

N.F. Ahtanum Cr.

Resident and or fluvial bull trout spawner surveys in Yakima County. Wa. Dept. of Wildlife files.

Bull Trout spawner survey in North Fork Ahtanum Creek (tributary to Yakima River). (First time spawner survey, annual investigations will be continued).

1

Surveyors - Eric Anderson, Jim Cummins
Sept. 17, 1993 0920 Hrs Water Temp. 41° F.

Stream Section - from Shellneck Creek to 1st upstream road crossing, approx. 1.5 mile.

No redds or bull trout observed. Saw several dozen fish, most were cutthroat but many were not identified. Fish were from one inch fry to 8-9 inches.

Stream Section - from Snow Cabin Camp Ground downstream to Grey Rock Camp Ground, 1.5 mile.

Definite Redds (3), Probable Redds (0), Possible Redds (2)
Bull Trout (2), length approx. 12 and 16 in.

Observed 100's of trout fry, several dozen unidentified trout.

Stream Section - from Grey Rock C.G. to 1.5 miles downstream.

No redds or bull trout observed. Saw several dozen 6-10 inch fish, some were cutthroat, but most unidentified. Several unidentified 12 inch fish (approx.). Numerous fry observed.

→ Shellneck Creek (trib. of N.F. Ahtanum Ck).

Stream Section - from mouth upstream approx. 1.25 mile.

Definite Redds (4), Probable Redds (2), Possible Redds (1)

Bull Trout (4). Five additional fish were observed, but could not be positively identified. All fish were approx. 6-8 inches long. Small resident bull trout were difficult to identify unless they held on a redd. Cutthroat of the same size are also present. Fish were spooky in this small stream (3-5 feet width). Steep gradient and fast flow didn't help.

Total bull trout and redds observed in the N.F. Ahtanum Ck.

drainage: Redds (9), Bull Trout (6). This is by no means a complete inventory. Additional surveys need to be conducted to determine timing and index areas.

Fluvial Bull Trout spawning survey in the American River (tributary to the Naches River). (First time spawner survey, annual investigations will be continued).

Surveyors - Eric Anderson, Jim Cummins
Sept. 22, 1993

American River Survey

2

Stream Section - from Timber Creek to Masatchee Creek Trail (approx. 2 miles). 1100-1230 Hrs. No redds or bull trout observed. No fish of any type observed. Although fluvial bull

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American R.

STATE OF WASHINGTON

1/17/93

THE DEPARTMENT OF WILDLIFE

9/27/93

1100 - 1230 Hrs.

E. Anderson / J. Cummins

BLC Spawner Survey of American R.
from Timber Cr. to Masatche Cr. Trail.

- No fish observed.
- No BLC Redds.
- No fish of any type seen.

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Filed Anderson 1/17

Ahtanum Cr. NF 9/17/93 9/17/93

Water Temp. 41°F

From Shellneck Cr. to 1st upstream road crossing.

1

- No BLC redds or BLC observed
- Saw several dozen fish (most were CT but many were unknown.
- Fish seen were from 1" fry to 8-9".

Ahtanum Cr. NF falls to 3 1/17/94

2

N.F. Ahtanum at Snow Cabin Campground downstream to Grey Rock Campground - Approx. 1.5 miles.

def	Redds Prob.	Pos	BLC	fish
111		11	1-12"	199
			1-16"	3

100's of Trout fry - Several dozen trout.

Jim Cummins

F. led
Anderson
1/17/93

Ahtanum Cr NF NE 9/17/93 0920 Hrs

Grey Rock Campground to 1.5 miles downstream

- Several dozen 6-10" fish observed.
 - Several fish approx. 12"
 - Several CT observed.
 - Numerous fry (yoy) observed.
 - Numerous pools + deep glides, 1/2 to 3'
 - Several cascades and falls to 3'.
 - No spawning activity by BLC observed
 - Spawning gravel sparse (spotty).
- End of survey at T12 R14 S17

Jim Cummins

date	prob.	Pos	BLC
11/1		11	1-12
			1-16

Trout by Several dozen

Jim Cummins

10
9
9
3



WENATCHEE NATIONAL FOREST
NACHES RANGER DISTRICT
10061 HWY 12
NACHES, WA 98937

TO: Ken Macdonald

FROM: Scott Hoefler

DATE: 11/5/93

TOTAL NUMBER OF PAGES: 23 INCLUDING THIS ONE.

IF YOU DO NOT RECEIVE ALL THE PAGES OR IF THERE IS ANY TROUBLE WITH THE TRANSMISSION,
PLEASE CALL (509) 653-2205.

OUR FAX PHONE NUMBER IS (509) 653-2638.

COMMENTS:

Hi Ken,

I've included some general notes, the rough draft of the Bull trout monitoring report, information about where minnow traps can be purchased, and the article we used to determine if we had found pure bull trout vs. brook x bull hybrid or pure brook trout. Spots or black lines on dorsal fin clued us to say not a bull trout.

The Bull trout reference and description portion of the report contains all locations on the district. Number 13 through 20 are from this year. Have a great time, and if anybody has questions about what I'm sending, give me a call.

Scott

* Minnow Traps for Bull Trout (General Notes)

* Traps were placed in streams and checked every other day. Bait was cat food in a container with holes in it.

* Tried minnow traps in Indian Creek in June to determine if bull trout were susceptible to trapping. Captured bull trout right away.

^{In}
* All locations, except one, where bull trout were found, they were captured within 5 days (2nd time traps were checked).

* Stream survey crews checked traps on the way to stream survey location. The trap checking was actually limited to myself, Jen Kremer and Derek Nelson.

* To maximize efficiency it's important to sample areas relatively close together at the same time. Depending on the number of traps it took our crews anywhere from 2 to 4 hours to check traps.

* We have found that placing traps for at least 12 hours is plenty of time. It isn't necessary to place and leave for 2 days as we did.

Advantages of Minnow Traps

- * Not exposing fish to potentially harmful shocking.
- * Not limited to sampling (shocking) during the daytime and doesn't require doing fieldwork (snorkeling) during the nighttime. In other words the trap can be placed and left, so it will be functioning during the day and night.
- * The only manpower necessary is placement and checking.

Disadvantages

- * If traps are left more than 2 days fish captured on day 1 may scrape themselves on the wire of the traps. It would be good to check traps daily to minimize amount of time fish are in traps.

NACHES RANGER DISTRICT
BULL TROUT SURVEY REPORT
FOR 1993
by Derek Nelson

PURPOSE: Determine presence/absence of Bull trout on Naches Ranger District by surveying tributaries along known bull trout rearing and spawning streams.

PROCEDURE:

1. Locate tributaries to survey.
2. Place one or two minnow traps with cat food as bait in pools or other suitable cover along first half mile from mouth of trib.
3. Leave traps for two to three days.
4. Identify all fish in traps and lengths.
5. Repeat steps 3 and 4 until a bull trout is caught or survey ends

MATERIALS:

minnow traps
cat food
cord cut to 3 to 5 feet to secure trap to bank
containers with holes in them or cheese cloth to hold catfood.(old medicine bottles with holes punched in them)
ruler, recording materials.

RESULTS: See Bull Trout Reference and Description #13-20

CONCLUSION: Bull trout are using Corral, Bear, Milk, Spruce, Union, Kettle and Timber Creeks. Adult Bull trout seem to be using Bear Creek off South Fork Tieton river as a spawning tributary. It is believed the two bull trout seen were in the process of spawning. Union Creek was also being used as a spawning stream due to the redds found from the mouth to the falls. The other tributaries are being used by juveniles 3-7" as rearing streams and possibly for adult spawning.

DISCUSSION:

The tributaries where bull trout were not found (Mesatchee, Morse, Short and Dirty, Clear, N.F. Tieton and Cold Creeks) may have bull trout although none were caught this year. N.F. Tieton has had bull trout in it in previous years(Bull Trout Reference and Description #12). The rebuilding of Clear Lake Dam might have had an effect on the bull trout in 1992-3 and could be the reason that no bull trout were caught in the N.F. Tieton. After the refilling of Clear Lake a single bull trout was caught (Bull Trout Reference and Description #13) indicating that there is still a possibility of bull trout using Cold, Clear, and N.F. Tieton Creeks as spawning and rearing tributaries. Also a fish ladder was constructed to by-pass Clear Lake Dam. This ladder was constructed to see if the adult bull trout from Rimrock Lake (Bull Trout Reference and Description #11) would migrate up to the tributaries that empty into Clear Lake.

