern brook trout	6	0.17	2	0.10
Whitefish	1	0.04	0	0.00
	53	1.53	8	0.36
	144	20.27	14	1.55

There was an 85 percent reduction in numbers and a 76 percent reduction in total weight of subcatchable fish.

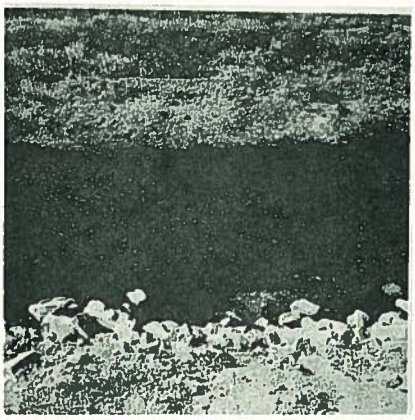
Available data also indicate fish losses in the area immediately downstream from the highway construction. A 200-foot section in this area yielded 31 catchable-sized trout weighing a total of 6.99 pounds. On a 300-foot basis for comparison this would amount to 48 percent fewer fish than were captured in that area in 1955. Heavy siltation from the bulldozer activity upstream probably caused this reduction in the fish population.

Shock census conducted by Jack Bailey, Arthur Whitney, John Spindler and summer help.

Report prepared by: Jack E. Bailey, August 1957

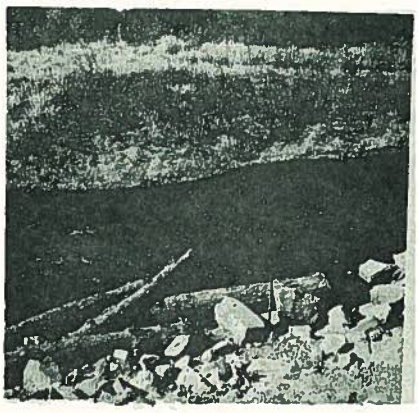
Flint Creek in 1957 near junction of 10A and No. 38. Note brush cover completely hides stream below point at which highway construction touched the channel.

Flint Creek in 1957 near junction of 10A and No. 38. Untouched by highway construction.



Flint Creek in 1957 near junction of 10A and No. 38. New highway construction

Flint Creek in 1957 near junction of 10A and No. 38. New highway construction. Channel cleared and straightened by bulldozer.



Flint Creek near junction of U. S. 10A and No. 38. New highway construction.

Flint Creek near junction of U. S. 10A and No. 38. New highway construction