

**Montana Department
of
Fish, Wildlife & Parks**

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MAY 9 1990
FISHERIES DIV.

Larry Peterman
Helena



MONTHLY PROGRESS REPORT

Project Title: Quantification of Hungry Horse Reservoir water levels needed to maintain or enhance reservoir fisheries.

Project Number: BPA 84-465; MDFWP 3174-1

Project Biologist: Brian Marotz *BM*

Project Technicians: Mike Hensler, Jon Cavigli, Gary Michael, John Wachsmuth, Jim Brammer

Project Manager: John Fraley

Report for the Month: April 1990

1. Summary of significant results.

The reservoir declined to a minimum pool of 3,495.77 msl (-64.2 feet) on April 13 and began to refill. The end of month elevation was 3,506.20 msl (53.8 feet from full pool).

Results of the 1989 creel revealed that 73 percent of anglers recreating at Hungry Horse Reservoir fish from boats. Nearly all anglers are from Flathead County (96%) or elsewhere in Montana (3%). Westslope cutthroat trout was the most sought after species (65% of all anglers) followed by bull trout (2%). Other anglers (33%) had no preference as to which species they caught. Lures (59%) and bait (20%) were the most used fishing methods. Catch rates averaged .35 fish per angler hour, ranging from 0 to 2 fish per hour during the study (all gamefish combined). Cutthroat alone averaged 0.2 fish per hour.

On April 4, Fraley and Marotz met with Rick Prange, Harry Taylor, Ron Golus and Dave Zimmer (BOR), in Boise, to discuss adding a selective depth of water withdrawal mechanism to Hungry Horse Reservoir to control tailwater temperatures. Data needed to model the structure were sent to Goodman and Gustafson (MSU) with specific instructions for model input and output options. Long-term thermal data from the Middle Fork will be sent to MSU next month (requires verification). The Bureau of Reclamation will critically review the selective withdrawal model upon completion. Results will evaluate potential benefits and design options.

A technique was developed for positioning large woody debris structures under water. A transect of nine structures will be positioned from shallow to deep ($\approx 10\text{-}60$ m from full pool) during June or July, to assess benthic insect production, emergence and colonization, and fish security cover under various water conditions. Shallow structures may be placed on dry bottom and inundated as the reservoir refills. The lowest debris structures must remain submerged during the study period, so must be positioned in the water. To accomplish this, we will construct a floating winch platform. Submerged emergence traps were also designed. The treatments will be compared to control areas. If the pilot project proves successful, artificial structures may offset impacts of winter drawdown and improve trout food availability during spring.

Marotz met with Dennis Christenson and Rich Clark (BOR) at Hungry Horse Dam to discuss selective withdrawal and woody debris structures. The woody structures were carefully designed to eliminate danger to the generating facility.

Marotz met with Skaar and Hansen (Libby field station) to assess new changes to the Libby Model, coordinate field activities for 1990 and to confer on the 1989 Hungry Horse hydroacoustic survey.

Hensler, Michael, Wachsmuth, and Brammer conducted the first benthic larvae survey. Hence forth, benthos will be evaluated only seasonably. Permanent station buoys were established, equipment was readied for the season, and lab analyses/data base verification continued.

Cavigli, et al., raked, seeded and mulched newly installed point bars on Mill Creek. He applied for and received a 3A water quality exclusion for the period from May 1 to July 31, 1990, for installation streambank "skyhook" structures. Requisitions for construction and installation of the skyhooks were returned to Kalispell to solicit bids locally.

2. Brief discussion of major problems encountered, changes in work plan, or schedule deviations.

None.

3. Short description of planned activities for the following month.

Benthic insect emergence traps will be placed in Murray Bay at three depth zones. field activities will include: spring gill net series using fewer nests this year, water quality measurements, zooplankton density tows, collection of baseline information on existing spawning runs in Felix Creek (prior to the expected return of 1988 imprint plants during spring 1991), and insect emergence monitoring.

The spring gill net series will be used to evaluate overwinter fish condition, age distribution and food utilization. We will also search for previously tagged fish.

We will begin placing skyhook structures in Mill Creek. We will also begin placement of 200 Christmas trees for insect substrate and fish security cover.

We will assess conditions in Siderious and Brenneman sloughs in preparation of spring kokanee plants. Approximately 20,000 fingerlings will be released into both areas.

Long-term temperature data from the Middle Fork will be verified and sent to MSU for incorporation in the selective withdrawal model.

Time permitting, we will begin stream assessments of high priority spawning and rearing streams. Barriers will be evaluated for ease of removal. Gaps in habitat and species information above existing barriers will be filled. Barriers will not be removed at this time, nor will we recommend removal where genetically pure stocks exist.

4. Itemized listing of each non-expendable item greater than \$1,000 and each designated sensitive item.

None.

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- c: Dale Johnson (BPA, 3 copies)
Bob Adair, BOR (Boise)
Richard Prange, BOR (Boise)
Dennis Christenson, BOR (Hungry Horse Dam)
Rich Clark, BOR (Hungry Horse Dam)
Al Christophersen (District Ranger - Hungry Horse)
Barb Taylor, NWPPC (Portland)
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