Juvenile bull trout are seldom found in tributaries with temperatures greater than 18 C (Shepard, 1985). All of the tributaries with past temperature data met this criteria except for Short and Dirty which recorded a 20.5 C (See table). Spawning occurred below a 9 C threshold in the Flathead

River Basin(Weaver and White, 1985) and in the upper Arrow Lakes, British Columbia(McPhail and Murray, 1979). Bear Creek recorded a 7.9 C mean for 1993(see table) which could explain the two large bull trout found in Bear Creek. Union, Timber, Kettle, Morse, and Mesatchee Creeks were assumed to have adequate temperatures due to their origin in high Wilderness back country.

The main disadvantage to the survey is that only fish larger than the mesh screen and less than seven inches are caught. This leaves out fry and larger juveniles. The advantages are that it is easy and inexpensive. There is also less stress on the fish as opposed to electrochocking. The trapping method is also not day light specific and bull trout have been known to be more active at night.

SUMMER STREAM TEMPERATURES
FOR STREAMS SURVEYED FOR BULL TROUT
IN 1993

STREAM	YEAR	MAX		MIN		MEAN	
		F	C	F	C	F	C
Corral creek	1993	57	13.9	40	4.4	48.9	9.4
Bear creek to S.F. Tieton	1993	55	12.7	39	3.9	46.3	7.9
Clear creek	1993	48	8.8	40	4.4	44.5	6.9
N.F. Tieton	1993	56	13.3	40	4.4	47.3	8.5
Short and Dirty lower	1993	50	10	35	1.6	43.9	6.6
Short and Dirty lower	1993	69	20.5	38	3.3	53.1	11.7
Cold creek	1992	57	13.8	43	6.1	49	9.4
Spruce creek	1992	54	12.2	38	3.3	45.8	7.7

Most recent temperature data for each stream used.
conversion from degree F to degree C
degree C = (degree F - 32)/ 1.8



BULL TROUT REFERENCE AND DESCRIPTION

- 0-5: Naches River (mainstem), Rattlosnako Creek, Crow Creek, Tieton River, Bumping River, American River - sparse numbers of bull trout throughout reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.
- 2A: Crow Creek was confirmed based on a single juvenile specimen reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.
- 4A: Tieton River - current Washington state record bull trout (22 lb.) caught below dam (4/23/61).
- 5A: American River - approximately 20+ inch bull trout caught by Scott Hoefer 8/92. Location is 2 miles below Pleasant Valley Campground.
- 5B: American River - stream survey crew from Naches RD (Chris Holt, Melanie Herrett) observed 3 fish ranging from 10-20" which were presumed to be bull trout. Location is at Lodgepole Campground and below Timber Creek. (9/92)
- 6: lower Hindoo Creek and Dog Creek - bull trout redds, juvenile bull trout sampled in Hindoo Creek reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.
- 7: Indian Creek - bull trout are present from Highway 12 to falls, spawning grounds reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.
- Central Washington State master student has located and studied bull trout in Indian Creek (under Dr. Paul James)
- 8: South Fork Tieton River - bull trout spawning grounds from Rimrock Lake. Presence from Corral Creek to falls above Bear Creek. reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.
- Central Washington State master student has located and studied bull trout in S F Tieton River (under Dr. Paul James)
- 9: Deep Creek - all bull trout spawning from Bumping reservoir occurs here, located from mouth to falls (~3 miles) reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.
- 10: Bumping Lake - has notable bull trout population reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.
- 11: Rimrock Lake - the mature bull trout population does not exceed 350 fish reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.

12: North Fork Tieton River - bull trout are noted to occur in the river upstream from Rimrock Lake. Some movement is known to occur into the North Fork, but fish cannot proceed past Clear Lake dam at present.
reference: Washington Department of Wildlife. Draft Management Guide For The Bull Trout On The Wenatchee National Forest, March 1992.

12/09/93
13: Clear Lake - one bull trout 3-4" was captured along west shore of the lake near the day-use area in a minnow trap.
reference: Derek Nelson, USFS identified it while checking minnow trap along the shoreline between two logs (August 5, 1993).

14: Corral Creek - one bull trout 4-5" was captured 200 feet upstream of 1000 rd. where creek diverges. Caught in a minnow trap.
reference: Jennifer Kremer, Derek Nelson, USFS identified it while checking minnow traps set for Bull Trout survey (August 26, 1993).

15: Bear Creek - two 15-20" bull trout 130ft. upstream of bridge on 1000 rd. seen while checking minnow traps for bull trout survey.
reference: Jennifer Kremer and Derek Nelson, USFS identified them while checking minnow traps set for bull trout survey (August 26, 1993).

16: Milk Creek - one bull trout 4-5" was captured off 1200 rd. turn east just after bridge onto unmarked spur. 170ft. down spur to pool in milk creek.
reference: Jennifer Kremer, USFS identified it while checking minnow traps set for bull trout survey (September 7, 1993).

17: Spruce Creek - 5 bull trout 3-4" and one bull trout 4-5" were captured off "The Road to Nowhere" off the 1000rd. caught 100-200 feet upstream of mouth of spruce creek.
reference: Jennifer Kremer and Derek Nelson, USFS identified them while checking minnow traps set for bull trout survey (August 30, 1993).

18: Union Creek - one bull trout 5-6" was captured off hwy 410. Caught in pool around small wood jam 300' downstream of 410 bridge.
Three redds found fall '93 by Scott Hofer.
reference: Derek Nelson and Renee McGuire, USFS identified it while checking minnow traps set for bull trout survey (September 23, 1993).

19: Kettle Creek - one bull trout 6-7" was captured off hwy 410 at Pleasant Valley campground. Caught in pool 75ft. downstream of footbridge (trail 999) Rt. bank in plunge pool.
reference: Derek Nelson (USFS) identified it while checking minnow traps set for bull trout survey (September 29, 1993).

20: Timber Creek - three bull trout 4-5", 6-7", and 5-6" were caught across hwy 410 from Lodgepole Campground. Caught 200ft. upstream from mouth in plunge pool across near private cabins.
reference: Derek Nelson, USFS identified it while checking minnow traps set for bull trout survey (September 30, 1993).

- McPhail, J.D. and C.B. Murray. 1979. The early life-history and ecology of Dolly Varden (*Salvelinus malma*) in the upper Arrow Lakes. Department of Zoology and Institute of Animal Resources, University of British Columbia, Vancouver, British Columbia.
- Shepard, B.B. 1985. Habitat variables related to bull trout spawning site selection and thermal preference exhibited in a thermal gradient. Page 18 in D.D. McDonald, editor. Proceedings of the Flathead River Basin bull trout biology and population dynamics modeling information exchange. Fisheries Branch, British Columbia Ministry of Environment. Cranbrook, British Columbia.
- Weaver, T.M. and R.G. White. 1985. Coal Creek fisheries monitoring study number III. Final Report to United States Department of Agriculture, Forest Service, Flathead National Forest Contract number 53-0385-3-2685. Montana State University Cooperative Fisheries Research Unit, Bozeman.

Spawner Survey - continued.
American River - continued.

2 trout are known to be in this system, population size, spawn timing and location is unknown. Much work needs to be done. Radio tracking studies would be very useful.

3 *enter* Timber Creek (tributary of American R.) 1000-1100 Hrs. Stream Section - from mouth to falls (approx. .5 mile). No redds or bull trout observed. Electrofishing surveys two weeks earlier confirmed presence of 6 inch and smaller bull trout and a few cutthroat. Fifteen foot vertical falls blocks passage.

Spawner survey

#1803

35T17R11E

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002042

2042

Stream Lake Fish Database
Box Canyon 1993

Year	Wa_nam	Date	Temp	New Redds	False_redds	Total_visible
1993	BOX CANYON CR	9/1/1993	11	0	0	0
1993	BOX CANYON CR	9/14/1993	10	0	0	0
1993	BOX CANYON CR	9/21/1993	6	0	0	0
1993	BOX CANYON CR	9/30/1993	9	3	0	3
1993	BOX CANYON CR	10/18/1993	7	1	0	4

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1054	09/01/93	1300	LGB	AS4AS5	BOX	CANYON	CR				
1060	09/14/93	1100	LGB	AS4AS5	BOX	CANYON	CR				
✓1063	09/21/93	1000	LGB	AS4AS5	BOX	CANYON	CR			ADULT BULL TROUT WERE OBSERVED ON PREVIOUS DATES	

ADULT CHARR WERE COUNTED ON SEPTEMBER 1st IN THAT POOL. LAST WEEK'S SURVEY DID NOT LOCATE ANY ADULT CHARR ANYWHERE. IN ADDITION TO STANDARD INDEX SURVEY FROM LAKE TO PEEK-A-BOO FALLS, JIM CUMMINS AND I THOROUGHLY WALKED OUT THE UPPER STREAM ALL THE WAY TO IMPASSABLE 15ft FALLS 1/4 MILE ABOVE THE USFS RD CULVERT. NO ADULT BULL TROUT OR REDDS FOUND ANYWHERE.

