MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS
FISHERIES DIVISION
JOB PROGRESS REPORT

STATE: MONTANA

PROJECT NUMBER: F-46-R-6
JOB NUMBER: VI-E

PROJECT TITLE: STATEWIDE FISHERIES INVESTIGATION
STATE TITLE: STATEWIDE SURVEYS AND INVENTORIES
JOB TITLE: ALTERNATIVE IRRIGATION STRUCTURES
PERIOD COVERED: JULY 1, 1992 TO JUNE 30, 1993

ABSTRACT

Grant funding was provided to the Broadway and Mile High Conservation Districts to construct alternative irrigation diversion structures for demonstration purposes. A consultant, under contract agreement, reviewed and recommended designs on two problem diversions. Grant funding was provided for partial funding of two diversions on the Jefferson River.

OBJECTIVES AND DEGREE OF ATTAINMENT

1. To engineer and design irrigation diversion structures that will have minimal physical effects on stream channels and fish habitat. Funding was granted for four diversions and an engineering design was recommended at two sites.

2. To evaluate cost, maintenance and effects on stream channel stability of diversion projects for demonstration purposes. No reports were received from conservation districts this report period.

PROCEDURES

Landowners with water rights or water use permits may divert water from rivers and streams for beneficial purposes. A common practice throughout Montana is to construct diversion dams by bulldozing up streambed material. This practice disrupts the armoring in the streambed and often causes stream channel instability resulting in erosion and sedimentation, thus adversely affecting fish habitat.

The Natural Streambed and Land Preservation Act (SB 310) administered by County Conservation Districts states that a permit is required on all activities undertaken by private individuals that affect the streambed and banks of perennial streams. Irrigation diversion structures that alter the streambed are no exceptions. However, many streambed material diversions are permitted because of a lack of less damaging alternatives.

In 1987 and 1988, Region 2 fisheries personnel experimentally developed a portable irrigation diversion structure that appeared to be a satisfactory alternative to diking up streambed materials. The structure consists of a 4 x 8 foot, ¼ inch steel plate with a

10 or 12 inch wide flange on the front that serves to anchor and prevent underscouring of the plate when in the stream. The plates are placed side by side in the stream and topped with jacklegs to hold boards in place. Boards can be easily placed or removed from the structure to control water levels. A tractor with a front end loader is used to place and remove the plates from the stream.

Conservation districts were contacted throughout the state to sponsor alternative irrigation diversions for demonstration purposes. A Memorandum of Understanding (MOU) is signed by the Conservation District Board Chairman and the Department Director outlining terms of agreement for the financing of the structures.

A contract was consummated with a private consulting firm to study problem diversion sites and recommend designs that may be environmentally acceptable and affordable. Plans acceptable by the Department are recommended to conservation districts as an alterative diversion and would be eligible for cost sharing benefits.

RESULTS AND DISCUSSION

During this report period, two MOU's were signed with conservation districts to demonstrate the portable irrigation diversion structures. The Broadwater and Mile High Conservation Districts were both granted $2,000 to construct the portable irrigation diversion structures. The Broadwater Conservation District contracted with a local high school Vo-Ag class to construct the structures. During this report period, Jefferson Valley Conservation District completed their alternative structures which we granted in FY 1992.

Conservation districts loan the structures to interested operators to evaluate. It is hopeful that successful operation at diversion sites will motivate irrigators to purchase or construct their own diversions. The individual 8 foot diversion plates can be constructed for about $200 a piece, while contracted prices will range from $250 to $340.

No evaluation reports were received from conservation districts during this reporting period.

Memoranda of Understanding were signed for two diversion projects on the Jefferson River. One project involved an experimental design for the Weingart Ditch Company and one on the Old Hale Ditch. Both MOU's were consummated through the Jefferson Conservation District.

A consulting firm reviewed and recommended alternative diversion practices at two sites. These involved the Weingart Ditch diversion on the Jefferson River and the Allestad/Hawks diversion in the Boulder River near Big Timber. Design problems on the Boulder River have delayed this project.

RECOMMENDATIONS

Renewing of the contract with a private engineering firm to study and design alternative irrigation diversions is recommended. Regional fishery personnel recommend where studies are needed on problem diversions. These diversions usually have a history of channel disturbance and biological problems. A portion of the alternative diversion funding should be available on a cost share basis for those irrigators desiring to participate with the program.

The portable irrigation diversion demonstration program should continue to be available to conservation districts. Assistance should also be available to individuals to help solve diversion problems on important streams where chronic biological damage has occurred over several years.

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