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Lemhi River Fish Passage Monitoring Plan 2000

Introduction

The combination of climate conditions, irrigation withdrawals, and Endangered Species Act concerns within the Lemhi River sub-basin indicates the need to intensely monitor the low flow river conditions within the Lemhi River. The reach between L-6 diversion and the confluence with the Salmon River will be given extra attention. A Memorandum of Understanding (MOU) was signed between the Lemhi Irrigation District, Water District 74, Idaho Department of Water Resources, Idaho Department of Fish and Game, and the Model Watershed Project that will provide 10 cubic feet per second (cfs) of in-channel and bypass flows from willing landowners to pass over the L-6 diversion to aid in migration of chinook salmon and other fish throughout the irrigation season. In addition, the existing Irrigators Plan to Improve Fish Passage on the Lemhi River (1992) is in place and allows for up to three "fish flushes" to aid in adult chinook salmon migration.

Background

In the Model Watershed Plan (1995), the Lemhi River was divided into three main reaches: the lower reach from the mouth to Agency Creek, the middle reach from Agency Creek to Hayden Creek and the upper reach from Hayden Creek to State Highway 29, at Leadore, Idaho. The lower reach provides limited habitat for resident fish and juvenile anadromous fish due to the low pool habitat frequency. The middle reach has some better juvenile fish rearing habitat and some spawning habitat. Spawning habitat is limited in both the lower and middle reaches. The upper reach contains the majority of currently occupied chinook salmon habitat for the Lemhi River (1994 Stream Habitat Inventory). Further background information is contained in the following documents: habitat information is available in the 1994 Stream Habitat Inventory, historical and current perspectives are in the Irrigators Plan to Improve Fish Passage on the Lemhi River (1992), water resource information is contained in Surface-water/Ground-water Relations in the Lemhi River Basin, East-Central Idaho, watershed level information is contained in the Model Watershed Plan (1995).

Purpose

This document will outline the types of monitoring data to be collected to assess passage conditions, such as flows, temperature, fish presence, photograph points, and physical habitat measurements as they relate to the fisheries requirements. This document will establish the criteria for when a fish flush is necessary and will outline the types of monitoring. Monitoring will focus at and below L6 diversion, but include additional monitoring sites to encompass a basin wide approach.

Goals

1. Optimize fish passage with available water flows as specified in MOU between Irrigators and Agencies.
2. Evaluate relationship of flow conditions and temperature conditions throughout the system.
3. Evaluate reaches for fish species presence and abundance.
4. Identify possible refuge sites.
5. Correlate photo documentation of flows over L-6 with actual flow measurements.
6. Identify natural and man-made barriers to fish migration.
7. Identify presence and location of thermal (temperature) barriers.

Methods

For the purpose of relating flows throughout the system, the Lemhi River was divided into four

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monitoring reaches, including Hayden Creek.

Monitoring Reaches	Flow Guage location
1. Lemhi mouth to L-6 diversion	L-1, Clark Steel Bridge, L-5
2. L-6 diversion to Hayden Creek mouth	Barracks Lane
3. Hayden Creek mouth to Cottom Lane	Tendoy
4. Cottom Lane to Leadore below Big Springs Creek	McFarland Campground, below BSC
5. Hayden Creek to U. S. Forest Service boundary	USFS Guard Station

Data Collection:

1. Daily flows (cfs) measurements in reach #1 via USGS Gauging Station 13305310 near old L-5 diversion point and hand measurements at L-6 below Highway 28 bridge at milepost 130.3, L-3a, and River Mile (RM) 0.5. Hand measurements will continue until a correlation can be derived between flows at the L-5 gauging station and the measurement locations at diversions L-6, L-3a and RM 0.5. Additional flow monitoring areas will be sampled as warranted.
2. Temperatures will be monitored throughout the mainstem Lemhi River and Hayden Creek in approximately 12 locations using stowaway instantaneous temperature recorders.
3. Photograph points will be established at L-8a, L-6, L-5, recharge points near L-3a, L-3, and the Lemhi mouth, to document channel appearance and anadromous fish holding and passage potential at different flow regimes. Additional locations will be added if concerns arise.
4. Fish monitoring. Adult and juvenile chinook presence in reach 1 will be monitored daily via ground counts for adults and a rotary screw trap at RM 0.5 for juveniles. Other species will be documented (estimated size and numbers).
5. Physical habitat data. IDWR, IDFG, BLM, WD74, MWP staff and monitoring technician will continually monitor mainstem Lemhi River migration conditions to determine if additional areas of concern appear as water levels recede. Physical habitat data will be collected at locations of potential barriers to document relationship between flows, channel width and migration barriers. After identifying potential barriers, technician will snorkel pools and probe deep pools between L-3a and L-6. Technician will walk entire reach between L-6 diversion and the Lemhi mouth at least twice weekly. Ground count will be conducted for adults and snorkel surveys, and a rotary screw trap at St. Charles Bridge (RM 0.5) will be used to survey juveniles. In addition, deep pools between L-3a and l-6 will be documented with GPS coordinates and a flag.