I BELIEVE POACHERS/VANDALS KILLED OFF THIS YEAR'S ADULT RUN.

1076 09/30/93 1030 LGB

AS4AS5 BOX CANYON CR



The poachers didn't get them all. Double pocket redd (one long redd, but with two countable pockets) under old log about 75-100 meters above spur road crossing on right bank. Also observed a pair of large bulls on a sandy redd at tailout of second large pool downstream from Peek-a-boo pool. No other activity found throughout the long, lower gradient gravelly section to the top of the box canyon.

2 Definite
1 Probable (2nd pocket)
0 Possible

1082 10/18/93 1100 LGB

AS4AS5 BOX CANYON CR



Final redd survey for 1993 season. One large, new redd located about 10 m below old BLC-1, and at the exact site of old SS-1-3 sediment sample site.

BLC-4 DEF, BLC-1 PROB, BLC-2 PROB, BLC-3 PROB.

[1 Definite, 3 Probable (old), 0 Possible]

TOTAL 4 REDDS, 0 FALSE, 0 ADULTS.

The three redds (actually 2 redds, but 3 pockets) noted on the last trip (Sept.30) were very difficult to see. Periphyton growth has covered the redds and tailspill, leaving no color differential with surrounding substrate at all. If I hadn't seen and remembered the first three redds 19 days ago, I might have missed them today. I think the large pair seen just below Peek pool on 09/30 made the newest redd about a week later after dropping downstream some 200-300 meters. The finished upstream redd (sandy/gravel substrate) was not nearly large enough for the size of the fish and type of substrate. All told, I suspect that only 2 females survived to spawn this year (the other making the double pocketed redd under the log above BLC-4). I have no idea how many made the trip only to be lost to poachers at or below Peek-a-boo falls. We seem to lose some this way every year.

Extremely heavy periphyton and sphaerotilus and/or zoogloea bacterial growth throughout spawning area and box canyon below. These ATTACHED MATS of STRINGY, YUKKY, DIRTY, BROWNISH/IVORY GUK are not in evidence above the culvert, which is above the dispersed, informal camping areas from Peek-a-boo falls up to the road crossing. I suspect heavy nutrient and perhaps fecal contamination is prevalent and caused by informal campsite

activities having no decent sanitary facilities
for so many folks. The whole area should be fenced
off from public access.

09/10/91 1155 EA

Z16Z17 DEEP CR

NO BULL TROUT SEEN. SUSPECT SPAWNING IN EARLY TO MID-SEPTEMBER. WILL START 1991 SURVEYS EARLIER. FROM RD 1800 UPSTREAM 3 MILES JUST PAST SMALL POND BY ROAD 1808: 76 REDDS, 3 FALSE, 2 ADULTS (APPROX. 16"). TEMP 44F. LOW FLOW BLOCKAGE AS FLOW GOES SUBTERRANEAN. ELECTROFISHING SHOWED ONE ADULT BULL TROUT (445mm F) TRAPPED IN POOL, 8 JUVENILE BULL TROUT FROM 72-131mm, 1 BROOK TROUT 92mm, AND LOTS OF SCULPINS. FROM ROAD 1800 DOWNSTREAM TO LAKE: 8 REDDS, 6 ADULTS (MOSTLY KELTED), AND ONE CARCASS OF 690mm BULL TROUT (otoliths taken).

STAFF GAUGE ABOVE DOUBLE CULVERT ON RD 1800 READ 1.98 (feet?).

09/01/92 1000 EA

Z16Z17 DEEP CR

SPAWNING APPEARED 80-90 PERCENT COMPLETE, NEED TO START SURVEYS IN MID-AUGUST IN THIS STREAM. STAFF GAUGE 1.90 (WAS 1.98 LAST YR) LOW FLOW CONDITIONS CAUSED STREAM TO DRY UP ABOUT 1.7 MILES FROM MOUTH. FOUND 2 ADULT BLC HEADS FROM POACHING AND 2 ADULT BLC MORTS. ALSO OBS. 2 LIVE AND 1 DEAD BLC JUV 6-8" AND ABOUT 25 LIVE BLC FRY OF 1-2". 6 OF THE 25 ADULT BLCs WERE IN LG POOL BELOW RD 1800 AND NOT ON REDDS.

REDD CLASSIFICATION: DEFINITE 69, PROBABLE 8, POSSIBLE 8

09/10/92 0900 EA

Z16Z17 DEEP CR

REDD CLASSIFICATION: DEFINITE 77, PROBABLE 1, POSSIBLE 7.

08/13/93 0845 EA

Z16Z17 DEEP CR

Initial or preliminary trip. No spawning activity and no adult bull trout observed. Several small fry were observed. Unlike last year, the channel above 1.7 miles from mouth has considerable flow. Last year the channel was dried up above that point.

Staff gauge at FSRD1800 bridge at 2.00

08/24/93 0900 EA

Z16Z17 DEEP CR

Eric calls this one his "first pass"

Water 44F at FSRD1800 bridge, BOR staff gauge at 2.00

No redds or fish in braided channels, none in

No redds or fish in braided channels, non in slide area. Surveyed to about 1.5 miles

from jct of Forest Service Roads 1800 and 1808.
Spawning appears to have just started.

		From FSRD 1800								
		Upstream abt 1.5 mi.				Downstream to mouth				Total.
		Def	Prob	Poss	BLC	Def	Prob	Poss	BLC	DEF →
Totals										
PROB POSS BLC										
Total →		6	5	0	5	3	1	2	4	9
Total →		6	2	9						
TOTALS										
DEF			9							
PROB		6								
POSS		2								
BLC		9								

09/02/93 0900 EA

Z16217 DEEP CR

Eric's "second pass" survey.

BOR staff gauge at 1.90

A 100-ft section of the main channel was dry about 0.7 miles up from jct of roads 1800/1808, adequate flow above though. One 19-inch dead bull trout found in dewatered channel, covered with aggressive bees. Bumping Lake drawdown just recently started and may be affecting channel dessication. Upper portions of braided channels become a series of impassable beaver dams. 12 fry obs.

One head/entrails found at bridge campground, took otoliths, maxillary length 60mm, branchiostegals R12, L13.

		From USFS RD1800 Bridge							
		Upstream to 0.7 mi.				Downstream to Lake			
		Def	Prob	Poss	BLC	Def	Prob	Poss	BLC
Old		6	3	0	7	3	1	1	6
New		13	1	6		9	1	2	
Total		19	4	6	7	12	2	3	6

Overall Counts
 Definite redds 31
 Probable redds 6
 Possible redds 9
 adult BLC 13

09/10/93 0830 EA

Z16217 DEEP CR

Eric's "third pass" and final survey.

BOR staff gauge at Rd 1800 bridge at 1.90 still.

Stream dried up along most of rock slide (much more than on last survey, 8 days ago). One stranded bull trout (24") in dry channel.

Two old definite redds were high and dry with several more in danger of drying up.

		From FSRD1800 up 0.7 mi.				From FSRD1800 down to Lake			
		DEF	PROB	POSS	BLC	DEF	PROB	POSS	BLC
OLD		19	3	6	0	12	1	3	0
NEW		7	0	0		3	0	0	

**Stream Lake Fish Database
Deep Cr 1993**

Year	Wa_nam	Temp	Date	Time	New Redds	False_redds	Total_visibl	#Fish
1993	DEEP CR	8	8/13/1993	8:45 AM	0	0		
1993	DEEP CR	7	8/24/1993	9:00 AM	3	3		4
1993	DEEP CR	7	8/24/1993	9:00 AM	6	5		5
1993	DEEP CR	7	9/2/1993	9:00 AM	13	7		7
1993	DEEP CR	7	9/2/1993	9:00 AM	9	3		6
1993	DEEP CR	8	9/10/1993	8:30 AM	10	0		
1993	DEEP CR	8	9/10/1993	8:30 AM	4	0		

