

STATE Montana

PROJECT F-1-C-6

DATE August 6, 1956

## COORDINATION PROGRESS REPORT

### FEDERAL AID IN FISH RESTORATION ACT MONTANA FISH AND GAME DEPARTMENT

Period: July 1, 1956 to July 31, 1956

1. Title of Project: Coordination
2. Supervisor : A. A. O'Claire, Fish and Game Director
3. Personnel : Walter M. Allen, Coordinator  
Charles K. Phenicie, Assistant Coordinator

#### Report of Progress

##### F-1-C-6 Coordination

In addition to general office work which included compilation of completion reports for mailing, four field trips were made this month. A one-day trip was made to Butte and Philipsburg by the Coordinator and Assistant Coordinator. Apparently through a misunderstanding, the F-13-R project personnel were out of town. A three-day trip was made to Billings to discuss project plans and progress with the F-20-R project leader and a four-day trip of Western Montana projects was made by the Assistant Coordinator with the Federal Aid supervisors from Portland and Washington, D. C.

A one-day trip in parts of the Marias River drainage was made by the Assistant Coordinator. Kipp Lake was drawn down to what appeared to be the minimum level, with no water entering or leaving the lake. Many fish around one and one-half to two inches were visible around the shoreline. Those near the outlet structure could be observed readily. Fish of shiner type were most abundant. Some suckers were observed and a few trout. No fish larger than two inches were observed. In the outlet pool below the lake many trout, suckers and shiners were seen. These, too, were small fish. One trout was about three inches long and the rest between one and one-half and two inches in length. No fish observed appeared to be carp.

A number of fish were observed jumping in the riffle area of Birch Creek immediately below the Highway #89 bridge. These appeared to be between three and four inches in length. Grasshoppers thrown into the riffle generated a great deal of fish activity. As these drifted on into the first pool below the bridge small fish continued to hit them. There were also larger fish in the hole which were able to eat the hoppers.

Soberup Creek at the Valier highway crossing was clear both above and below the bridge, but the hole under the bridge was quite murky. There was a tremendous number of small fish in the stream. Two larger fish about ten inches in length were observed

in the bridge pool. One was a sucker and the other could not be identified. All fish that could be observed closely enough for identification appeared to be suckers.

Dupuyer Creek at the Valier highway crossing was very clear, and many small fish were observed.

No fish at all were seen in the Marias River at Highway #91. At the bridge the water was quite murky. At the park below the highway the river was extremely muddy from operation of the gravel pit. The large oxbow just above the park and below the bridge was examined carefully. It is curious in light of the great number of small fish in other places that only three fish were observed. One was about two or three inches long. The other two were suckers about twelve inches long. One was dead.

A considerable expanse of lake is now present south of Galata. The terrain for some distance adjacent to the road is too flat for ready observation of fish life, however, water had backed up the east borrow pit of the road in sufficient depth for observation. Literally thousands of fish from three-eighths to about one inch in length were observed. What they were could not be determined, but they did not appear to be carp or goldeye. A coulee was found about a mile west of the road with steep enough banks for ready observation. A considerable portion of shoreline was observed here, and only two fish about two inches long were observed. The reservoir was abounding in many types of aquatic food organisms. Swarms of dragon flies were seen over the water. It was interesting also to note that a party of people were swimming where the road grade was submerged in spite of the atrocious bouquet which permeated the air.

#### F-4-R-5 Statewide Creel Census

Sorted and recorded by warden all 1956 creel census received to date.

#### F-5-R-6 Central Montana Fishery Study

Several waters in the project area were surveyed during the past month. One high mountain lake was checked for fish by hiking in and setting a gill net. Other data was collected several days later when a second trip was made and the net removed. No fish were found although the lake has produced large native and grayling in the past. It is planned to establish a golden trout population in this lake if the fish can be obtained.

Because of an extremely dry season many of the streams of the project area are lacking in water and sections of some streams are dry completely. Otter Creek fish populations were checked by shocking and because of lack of water all fish died in the lower sections of the stream. The scarcity of water was due to the diversion of most of the stream for irrigation purposes.

The second fish population check in study areas sprayed for spruce budworm was started during the latter part of the month.

#### F-7-R-6 Northwestern Montana Fishery Study

During the month, work on Smith Lake Rearing Pond was finished. A total of 11,397 fish were reared in the pond from a plant of 25,000 cutthroat fry planted last year, making a survival of 45.6 percent.

The shoreline of Lower Thompson Lake was sprayed with a mixture of "Fish-Tox". A

high concentration of the Toxicant was placed in three of the bays. Three days after the shore treatment only two schools of perch fry were observed and a fish toxicant was placed around these schools. There were many schools of perch fry this year, apparently due to the high water this spring which allowed more than the usual number of adult perch to move into Lower Thompson Lake from Middle Thompson Lake. A total of 880 pounds of "Fish-Tox" was used.

A float trip was taken in a portion of the Middle Fork of the Flathead River to check on fish present in this area and to obtain scale samples of fish captured. Observations were also made on spawning Dolly Varden trout, of which some 47 were seen.

