

FISHERY RESEARCH



Bull Trout Investigations

Grant #F-73-R-20

July 1, 1997 to June 30, 1998

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Senior Fishery Research Biologist**

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Annual Performance Report

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Grant #F-73-R-20

Project 6: Bull Trout Investigations

By

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**ANNUAL PERFORMANCE REPORT
PROJECT #6: BULL TROUT INVESTIGATIONS**

State of: Idaho

Grant No.: F-73-R-20, Fishery Research

Project No.: 6

Title: Bull Trout Investigations

Contract Period: July 1, 1997 to June 30, 1998

ABSTRACT

Monitoring adult bull trout *Salvelinus confluentus* at salmon trapping facilities represents one method to monitor bull trout populations in response to proposed listing under the Endangered Species Act (1992) and implementation of no-harvest regulations (January 1, 1994). Idaho Department of Fish and Game maintains trapping facilities on four rivers where bull trout and chinook salmon *Oncorhynchus tshawytscha* upstream migrations occur. During 1997, 117 bull trout were collected in the Rapid River upstream trap, similar to the trap counts in 1997. Following no-kill regulations, bull trap counts at Rapid River increased during 1995 and 1996 before declining during 1997. Thirty-eight bull trout were trapped at Crooked River (South Fork Clearwater River). The 1997 total was similar to the number trapped in 1996. During 1997, high water resulted in incomplete trap counts at East Fork Salmon and Sawtooth Hatchery traps.

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INTRODUCTION

Bull trout *Salvelinus confluentus* were petitioned for listing under the Endangered Species Act (ESA) in 1992. In response to the proposed listing, Idaho Department of Fish and Game (IDFG) enacted no-harvest regulations January 1, 1994. Subsequently, bull trout were formally listed as a threatened species June 5, 1998. Monitoring of bull trout populations at several sites has been conducted by IDFG since regulation changes in 1994. Bull trout are collected during operation of IDFG upstream salmon migration weirs at Rapid River (Little Salmon River tributary), East Fork Salmon River, Sawtooth Hatchery (Salmon River headwaters), and Crooked River (South Fork Clearwater River). This report provides an update of bull trout trapping records from these facilities.

METHODS

Upstream trapping facilities are maintained for monitoring and collection of brood stock for chinook salmon *Oncorhynchus tshawytscha* at Crooked River in the Clearwater River Drainage and Rapid River, South Fork Salmon River, East Fork Salmon River, and Sawtooth Hatchery in the Salmon River Drainage. Bull trout are collected by project and hatchery personnel at all facilities except South Fork Salmon River. Since the proposed bull trout listing, data on bull trout numbers, size, and migration timing have been collected.

RESULTS

A total of 117 bull trout were trapped at Rapid River during 1998 (Table 3). Average size equaled 454 mm total length with 29% >500mm. The 1997 bull trout escapement declined compared to 1996 and 1995. Average size was similar to the past four years, and the percent of fish >500 mm continued to increase compared to 1994 when bull trout harvest closure was implemented.

Thirty-eight bull trout were trapped at Crooked River. Average size equaled 473 mm total length with 32% >500 mm. Numbers were similar to 1996 with an overall increase in size of fish collected compared to 1996 (Table 3).

The East Fork Salmon River 1997 trap data were incomplete due to high water. A total of 77 bull trout were trapped with mean size and percent >500 mm similar to 1996. High water conditions at the Sawtooth Hatchery weir resulted in incomplete trap records for the third consecutive year.

Table 1. Bull trout data from trapping at Rapid River, Crooked River, East Fork Salmon River, and Sawtooth Hatchery, 1973-1997.

Year	Rapid River			Crooked River			EF Salmon River			Sawtooth Hatchery		
	No.	Mean	%>500 mm	No.	Mean	%>500 mm	No.	Mean	%>500 mm	No.	Mean	%>500 mm
1997	117	454	29	38	473	32	77 ^a	461	38	5 ^a	370	20
1996	221	455	26	36	438	17	175	475	37	4 ^a	492	50
1995	223	454	14	18	468	22	17 ^a	425	12	6 ^a	440	17
1994	146	421	6				61	469	24	38	363	16
1993	149	411	8	2 ^a			27 ^a	486	33	5 ^a		
1992	271	412	12	18	459	17	73	437	16	24	414	20
1991	293	414	12	1 ^a			89	478	44	17	429	12
1990	258			32	477	31	2 ^a			7		
1989	170						37					
1988	136											
1987	128						12 ^a					
1986	151						119	420	9			
1985	149											
1984	347						49	414	11	3		
1983	131											
1982	91											
1981	143											
1980	220											
1979	262											
1978	136											
1977	212											
1976	414											
1975	461											
1974	290											
1973	114											

^a Incomplete trap counts due to high water.

DISCUSSION

Bull trout were closed to harvest by sport fishing beginning in 1994. Bull trout escapement increased during 1995 and 1996 following the closure. In 1997, bull trout numbers at Rapid River were decreased for the first time since the harvest closure was initiated. The 1997 number trapped was the third lowest observed since 1973, but still within the historic escapement range observed at Rapid River. This trend is opposite of other bull trout fisheries where harvest restrictions were implemented. Bull trout populations increased in Oregon,

Montana, and Alberta following harvest restrictions (Ratliff et al. 1994; Fraley and Shepard 1989; Mushens and Post 1998).

Trap counts of bull trout at Crooked River remained at the upper end of the observed range for the past 10 years. The lack of complete records for East Fork Salmon River and Sawtooth Hatchery preclude any conclusions for those bull trout populations. Due to consideration for spawning chinook salmon, listed as endangered under the Endangered Species Act, the East Fork Salmon River weir will not be operated on an annual basis beginning in 1998. The trap facilities will be maintained for intermittent trapping in future years.

RECOMMENDATIONS

1. Continue to monitor Rapid River bull trout escapement to determine if 1997 escapement represents a short-term aberration in escapement versus normal variation.
2. Operate the East Fork Salmon River trap every three to five years to maintain the bull trout data set. Years with average or below average snow pack represent the best opportunity to obtain trap data over the entire bull trout migration period.

ACKNOWLEDGEMENTS

Personnel from Clearwater, Rapid River, and Sawtooth hatcheries operated trapping facilities on Crooked River, Rapid River, and East Fork Salmon River and Sawtooth weirs, respectively. They added bull trout data collection to their normal chinook collection duties.

LITERATURE CITED

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