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Date	Time	Location	Species	Sex	Age	Notes	Measure	Method	Count	Only	Live Dead	Redds False
07/07/92	1200	LGB	AT3AT4 R	●		GOLD CR		DV BULL	0	0		
09/25/84	1200	JS	AT3AT4 R	●		GOLD CR (LOWER)	9.50	DV BULL	0	2		
10/05/84	1200	JS	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0		
09/09/85	0833	JS	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0		
09/13/85	0951	JS	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0		
09/14/85		JS	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0		
09/20/85	0831	JS	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0		
09/30/85		JS	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0		
09/22/86	1500	LGB	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	3	9	12 1	SPEARED
08/27/87	1300	LGB	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0	1 0	
09/17/87	1000	LGB	AT3AT4 R	●		GOLD CR (LOWER)	53F	DV BULL	0	4	4 0	
10/05/87	1030	LGB	AT3AT4 R	●		GOLD CR (LOWER)	52F	DV BULL	0	7	7 0	
09/15/88	1200	LGB	AT3AT4 R	●		GOLD CR (LOWER)	56F	DV BULL	0	4	4 0	
09/22/88	1100	LGB	AT3AT4 R	●		GOLD CR (LOWER)	52F	DV BULL	0	6	6 0	
09/15/89	0900	LGB	AT3AT4 R	●		GOLD CR (LOWER)	52F	DV BULL	0	4	4 0	
09/20/89	1000	LGB	AT3AT4 R	●		GOLD CR (LOWER)	52F	DV BULL	0	4	4 0	
09/27/90	1330	LGB	AT3AT4 R	●		GOLD CR (LOWER)	58F	DV BULL	0	0	0 0	
09/13/91	1400	LGB	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0	0 MEMO ---	NO COUNT
09/20/91	NBRD	FG	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0	16 0	
09/18/92	from	FRI	AT3AT4 R	●		GOLD CR (LOWER)		DV BULL	0	0	0	
09/30/92	1017	BDB	AT3AT4 R	●		GOLD CR (LOWER)	51F	DV BULL	0	0	0 0	
10/20/92	1000	BDB	AT3AT4 R	●		GOLD CR (LOWER)	48F	DV BULL	0	0	0 SURVEY	CANCELLED RAIN YUK
09/23/93	1201	FRI	AT3AT4 R	●		GOLD CR (LOWER)	11.20	DV BULL	0	0	2	
09/18/90	1000	LGB	AT3AT4 R	●		GOLD CR (UPPER)	52F	DV BULL	0	2	2 0	
09/19/91	CERD	KS	AT3AT4 R	●		GOLD CR (UPPER)		DV BULL	0	0	2 2	ANGLERS
09/20/91	NBRD	FG	AT3AT4 R	●		GOLD CR (UPPER)		DV BULL	0	0	20	
09/18/92	from	FRI	AT3AT4 R	●		GOLD CR (UPPER)		DV BULL	0	0	0	
10/09/92	1015	BDB	AT3AT4 R	●		GOLD CR (UPPER)	8.00	DV BULL	0	0	0 0	
09/23/93	1200	FRI	AT3AT4 R	●		GOLD CR (UPPER)	9.60	DV BULL	0	0	2 LOST 15 OF 17	
09/18/90		WDW	Y74Y75 R	●		HINDOO CR	48F	DV BULL	0	0	0 0	
09/08/84	1200	JS	Y58Y59 R	●		INDIAN CR		DV BULL	6	140	146 1	CLUBBED
09/15/84	1200	JS	Y58Y59 R	●		INDIAN CR	110	DV BULL	20	25	45 0	
09/12/85		JS	Y58Y59 R	●		INDIAN CR		DV BULL	0	0	90 FALSE IN CLUDED	
09/17/85	0943	JS	Y58Y59 R	●		INDIAN CR		DV BULL	0	0	62 0	
09/03/86		JS	Y58Y59 R	●		INDIAN CR		DV BULL	0	0	45 PARTIAL SURVEY	
09/12/87		JS	Y58Y59 R	●		INDIAN CR		DV BULL	0	0	20	
09/02/88	1101	EA	Y58Y59 R	●		INDIAN CR	43F	DV BULL	0	0	25 0	
09/09/88	1103	EA	Y58Y59 R	●		INDIAN CR	45F	DV BULL	0	0	25 0	
09/16/88	1105	EA	Y58Y59 R	●		INDIAN CR	48F	DV BULL	0	0	23 1	unknown
09/26/88	1107	EA	Y58Y59 R	●		INDIAN CR	43F	DV BULL	0	0	0 0	
09/14/89	1201	EA	Y58Y59 R	●		INDIAN CR	43F	DV BULL	0	0	0 0	

09/19/91 CERD KS	AT3AT4 GOLD CR (UPPER)	TELEPHONE CALL FROM KATHERINE STALEY - CLE ELUM RD USFS
		Surveyed wilderness area of Gold Creek - ONLY THREE REDDS FOUND ABOVE WILDERNESS BOUNDARY. Fair amount of evidence of fishing and/or poaching going on here. Found heads of two bull trout and saw two live adult bull trout. NEED TO POST CLOSED WATERS AND SPECIES CLOSURE INFORMATION.
		(ED: THIS INFORMATION DOESN'T MATCH FRED GOETZ INFORMATION 9/20)
		(NEED TO GET BETTER DETAILS OF WHO SURVEYED WHAT AND WHEN.....)
09/20/91 NBRD FG	AT3AT4 GOLD CR (UPPER)	SEE COMMENTS FOR RECORD 593 (LOWER GOLD CR)
09/18/92 from FRI	AT3AT4 GOLD CR (UPPER)	1992 DATA OBTAINED FORM SCOTT CRAIG, UW MASTER'S STUDENT UNDER BOB WISSMAR, FRI, IN A TABLE PRESENTED ON NOV.5,1993.
		I don't know where Craig obtained his information. Perhaps he got it from Fred Goetz or someone else at the North Bend Ranger District. Bruce Bolding did some cursory surveys, but never found this number of redds.
10/09/92 1015 BDB	AT3AT4 GOLD CR (UPPER)	WATER TEMP AT POND CULVERT 9.5C AND AT TRAILHEAD 8.0C @1015. FROM TRAILHEAD UPSTREAM. FOUND THE TWO PROBABLE/POSSIBLE(?) REDDS ABOUT IN THE MIDDLE OF THE SECTION FROM START TO ABOUT SILVER CREEK. GOT TIRED AT ABOUT SILVER CREEK OR ALASKA CREEK (NOT SURE WHICH) AND RETURNED ON TRAIL (1 HOUR WALK TO WLDNESS BNDRY). DID NOT SURVEY FROM POND AREA DOWN TO LAKE
09/23/93 1200 FRI	AT3AT4 GOLD CR (UPPER)	Data from UW master's student, Scott Craig, working under direction of Dr. Bob Wissmar (FRI). Redd counts represent the "best" total count for the season. Note that he documented the loss of 15 of the 17 adult BLC (88 percent) known to have penetrated into the upper river, above the pond. Temperature ranged from 9.6-11.2C from Sept.03-23, 1993. Two additional redds were located downstream of the pond outfall (Lower Gold Cr) before confounding by large numbers of kokanee. Scott will publish details as a Master of Science Thesis in the near future. Objectives of his study were..... 1) Monitor with the least amount of disturbance, the adult bull trout above and below the dry creek bed located near the pond and determine population estimates along with habitat

of bull trout in Gold Creek.

3) Collect information on all redds and test digs.