Data Reporting

1. Any potential areas of concern noted will immediately be forwarded to the MWP so the problem can be promptly evaluated and addressed by the technical team.
2. A technician hired through the Idaho Fish and Game Department will conduct monitoring. Data will be recorded on attached field forms. Model Watershed Technical Team members will be in daily contact via telephone and e-mail. Meetings will be scheduled as needed through the Model Watershed office to review findings.
3. Once identified, these sites will become part of this monitoring plan. Water users in the area will be immediately contacted to begin a prompt resolution to the situation.
4. Weekly reports to MWP from IDFG technician, MWP distributes to tech team.
5. Monthly reports of temperatures from IDFG technician and USFS fisheries biologist, MWP distributes to tech team.
6. MWP will forward weekly monitoring updates to NMFS.
7. Coordinate with irrigators through R.J. Smith to report to MWP.

Upper Salmon Model Watershed Field Form

Form No.____ of____

General Information

Date _____ Time _____ Observer _____

Site Number _____

Stream Name _____ Stream Reach _____

Reference Point (RP) _____ Distance from RP _____

Temperature Data

Air Temperature _____ Water Temperature _____

Equipment Type _____

Streamflow Data

Flow (cfs) _____ Equipment Type _____

Mean velocity _____ Mean depth _____

Stream Depth _____ Stream Width _____

Fish Data

Species	Size Class	Numbers

Number of redds observed _____

Number of carcasses observed _____

Substrate type _____

Photo points taken? yes _____ no _____

Comments: _____

Lemhi River Fish Passage Monitoring Field Form

	Rm 0.5	L-3a	L-5	L-6	L-8a						
Date											
Time											
Observer											
Location											
Flow											
Guage											
Photos											
Temperature											
Fish Data											
Species											
Size											
Number											
Potential Barriers											
Natural											
Man-made											
Presence of predators											
Holding areas											

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Date_____

Diversion Name	Common Name of Ditch	Does the diversion site appear to be adequate for adult fish passage?	Comments:
L-01	SOVA DITCH		
L-02	MILL DITCH		
L-03	NELSON ANGUS DITCH		
L-03A	CLARK DITCH		
L-03AO	LAMAR COCKRELL		
L-06	SLOUGH DITCH		
L-07	TOWN DITCH		
L-08	STODDARD DITCH		
L-08A	ALDOUS DITCH		
L-09	HAGEL IRRIGATION COMPANY		
L-10	REESE DITCH		
L-11	OLD VAN SCRIVER DITCH		
L-12	OLD HAGEL DITCH		
L-13	UPPER REESE DITCH		
L-14	TOWN DITCH		
L-15	WITHINGTON DITCH		
L-16/17	MULKEY DITCH #1 & #2 COMBINED		
L-18	HERBST-MULKEY DITCH		
L-19	SNOOK DITCH		
L-20	CHARLOTTE'S DITCH		
L-21	QUENTIN'S DITCH		
L-22	COMPANY DITCH		
L-22A/23	MOTHER'S/ANDREWS DITCH COMB.		
L-24	ZIEGLER#1		
L-25	ANDREASON DITCH #1		
L-26	ZIEGLER DITCH #2		