Three tags from Dolly Varden tagged in Trail Creek in 1954 were sent in by anglers during the month. One tag was also received from a cutthroat trout tagged in Ashley Lake in 1954.

One sportsman meeting was attended during the month.

The project assistant, Colbert Cushing, and Allan Lemon, student assistant, helped in the above work.

#### F-9-R-5 Southwest Montana Fishery Study

The major portion of the time this month was spent in survey of the project area. Several mountain lakes were surveyed, particularly with reference to golden trout lakes. A gill net catch of one golden trout per hour was recorded in Avalanche Lake in the Hilgaard Mountains. These fish ranged in size from 6 to  $19\frac{1}{2}$  inches and the weight ranged from  $\frac{1}{2}$  to 3.27 pounds. Goldens were introduced in this lake prior to 1936.

In the Helena area potential development projects were surveyed. Quarry Reservoir on McClellan Creek is about three miles from East Helena. It is an artificial impoundment of about forty acres and the dam is owned by the Northern Pacific Railroad Company. The land around the reservoir is owned by the American Smelting and Refining Company. The reservoir does not fluctuate since it is used only to supply ice for the N.P. Railroad. Two overnight gill net sets took 338 coarse-scaled suckers, 4 rainbow trout, 2 brook trout and 1 brown trout. The range of the suckers upstream is limited by the city of East Helena water intake reservoir, about two miles above the Quarry Lake. All factors seem to be favorable for rehabilitation providing access can be obtained.

On the limnological investigations of the Three Forks ponds, plankton samples were collected, chemical analysis of water was made, gill nets were set and the fish collected were weighed and measured, bottom samples were taken, and collections were made of plant inhabiting organisms.

#### F-10-R-5 Public Land Survey

Most of the project leader's time this month was spent in preparation of public land reports for the Bureau of Land Management and the State Land Board. Eight days vacation time were taken this month.

#### F-11-R-4 Northeastern Montana Fishery Study

Ponds were inspected in Hill, Prairie, and Richland Counties this month. In general,

ponds were low due to very little run-off and hot, dry weather in these sections. Two ponds in Richland County were good, spring-fed ponds but were located on drainages subject to excessive flooding in the spring--First Hay Creek and the North Fork of First Hay Creek.

Arrangements were made in Sheridan County for a preliminary survey of two pond sites to determine the feasibility of developing a reservoir for fishing in that area.

Two gill net sets were made in Fort Peck Reservoir, one at the Pines area and one at the Recreation area just above the dam. Goldeyes continue to be the most numerous in the catch.

Nets were mended this month following use in the Clearwater netting in June.

#### F-12-R-3 Western Montana Fishery Study

A more complete breakdown of the creel census file (begun last spring) was finished for the Big Hole section and started for the Bitterroot section of the district files. Growth rate data from the 1955 Clearwater collections were summarized and one copy of the summary was sent to Bozeman for filing at the Department's fishery laboratory.

Three 300-foot sections of the West Fork of Rock Creek in Sand Basin and one 300-foot section below the basin were shocked for Job No. IV. The mining company has completed a new road into the basin, but no dredging equipment has been moved in, as yet. The dissolved solid content of the West Fork is extremely low (2-3 ppm.) and an attempt was made to test the relative effectiveness of the 220-volt A-C and D-C shockers in this type of water. On the three sections in Sand Basin, both shockers were used, the D-C first in two sections and the A-C first in one. In all cases, the second machine was used immediately following the first, without removal of block nets. Fish captured by each machine, by section, are shown in the following table:

Section No.	D-C	A-C
I (DC first)	1 Dolly Varden	4 cutthroat, 2 whitefish, 9 sculpins
II (AC first)	None	10 cutthroat, 3 Dolly Varden, 20 whitefish, 3 fine-scaled suckers, 18 sculpins
III (DC first)	1 whitefish	10 cutthroat, 3 Dolly Varden, 28 whitefish, 10 fine-scaled suckers, 5 sculpins

Estimated recovery on the A-C shocker was only 50-80 percent and in the lower end of the basin, the stream was too wide to cover with 30-foot block nets. An attempt will be made to cover more sections in this area when water levels recede further.

Summit Lake (at the head of one branch of the Clearwater drainage) was surveyed and found to be only 11 feet deep and to have a silt bottom, bog shores, and heavy growths of Ceratophyllum. One would expect winter-kill to be encountered frequently in a lake of this type which is at an elevation of over 4,000 feet. However, four

overnight sets, with standard experimental gill nets, caught: 26 cutthroat trout, 1 Dolly Varden trout, 2 whitefish, 14 squawfish, 1 Columbia River chub, 111 fine-scaled suckers and 338 yellow perch.

For Job No. III, systematic collections of squawfish and chubs by gill netting on lakes Alva and Seeley was continued through the first half of the month along with collections of young of the year. To aid in collection of fish too small for the standard experimental nets, 60 feet of 5/16 inch mesh was hung to form a 30 foot by 4 foot by 5/16 inch gill net. Success with this net has been poor.