			AREA SURVEYED	REDDS	FISH	TIME/ETC	
9	09/18/90	WDW	Y74Y75 HINDOO CR	Mouth to 2nd falls above Dog Cr	1	0	48F @1330 3.5 hours
				Dog Cr fm mouth to above Lookout Cr	2	0	48F @1600 2.5 hours
				TOTALS	3	0	
0	09/08/84 1200 JS		Y58Y59 INDIAN CR				
9	09/15/84 1200 JS		Y58Y59 INDIAN CR				This survey only represents approximately 50 percent of the spawning area of Indian Creek. Of the 45 adults observed, 16 were females (35%) and most fish were from 18" to 24" in length. Discharge was measured at 13.2 cfs. DATA FROM JIM CUMMINS FILES.
1	09/12/85	JS	Y58Y59 INDIAN CR				1985 SURVEYS DONE BY JIM SPOTTS, JIM CUMMINS, STEVE MERCER, AND STEVE ROBARDS. ENTIRE STREAM FROM RESERVOIR TO FALLS WAS SURVEYED. HOWEVER, THE CHANNEL WAS DEWATERED ABOVE THE SOUTH SPRING CONFLUENCE. FISH WERE MOSTLY 16-25 INCHES. NO FALSE REDDS WERE NOTED, AND NOT KNOWN IF ANY ARE INCLUDED IN THE REDD COUNT. INCLUDES LEFT BANK SIDE CHANNEL (FROM WHERE SPRING BUBBLES UP ALONG ROAD TO MAINSTEM INDIAN CREEK). SURVEY INCLUDES ENTIRE LIVE STREAM TO CONFLUENCE WITH RIMROCK LAKE. AREA ABOVE UPPER RIGHT BANK SIDE CHANNEL (SPRING) TO UPPER WATERFALL WAS DRY WITH ONLY INTERMITTENT FLOW, NOT ACCESSIBLE TO FISH. I SEEM TO RECALL ANOTHER SURVEY LATER IN SEPTEMBER, UNFORTUNATELY I NO LONGER HAVE ANY RECORD OF THAT SURVEY. IF I REMEMBER CORRECTLY, THERE WERE FEW FISH PRESENT IN THE CREEK AT THAT TIME AND THE REDD COUNT WAS ABOUT THE SAME (Jim Spotts, from pocket calendar notes). DATA FROM JIM CUMMINS FILES. A PARTIAL SURVEY ONLY. SURVEY BY JIM SPOTTS AND JIM CUMMINS FROM "AT LEAST" THE NORTH SPRING CONFLUENCE (INCLUDING NORTH SPRING FLOWAGE) UP TO THE FALLS. THE NUMBER OF FISH PRESENT (45) INDICATES SPAWNING WAS NOT COMPLETE, AND NO COUNTS WERE MADE DOWNSTREAM OF THE NORTH SPRING. DATA FROM JIM CUMMINS FILES. THIS INFORMATION WAS "MISSING" FOR SEVERAL YEARS. ONLY A PARTIAL SURVEY DONE IN CONJUNCTION WITH FISH SALVAGE AND KOKANEE EGG TAKES AT RIMROCK LAKE DRAWDOWN. JIM CUMMINS AND LARRY BROWN DID A COUNT FROM CONFLUENCE OF NORTH SPRING (INCLUDING THE N.SPRING) TO SOUTH SPRING AND IN MAINSTEM ABOVE CONFLUENCE WITH NORTH SPRING. NO SEPARATE REDD/FALSE REDD COUNTS. PROBABLE THAT FALSE REDDS WERE NOT EVEN COUNTED. THIS DATA WAS LEFT ON A
7	09/17/85 0943 JS		Y58Y59 INDIAN CR				
2	09/03/86	JS	Y58Y59 INDIAN CR				
3	09/12/87	JS	Y58Y59 INDIAN CR				

No fish or redds above end of road at trail crossing. Uppermost redd about 300 yds above confluence with North spring. Dry channel in mainstem above that point. Possible relationship with water releases from Rimrock Lake and/or drought.

definite redds	85
probable redds	10
possible redds	13
adult BLC obs	53*

*includes 7 adults staging in one pool and one 14"er.
did not count one 5"er seen in North spring flow.

Section - Mainstem from Hwy 12 bridge to North Spring.

definite redds	47
probable redds	4
possible redds	8
adult BLC	28 (incl. the 7 staging in one pool)

Section - Mainstem above North Spring

definite redds	10
probable redds	1
possible redds	1
adult BLC	2 (incl. the 14"er)

Section - North Spring flowage

definite redds	28
probable redds	5
possible redds	4
adult BLC	23 (one 5"er not counted)

Mainstem from Hwy 12 to N. Spring

	definite	probable	possible
adult BLC			
Old Redds	47	2	0
5			
New Redds	16	1	0
Total Redds	63	3	0

Mainstem from N. Spring to dewatered channel

	definite	probable	possible
adult BLC			
Old Redds	10	1	0
0			
New Redds	2	0	0
Total Redds	12	1	0

North Spring (includes 2 def, 1 prob, 1 poss above bvr dams)

	definite	probable	possible
adult BLC			
Old Redds	28	1	0
11			
New Redds	24	1	2
Total Redds	52	2	2

mainstem from Hwy 12 to N. Spring confluence

	Def	Prob	Poss	BLC
Old	63	3	0	2
New	2	0	0	
Total ,	65	3	0	

mainstem from N. Spring to dewatered channel

	Def	Prob	Poss	BLC
Old new redd)	12	1	0	1 (a tiny 8"er on
New	1	0	0	
Total	13	1	0	

N. Spring

	Def	Prob	Poss	BLC
Old	52	1	0	0
New	5	0	0	
Total	57	1	0	

Overall 135 5 0 3 (2 on redd, 1
off redd)

**Stream Lake Fish Database
Kaches R 1993**

Year	Wa_nam	Temp	Date	Time	New Redds	False_redd	Total_visibl	#Fish
1993	S R U	8	8/31/1993	1200	0	0	0	
1993	S R U		9/16/1993	1500	0	0	0	
1993	S R U	8	9/30/1993	1430	0	0	0	
1993	S R U	6	10/18/1993	1400	0	0	0	

**Stream Lake Fish Database
Mineral Cr 1993**

Year	Wa_nam	Temp	Date	Time	New Redds	False_redd	Total_visibl	#Fish
1993	CR	9	8/31/1993	1045	0	0	0	
1993	CR	9	9/30/1993	1330	0	0	0	
1993	CR	6	10/18/1993	1405	0	0	0	

1
9
9
3

08/31/93	1045	LGB	AS8AS9 MINERAL CR	SET UP NEW SPANNING INDEX AREA FROM MOUTH OF MINERAL CREEK TO IMPASSABLE VERTICAL 20ft FALLS ABOUT 1/2 MILE UPSTREAM.
09/16/93	1400	LGB	AS8AS9 MINERAL CR	
09/30/93	1330	LGB	AS8AS9 MINERAL CR	STILL NOTHING IN THIS CREEK OR IN UPPER KACHESS R.
10/18/93	1405	LGB	AS8AS9 MINERAL CR	SAW NO ADULT BLC OR REDDS THIS SEASON.
				THE ONLY CHANCE IS FOR EARLY FALL FAINS TO RE-WATER THE CHANNEL OF KACHESS RIVER, ALLOWING BULL TROUT (AND KOKANEE) ACCESS TO THE SYSTEM FOR SPAWNING.

08/31/93	1200	LGB	AS6AS7	<u>KACHESS R (Upper)</u>	precluding adult entry. SET UP NEW SPANNING INDEX AREA FROM MINERAL CREEK TRAIL CROSSING TO CONFLUENCE WITH MINERAL CREEK, THEN UP KACHESS RIVER TO IMPASSABLE VERTICAL 50 ft FALLS ABOUT 1/2 MILE UPSTREAM.
09/16/93	1500	LGB	AS6AS7	KACHESS R (Upper)	
09/30/93	1430	LGB	AS6AS7	KACHESS R (Upper)	STILL NOTHING IN THIS CREEK OR IN MINERAL CREEK.
10/18/93	1400	LGB	AS6AS7	KACHESS R (Upper)	SAW NO ADULT BLC OR REDDS ENTIRE SEASON.
					THE ONLY CHANGE IS FOR EARLY FALL RAINS TO RE-WATER THE CHANNEL AND LET FISH UP FROM KACHESS LAKE.

09/13/93 1200 WNF

BM4H32 ROCK CR

Survey by Wenatchee National Forest personnel.
4.9 River Miles: T29,R17,NW-Sec.31 to
T29,R17,NW-Sec.5
over two days, 10/13-10/14.

Bull Trout and cutthroat trout observed.
Water temperature range noted 43F-47F.

Definite Redds	75		
Probable Redds	48	Total Redds	123
Possible Redds	18	False Redds	18

09/22/93 1200 WNF

BM4H32 ROCK CR

Survey by WNF personnel. 4.9 river miles.

bull trout (93 adults) and cutthroat trout
observed.
temperature range observed 43F-45F

Definite Redds	148		
Probable Redds	13	Total Redds	161
Possible Redds	23	False Redds	23

10/18/93 1200 WNF

BM4H32 ROCK CR

Survey by WNF personnel, 4.9 river miles over two
days on Oct.13 and Oct.18, 1993. Temperature
ranges notes as 39F-46F.

Only two bull trout adults and some cutthroat
observed.

Definite Redds	141		
Probable Redds	38	Total Redds	179
Possible Redds	0	False Redds	0

Looks like surveyors determined that all
"possibles" were actually "probables".