X = Not observed that day
PP = Potential Problem
✓ = Okay

Lemhi River Fish Passage Screen Tender Monitoring

Date_____

Diversion Name	Common Name of Ditch	Does the diversion site appear to be adequate for adult fish passage?	Comments:
L-27	SHOUP DITCH #1		
L-28	MAHAFFEY-SHOUP DITCH		
L-29	MAHAFFEY RIVER DITCH		
L-30	SWANSON DITCH		
L-30A	ANDERSON-DANCE DITCH		
L-31	PATTEE MAHAFEY RIVER DITCH		
L-31A	INDIAN DITCH		
L-31B	ISLAND DITCH		
L-32	PATTEE-MORPHY DITCH		
L-33	COMPANY DITCH		
L-34	LANGFITT DITCH #1		
L-35	LANGFITT DITCH #2(BLAKE HAS #3)		
L-35A	LANGFITT DITCH #3		
L-36/37	LANGFITT#4/BAUMAN DITCH COMB.		
L-38	WM. MAHAFFEY DITCH #1		
L-39	WM. MAHAFFEY DITCH #2		
L-40	WALTER WHITSON DITCH		
L-41/42	HIGH/THREE-WAY DITCH (RIGGAN)		
L-43	MAHAFFEY BROTHERS DITCH		
L-43A	MAFFEY #1		
L-43B	MAHAFFEY BROTHERS DITCH #2		
L-44	YEARIAN DITCH #1		
L-45	YEARIAN DITCH #2		
L-45A	RUSSELL YEARIAN DITCH		
L-45B	MCKINNEY DITCH		
L-45C/45D	MCFARLAND/YEARIAN-MCKINNEY DITCH		

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Lemhi River Fish Passage Screen Tender Monitoring

Date_____

Diversion Name	Common Name of Ditch	Does the diversion site appear to be adequate for adult fish passage?	Comments:
L-46/46A	MCFARLAND/YEARIAN UPPER DITCH		
L-47	MCKINNEY DITCH		
L-48/49	SPAHN'S SLOUGH/SPAHN MAIN DITCH		
L-50	AMONSON DITCH #1		
L-51	AMONSON DITCH #2		
L-51A	AMONSON DITCH #3		
L-52	UPPER MCFARLAND DITCH		
L-52A	MCKINNEY DITCH		
L-53/57	TAYLOR#1/MAHAFFEY DITCH #1 COMBINED		
L-54	TAYLOR #1/MAHAFFEY DITCH #2 COMBINED		
L-58	MAHAFFEY DITCH #2		
L-58A	ELLSWORTH DITCH		
L-58B	BENEDICT DITCH		
L-58C	TAGE DITCH		
L-59	MCKINNEY DITCH #3		
L-60	LOWER STROUD DITCH		
L-61	UPPER STROUD DITCH		
L-62	BENEDICT DITCH		
L-63	CLINGER DITCH		
LBSC-01	MCKINNEY-MAHAFFEY SO. SPRING DITCH		
LBSC-02	MCKINNEY-MAHAFFEY SPRING DITCH		
LBSC-03	LOWER MAHAFFEY DITCH		
LBSC-04	MAHAFFEY-MCKINNEY/UPPER MAHAFFEY		
LBSC-05	MAHAFFEY-ELLSWORTH DITCH		
LBSC-05A	UPPER MAHAFFEY DITCH		
LBSC-06	BENEDICT MAIN SPRING DITCH		

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Lemhi River Fish Passage Screen Tender Monitoring

Date_____

Diversion Name	Common Name of Ditch	Does the diversion site appear to be adequate for adult fish passage?	Comments:
LHC-01	QUINN RIGGAN DITCH		
LHC-01A	RIGGAN DITCH		
LHC-03	COPE-AIKEN DITCH		
LHC-04/06/07	COPE/LOW/HIGH DITCH COMBINED		
LHC-05	MILL DITCH(HIGH DITCH)		
LHC-08	SCHLEHUBER DITCH		
LHC-08A	TOBIAS#1DITCH		
LHC-08B	TOBIAS#1 DITCH		
LHC-09/09B	STOLL #1/TOBIAS #2 DITCH		
LHC-10	STOLL #2 DITCH		
LHC-11	CLARK DITCH		
LHC-HATCH	?? (HAYDEN CREEK HATCHERY)		

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