A visual search has been made for small squawfish and chubs during the second half of the month. Squawfish have been located in several places. However, no chubs have been found. Placid Lake, which had the highest catch of larger chubs in the netting project, was seined in an attempt to collect smaller chubs. Six hauls with a 60 foot by 5 foot by 1/4 inch bag seine captured sculpins, red-sided shiners, pumpkinseeds, largemouth bass, whitefish and suckers, but no chubs were taken. Standard experimental gill net sets in Placid during the last week of the month produced good catches of larger chubs, but no small ones were taken in the 5/16 inch net.

A good concentration of various sized squawfish was found in a pool formed by an irrigation diversion on the lower Clearwater River. These were sampled by both seining and angling, and digestive tracts were collected from the angling catch. Samples of both bottom and plant inhabiting organisms were collected from the area angled.

The student assistant spent one-half day in an attempt to get vertical pictures of the three upper lakes in the Clearwater drainage for mapping. The project leader spent one and one-half days with Messers. Phenicie, Gottschalk and Peck inspecting and discussing present and proposed project work.

#### F-13-R-3 Test Stream Study

Flint Creek below the test stream was shocked at several widely separated stations to look for tagged fish and to learn more of the ecology of the stream. The fish population was predominately suckers and whitefish with a few rainbow and eastern brook trout at the upper end of the valley while the lower Flint Creek had mostly brown trout and whitefish. No tagged fish were collected.

Approximately 800 Anaconda hatchery rainbow trout weighing about 200 pounds were tagged and planted into the test stream. The planting experiment this season is designed so that statistical comparisons can be made later on lengths, weights, condition factors, and survivals of trout after being transported for three different lengths of time in the fish tank. The longest trip was six hours in the overhead spray type of pickup truck tank.

The test stream is being mapped using the plane table and telescopic alidade. Main features being placed on the map are bank outline, overhead cover, undercut banks, and the one and one-half foot depth contour.

Routine office work consisted of subject indexing pertinent literature, preparing tagged fish data for the IBM operator, reports and correspondence and field work consisted of maintenance of fish barriers and recording temperatures, flows, and fish mortalities continued as usual.

The test stream project was visited by Messers. John Gottschalk and William Peck of the Fish and Wildlife Service.

#### F-15-D-3 Marias River Fishery Restoration

A check was made of fish hauled into the Marias waters and dropped from the airplane. They were picked up out of Kipp Lake after being dropped from a distance of approximately 500 feet. Although the loss of this particular lot of fish had been large at the hatchery, the hauling and planting loss did not appear to be excessive. They were held for approximately an hour only and were not retained because of variables involved.

Checks were made concerning the possibility of building a fishery on Pondera Coulee. The feasibility of the proposed S.C.S. watershed dam for fishery purposes was investigated.

The following fish were planted in the Marias Drainage during the month of July:

From Big Timber hatchery	144 pounds	86,400 fish - Tiber Reservoir
Arlee hatchery	<u>30</u> pounds	<u>23,000</u> fish - Tiber Reservoir
	174 pounds	109,400 fish
Lewistown hatchery	288 pounds	172,800 fish - Kipp Lake

The following is a resume of the total plant to date:

Tiber Reservoir	2710 pounds	1,203,716 fish
Kipp Lake	288 pounds	172,800 fish

#### F-20-R-1 Southeast Montana Fishery Study

This month a preliminary air survey was made of waters in the Stillwater and Clarks Fork of the Yellowstone drainages in southeastern Montana.

Several possible pond sites were checked in the area around Biddle, Montana. None of these were suitable for our purposes.

Preliminary observations on the silt problem on the Clarks Fork of the Yellowstone River indicate that the main source of silt is not the Big Sandy irrigation water wasteway as claimed by local sportsmen. The Big Sandy return is only one of many irrigation wasteways emptying silt-laden water into the Clarks Fork River, and the Big Sandy return alone appears to contribute only a minor part of the total silt load carried by the Clarks Fork of the Yellowstone River.

Some checking was done on the Yellowstone River concerning fishermen access. Between Laurel, Montana and Columbus, Montana only four areas were observed where fishermen could gain easy access along the north side of the Yellowstone River. Under the auspices of the Park City Rod and Gun Club only one of these received a portion of the hatchery fish to be planted in this area. The remainder of the plants appear well-hidden to the average fishermen.

#### F-21-R-1 Evaluation of DDT Spraying

As the June electric fish census was made, and as it was reported in the June

coordination report, square-foot bottom samples were taken. Because of time limitation imposed by the imminence of the spruce budworm spraying operations, these samples were not sorted. The first part of July was spent sorting the organisms from these samples. A report was received from the Forest Service employees doing the intensive aquatic food studies on Trapper and Canyon Creeks that there was little use making aquatic food studies in the streams shortly after the DDT spraying, because the streams were so full of dead, floating organisms that a square-foot sample could not be taken. While the crew waited for this situation to clear up, they sorted the June collections.

Also, during the month of July the crew shocked all of the streams for the second time in the Beaverhead County area and Prickley Pear Creek, Trout Creek and Beaver Creek in the Helena area. While quantitative measures are not yet available, it appears that aquatic insects are greatly reduced in number.

Submitted by,

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