09/20/90

WDW

Y52Y53 TIETON R SF

AREA SURVEYED	DATE	REDDS	FISH	TIME/ETC
Upper falls down to Bear Cr	9/19	5	10	50F @1450 4 hours
Bear Cr to	9/20	11	1	46F @1230

DATE	TIME	WDR	PROJECT	AREA SURVEYED	DATE	REDDS	FISH	TIME/ETC
10/01/90		WDW	Y52Y53 TIETON R SF	Upper falls to Corral Cr	09/27	23	0	44F @0950 5+ hours
				Corral Cr downstream (?)	10/01	9	0	
				TOTALS		32	0	

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08/20/93 1100 EA Y52Y53 TIETON R SF (LOWER SECT) DEFINITION OF TIETON R SF (LOWER SECTION) BLC INDEX AREA

From Grey Creek Campground downstream to Rimrock Lake or to FSRD1010, about a mile short of the lake. Mostly barren habitat, appears underutilized by fish. Only patchy spawning habitat for bull trout in this section. Approx. 4 ft. cascade falls below Bakeoven Flats not impassable for bull trout.

Obs one black bear on bank at 20-25 ft away.

Caught one BLC (18.5cm) H&L, saw no others. Obs several fry.

08/31/93 0930 EA Y52Y53 TIETON R SF (LOWER SECT) No redds, no BLC adults, but many unident fry stranded in pools below FSRD1010 bridge. Falls at mouth not yet exposed due to reduction in Rimrock Lake level.

08/19/93 1125 EA Y52Y53 TIETON R SF (UPPER SECT) DEFINITION OF TIETON R SF (UPPER SECT) BLC INDEX AREA.

From falls about 1 mile above Bear Creek downstream to the USFS Grey Creek campground, approximately 5.6 river miles.

Weather and water clarity good. H&L 2 BLC (18"-20") and 1 WCT at 10". Saw 3 other BLC "follows". Observed 7 adult BLC holding in pool between Minnie Meadows and Grey Cr Campground.

Stretch has some braiding, with good spawning habitat.

No Redds or false redds observed.

08/31/93 0920 EA Y52Y53 TIETON R SF (UPPER SECT) SECTION ABOVE GREY CR CAMP TO FALLS ABOVE BEAR CR.

DEFINITE REDDS	4
PROBABLE REDDS	1
POSSIBLE REDDS	0
ADULT SPAWNERS	12

H&L samples (TLcm)

female BLC	41.5	45.5
male BLC	29.5	42.0 43.1

unk BLC 20.5
cutthroat 21.0

09/08/93 0930 EA Y52Y53 TIETON R SF (UPPER SECT) UPPER SECTION FROM FALLS ABV BEAR CR TO GREY CR
CAMPGROUND.

DEFINITE REDDS 35
PROBABLE REDDS 3
POSSIBLE REDDS 4
ADULT SPAWNERS 5

Most redds were between the falls and Blue Slide, none below.

Found 2 heads w/entrails from poachers. One near falls and the other near FSRD 1050 at unimproved campsite. Too many bees to worry about meristics, etc.

Did not survey lower section from Grey Cr to Lake, but noted that the falls at the mouth are now about 4' high due to dropping lake level.

10/10/89 WDW BH9BJ1 TILLICUM CR

AREA SURVEYED REDDS FISH TEMP/ETC
Indian cr to mouth 1 0 Max-min 58/50
4 hrs very
brushy

09/13/84 1600 LGB BF2H25 WHITE R

Two dolly redds in tailout of large pool at head of Panther Cr Island. 2 redds below first cascading falls which appear passable along left bank chutes. One very large male bull trout of 12-15 pound seen cruising the plunge pool below the chutes. Surveyed from just below Panther Cr Island to upper impassable falls. Lots of human footprints all through the mile and a half section.

NOTE: On Sept. 19 (6 days later) there were 3 bull trout redds at the top of Panther Cr Island. One redd attended by a pair of DV and one other male DV hanging around. No actual survey of the White R on this date, but count data reflects all observations on the two dates.

09/16/86 1500 LGB BF2H25 WHITE R

From mouth of Panther Cr upstream about 1/2 mile. Found one redd and one false redd at head of Panther Cr island. No fish observed. Water visibility quite good now that cooler weather has arrived. Found quite a few large CK redds, but no fish visible, about 1/2 mile below Grasshopper meadows. Caught quite a few rainbow legals on a fly (must have moved up from Napeequa area). Also caught and released one fat, wild cutthroat of 29.5cm.

09/22/93 1300 LGB BF2H25 WHITE R

This is just a notation. No formal bull trout spawning surveys are conducted on the White River due to glacial water conditions for much of the season. However, today the water was almost crystal clear and couldn't help but note two recent dolly redds at the trail crossing (right bank) above grasshopper island. One was flagged by Ossie Heath, Chelan PUD. I've seen this in past years, but the bull trout spawning is usually preceded by spring chinook spawning at this site (not this year).

10/03/91	NTS	45	23	H27H28	R	PHELPS	CR	44F	DV	BULL	0	0	0	0	17	0	MEMO	
10/18/91	WNF	45	23	H27H28	R	PHELPS	CR	44F	DV	BULL			0		22		MEMO	
09/17/92	0930 WNF	45	23	H27H28	R	PHELPS	CR	42F	DV	BULL	0	0	9	0	34	17	MEMO	
09/30/92	0900 WNF	45	23	H27H28	R	PHELPS	CR	--	DV	BULL			0		19		MEMO	
10/22/92	1300 WNF	45	23	H27H28	R	PHELPS	CR	46F	DV	BULL	0	0	0	0	8	2	MEMO	
09/10/93	1130 WNF	45		H27H28	R	PHELPS	CR	45F	DV	BULL			3		3	0	MEMO	
09/16/93	1130 WNF	45		H27H28	R	PHELPS	CR	45F	DV	BULL			14		9	5	MEMO	
10/05/93	1130 WNF	45		H27H28	R	PHELPS	CR	46F	DV	BULL			0	0	32	0	MEMO	
09/29/89	WDW	39	20	AM5AM6	R	ROARING	CR	44F	DV	BULL			0				MEMO	
09/20/89	1501 WDW	45	23	BM4H32	R	ROCK	CR		DV	BULL			12	0	12	12	MEMO	
09/27/89	1502 WDW	45	23	BM4H32	R	ROCK	CR	47F	DV	BULL			31	0	86	0	MEMO	
10/09/89	1503 WDW	45	23	BM4H32	R	ROCK	CR	6.0C	DV	BULL			3	0	114	0	MEMO	
10/10/90	WDW	45	23	BM4H32	R	ROCK	CR	40F	DV	BULL	0	0	0	0	64	0	MEMO	
09/26/91	NTS	45	23	BM4H32	R	ROCK	CR	47F	DV	BULL	0	0	33	0	157	0	MEMO	
10/17/91	WNF	45	23	BM4H32	R	ROCK	CR	38F	DV	BULL			0		239		MEMO	
09/15/92	1000 WNF	45	23	BM4H32	R	ROCK	CR	42F	DV	BULL	unsur	unsur	107	0	181	12	MEMO	
09/25/92	1030 WNF	45	23	BM4H32	R	ROCK	CR	45F	DV	BULL	UNSUR	UNSUR	16	2	AD BLC MINK	205	31	MEMO
10/13/92	1000 WNF	45	23	BM4H32	R	ROCK	CR	42F	DV	BULL	0	0	0	0	188	38	MEMO	
09/13/93	1200 WNF	45		BM4H32	R	ROCK	CR	45F	DV	BULL			114		123	18	MEMO	
09/22/93	1200 WNF	45		BM4H32	R	ROCK	CR	44F	DV	BULL			93		161	23	MEMO	
10/18/93	1200 WNF	45		BM4H32	R	ROCK	CR	41F	DV	BULL			2		179	0	MEMO	
09/20/90	WDW	38	21	Y52Y53	R	TIETON	R SF	46F	DV	BULL	0	0					MEMO	
10/01/90	WDW	38	21	Y52Y53	R	TIETON	R SF	44F	DV	BULL	0	0					MEMO	
08/20/93	1100 EA	38		Y52Y53	R	TIETON	R SF (LOWER SECT)	50F	DV	BULL	0	1	1	0	0	0	MEMO	
08/31/93	0930 EA	38		Y52Y53	R	TIETON	R SF (LOWER SECT)	45F	DV	BULL	0	0	0	0	0	0	MEMO	
08/19/93	1125 EA	38		Y52Y53	R	TIETON	R SF (UPPER SECT)	50F	DV	BULL	0	9	9	0	0	0	MEMO	
08/31/93	0920 EA	38		Y52Y53	R	TIETON	R SF (UPPER SECT)	45F	DV	BULL			12	0	5	0	MEMO	
09/08/93	0930 EA	38		Y52Y53	R	TIETON	R SF (UPPER SECT)	46F	DV	BULL			5	2	POACHERS	38	4	MEMO
10/10/89	WDW	46	11	BH9BJ1	R	TILlicum	CR		DV	BULL			0	0	1	0	MEMO	
09/13/84	1600 LGB	45	50	BF2H25	R	WHITE	R	48F	DV	BULL	2	2	4	0	5	0	MEMO	
09/16/86	1500 LGB	45	50	BF2H25	R	WHITE	R		DV	BULL	0	0	0		1	1	MEMO	
09/22/93	1300 LGB	45		BF2H25	R	WHITE	R		DV	BULL	0	0	0	0	2	0	MEMO	
10/15/93	1200 LGB	45		BF2H25	R	WHITE	R	47F	DV	BULL	0	0	0	0	5	0	MEMO	

Live Dead

Redds False

-> will send map

#1

From Eric Anderson

Summary of Bull Trout presence/absence electrofishing surveys in Yakima County during 1993. Wa. Dept. of Wildlife files.

25T17R11E

0A20A3

American River Drainage (part of Naches R. system)

Union Creek Sept. 1, 1993 0930 Hrs Water Temp. 46° F
Stream Section - below falls. Length Shocked 55 Meters

Surveyors - Eric Anderson, Terry Erion

Species Length (cm)

Bull Trout	34.5	Male (Ripe)	Below Falls
Bull Trout	10.4		
Cutthroat	25.8		
Sculpin	10.8		
Bull Trout	9.2		
Sculpin	6.7		
Sculpin	7.2		

1400

25T17R11E

0A20A3

American River Drainage (part of Naches R. system)

Union Creek Sept. 1, 1993 1025 Hrs Water Temp. 46° F
Stream Section - mouth to upstream. Length Shocked 100 Meters

Surveyors - Eric Anderson, Terry Erion

Species - 15 Sculpins

MOUTH

14012

25T17R11E

Y79Y78

American River (part of Naches R. system)

Sept. 1, 1993 1100 Hrs Water Temp. 49° F

Stream Sec. - below mouth of Union Creek. Length Shocked 300 M.

Surveyors - Eric Anderson, Terry Erion

Species Length (cm)

Chinook	8.0
Chinook	8.0
Chinook	7.7
Chinook	7.9
Chinook	7.3
Sculpin	6.0

Blw Union

1402

25T17R11E

0A41BAS

American River Drainage (part of Naches R. system)

Timber Creek Sept. 1, 1993 1250 Hrs Water Temp. 46° F

Stream Section - mouth to upstream. Length Shocked 67 Meters

Surveyors - Eric Anderson, Terry Erion

Species Length (cm)

Bull Trout	11.6
Bull Trout	11.4
Sculpin	15.2
Bull Trout	11.3
Bull Trout	13.4
Bull Trout	9.8
Bull Trout	9.4
Eastern Brook	17.3

MOUTH

1403

ENTERED S & L DATABASE
BY Bepi C. 11/12/93

002074

2074

AbvTmbrCr.

Presence/absence (electrofishing) - continued.

35TTR11E

Y79Y78

American River (part of Naches R. system)
Sept. 1, 1993 1330 Hrs Water Temp. 49° F
Stream Sec. - above mouth of Timber Creek. Length Shocked 80 M.
Surveyors - Eric Anderson, Terry Erion

Species	Length (cm)	
Bull Trout	31.5	Male (Ripe)
(6 Sculpins - no lengths.)		

03TTR11E

Y87Y88

Tr BrgUpstr

American River Drainage (part of Naches R. system)
Morse Creek Sept. 1, 1993 1530 Hrs Water Temp. 50° F
Stream Section - from Masatchee Ck. Trail Bridge to upstream.
Length Shocked 100 Meters
Surveyors - Eric Anderson, Terry Erion
Probable block to migrating bull trout at mouth due to beaver dams. Observed 2-4 in. salmonids in beaver ponds, probably resident E. Brook.

Species	Length (cm)
Cutthroat	12.3
Cutthroat	8.7
Cutthroat	8.3
Cutthroat	19.2
Eastern Brook	12.8
Sculpin	8.1
Sculpin	9.2
Sculpin	5.5
Sculpin	7.3

S & L DATABASE

ENTERED 11/10/53
BY

22TTR12E 0A60A7

MOUTH

American River Drainage (part of Naches R. system)
Kettle Creek Sept. 22, 1993 1500 Hrs Water Temp. 43° F
Stream Section - from mouth to approx. .50 mile upstream.
Surveyors - Eric Anderson, Jim Cummins

Species	Length (cm)	Species	Length (cm)
Cutthroat	16.5	Bull Trout	9.2
Cutthroat	8.7	Cutthroat	10.1
Eastern Brook	11.4	Bull Trout	13.4
Cutthroat	11.8	Eastern Brook	12.1
Cutthroat	10.9	Sculpin	9.1
Cutthroat	7.2	Cutthroat	13.1
Cutthroat	18.0	Bull Trout	12.6
Cutthroat	11.9	Bull Trout	10.5
Eastern Brook	7.3	Eastern Brook	13.5
Cutthroat	10.8	Cutthroat	11.6
Cutthroat	7.1	Cutthroat	8.2
Cutthroat	5.7	Bull Trout	10.9
Bull Trout	17.1	Cutthroat	10.4
Cutthroat	21.7	Cutthroat	11.9
Cutthroat	13.2	Cutthroat	10.9
Cutthroat	8.3	Bull Trout	15.3
Bull Trout	8.6	Bull Trout	9.8
Cutthroat	7.3	Bull Trout	10.1

002075

2075

ENTERED S & L DATABASE
 BY 11/11/93

Presence/absence (electrofishing) - continued.
 Kettle Creek - continued.

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	7.7	Sculpin	8.3
Bull Trout	10.5	Bull Trout	12.3
Bull Trout	9.5	Eastern Brook	10.2
Bull Trout	12.5	Cutthroat	9.5
Cutthroat	9.7	Cutthroat	8.9
Bull Trout	12.2	Bull Trout	9.0
Bull Trout	13.9	Cutthroat	7.0
Cutthroat	17.8	Cutthroat	6.7
Bull Trout (F. Imm.)	15.5	Cutthroat	6.8
Cutthroat	7.8	Cutthroat	8.5
Cutthroat	10.9	Bull Trout	7.7
Cutthroat	19.2	Bull Trout	10.2
Cutthroat	16.8		
Cutthroat	14.5		
Eastern Brook	10.3		
Bull Trout	13.1		
Bull Trout	12.4		

(Few Sculpins were observed)

Yakima River Drainage

North Fork Ahtanum Creek June 22, 1993 1430 Hrs
 Stream Section - 3 miles below Snow Cabin Camp Ground near beaver
 dams. Length Shocked 267 Meters. ✓
 Surveyors - Eric Anderson, Jim Cummins

22T12R14E Beaver Dms
 432433

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	19.8	Cutthroat	15.1
Sculpin	9.0	Cutthroat	13.4
Cutthroat	11.5	Cutthroat	13.6
Cutthroat	10.5	Cutthroat	7.0
Cutthroat	17.6	Cutthroat	13.8
Cutthroat	15.3	Cutthroat	11.3
Cutthroat	11.4	Cutthroat	14.8
Cutthroat	14.0	Cutthroat	7.6
Cutthroat	13.7	Cutthroat	9.2
Cutthroat	22.9	Cutthroat	8.8
Cutthroat	22.7	Sculpin	9.0
Sculpin	9.7	Cutthroat	21.4
Sculpin	8.2	Cutthroat	22.3
Cutthroat	13.4	Bull Trout	15.5
Cutthroat	13.7	Bull Trout	16.8
Cutthroat	20.4	Bull Trout	16.4
Cutthroat	20.0	Cutthroat	12.5
Cutthroat	19.6	Sculpin	10.2
Cutthroat	13.2		
Cutthroat	17.1		

1401
 *

002076

2076

S & L DATABASE
ENTERED 11/10/93
BY Becker

Presence/absence (electrofishing) - continued.

Yakima River Drainage ↓ 18T12R14E 432433
North Fork Ahtanum Creek June 22, 1993 1330 Hrs
Stream Section - 1 mile below Snow Cabin Camp Ground.
Length Shocked 300 Meters.
Surveyors - Eric Anderson, Jim Cummins

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	18.6	Cutthroat	14.1
Cutthroat	18.5	Cutthroat	17.6
Cutthroat	13.7	Cutthroat	12.5
Cutthroat	17.4	Cutthroat	14.0
Cutthroat	6.2	Cutthroat	9.9
Cutthroat	6.3	Bull Trout	15.8
Sculpin	10.0	Sculpin	10.5
Sculpin	11.5	Sculpin	6.9
Sculpin	12.4	Sculpin	9.9
Sculpin	6.5		
Cutthroat	22.0		
Cutthroat	17.5		
Cutthroat	16.6		

Yakima River Drainage 14T12R13E 432433
North Fork Ahtanum Creek June 22, 1993 1205 Hrs
Stream Section - upstream of bridge at confluence of Shell-
neck Ck. Length Shocked 140 Meters.
Surveyors - Eric Anderson, Jim Cummins

<u>Species</u>	<u>Length (cm)</u>
Cutthroat	17.1
Cutthroat	16.4
Cutthroat	14.0
Cutthroat	9.2
Bull Trout	13.9
Bull Trout	8.2
Cutthroat	14.1
Cutthroat	13.6
Bull Trout	12.0
Bull Trout	12.4
Cutthroat	16.0
Sculpin	5.9

Yakima River Drainage 10T12R13E 432433
North Fork Ahtanum Creek June 22, 1993 1025 Hrs
Stream Section - approximately 1 mile above confluence of Shell-
neck Ck. Length Shocked 160 Meters.
Surveyors - Eric Anderson, Jim Cummins

<u>Species</u>	<u>Length (cm)</u>
Cutthroat	16.6
Cutthroat	16.8
Cutthroat	18.4
Cutthroat	10.7
Cutthroat	11.8

(duplicated by 709)

2077

Not in Fish

Spawning season Shellrock

0020772

ENTERED S & L DATABASE
 BY 11/15/93

Presence/absence (electrofishing) - continued.
 North Fork Ahtanum Creek - continued.

<u>Species</u>	<u>Length (cm)</u>
Cutthroat	10.5
Cutthroat	12.1
Cutthroat	5.2
Cutthroat	13.9
Cutthroat	17.0
Cutthroat	13.6
Cutthroat	13.0
Cutthroat	9.4
Cutthroat	7.6
Cutthroat	5.1
(No Sculpins encountered)	

Yakima River Drainage
 Middle Fork Ahtanum Creek Aug. 26, 1993 1500 Hrs
 Stream Section - T12 R14 S28 SW. Length Shocked 100 Meters.
 Water Temp. 46° F

Surveyors - Eric Anderson, Jim Cummins

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	18.6	Bull Trout	17.8
Cutthroat	21.1	Cutthroat	13.8
Cutthroat	21.2	Cutthroat	14.7
Cutthroat	20.1	Cutthroat	15.1
Cutthroat	19.5	Bull Trout	13.0
Cutthroat	19.2	Bull Trout	17.6
Cutthroat	22.4	Cutthroat	16.3
Cutthroat	17.4	Cutthroat	17.2
Cutthroat	16.6	Bull Trout	16.1
Cutthroat	18.5	Cutthroat	15.2
Cutthroat	21.6	Bull Trout	15.0
Cutthroat	16.3	Bull Trout	14.0
Cutthroat	16.0	Bull Trout	12.8
Cutthroat	15.6	Cutthroat	8.9
Bull Trout	9.0		

Yakima River Drainage
 Middle Fork Ahtanum Creek Aug. 26, 1993 1300 Hrs
 Stream Section - T12 R13 S25 NE. Length Shocked 80 Meters.
 Surveyors - Eric Anderson, Jim Cummins

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	20.2	Cutthroat	12.7
Cutthroat	13.6	Cutthroat	12.8
Cutthroat	19.5	Cutthroat	20.4
Cutthroat	15.6	Cutthroat	16.0
Cutthroat	16.0	Cutthroat	10.2
Cutthroat	7.0	Cutthroat	10.7
Cutthroat	10.0	Cutthroat	10.9
Cutthroat	14.5	Cutthroat	14.3
Cutthroat	15.0	Cutthroat	6.0

002078

2078

ENTERED S & L DATABASE
 BY B. J. ... 11/10/93

Presence/absence (electrofishing) - continued.
 Middle Fork Ahtanum Creek - continued.

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	18.2	Cutthroat	14.5
Cutthroat	10.5	Cutthroat	13.5
Cutthroat	16.7	Bull Trout	17.1
Bull Trout	17.3		

(one additional bull trout observed but not captured)

Ahtanum Cr MF

*Y32Y34
 Starts
 1113*

Yakima River Drainage
 Middle Fork Ahtanum Creek Aug. 26, 1993 1325 Hrs
 Stream Section - T12 R13 S23 SE. Length Shocked 150 Meters.
 Surveyors - Eric Anderson, Jim Cummins

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	10.9	Cutthroat	12.6
Cutthroat	10.6	Cutthroat	13.5
Cutthroat	16.1	Cutthroat	13.6
Cutthroat	18.8	Cutthroat	13.2
Cutthroat	16.9	Cutthroat	14.5
Cutthroat	17.3	Cutthroat	13.8
Cutthroat	18.7	Cutthroat	11.7
Cutthroat	16.1	Cutthroat	14.5
Cutthroat	19.5	Cutthroat	13.9
Cutthroat	14.9	Cutthroat	14.6
Cutthroat	16.0	Cutthroat	9.9
Cutthroat	14.4	Cutthroat	10.6
Cutthroat	18.0	Cutthroat	9.8
Cutthroat	18.8	Cutthroat	11.4
Cutthroat	16.5		
Cutthroat	16.0		
Cutthroat	15.6		
Cutthroat	15.0		

23 T12 R13E

SE QRT R Section

Yakima River Drainage
 Shellneck Creek Aug. 26, 1993 0940 Hrs
 Stream Section - approx. one quarter mile above confluence with
 North Fork Ahtanum Creek. Length Shocked 300 Meters.
 Water Temp. 41° F

14 T12 R13E - 0A80A9

Surveyors - Eric Anderson, Jim Cummins

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	19.5	Cutthroat	12.3
Cutthroat	18.0	Cutthroat	13.0
Cutthroat	17.9	Cutthroat	17.3
Cutthroat	17.2	Cutthroat	11.5
Cutthroat	18.9	Cutthroat	10.0
Cutthroat	10.5	Cutthroat	14.5
Cutthroat	19.5	Cutthroat	14.3
Cutthroat	20.6	Cutthroat	6.0
Cutthroat	18.7	Bull Trout	20.1
Cutthroat	15.9	Bull Trout	20.0
Cutthroat	19.7	Bull Trout (M Ripe)	21.2

1414

1414

002079

2079

ENTERED S & L DATABASE
BY 4/10/92

Presence/absence (electrofishing) - continued.
Shellneck Creek - continued.

<u>Species</u>	<u>Length (cm)</u>	<u>Species</u>	<u>Length (cm)</u>
Cutthroat	21.3	Bull Trout	20.5
Cutthroat	18.5		
Cutthroat	17.5		
Cutthroat	15.0		

Some additional electrofishing work was done in Deep Creek (Bumping Lake drainage) to determine the upper limits of bull trout distribution. A 15 foot vertical waterfall blocks upstream migration of bull trout from Bumping Lake (4.7 miles from the mouth). Bull trout juveniles were found below the falls but not above. Eastern brook trout were the only fish found above the falls (probably fish that escaped or drifted down from Little Twin Sisters Lake; headwaters of Deep Ck.). Few brook trout were found below the falls. Surveyors - Eric Anderson, Tim Huwe.

002080

2080

ENTERED S & L DATABASE
 BY 12/14/93

Hook and Line Sampling Surveys in Yakima County - 1993
 (Bull Trout presence/absence). Wa. Dept. of Wildlife files.

14TISR13E
 Rattlesnake Creek Drainage (part of Naches R. system) 474475 (1415)
 Hindoo Creek Sept. 3, 1993 1040-1145 Hrs
 Stream Section - mouth to falls. Water Temp. 49° F.
 Surveyor - Eric Anderson
 UP 2 falls

<u>Species</u>	<u>Length (cm)</u>	
Cutthroat	28.0	(Hooked but did not land an additional four)
Cutthroat	18.5	
Cutthroat	16.0	
Cutthroat	18.0	
Cutthroat	18.7	
Cutthroat	16.4	
Cutthroat	30.7	
Cutthroat	27.7	

(above falls)
 Cutthroat 20.0

10TISR13E 2202403
 Rattlesnake Creek Drainage (part of Naches R. system)
 Dog Creek (trib. of Hindoo Ck.) Sept. 3, 1993 1245-1415 Hrs
 Stream Section - mouth to upstream, approx. 1 mile.
 Water Temp. 49° F.
 Surveyor - Eric Anderson 1466

<u>Species</u>	<u>Length (cm)</u>	
Cutthroat	19.8	(Hooked but did not land an additional six)
Cutthroat	26.5	
Cutthroat	33.5	
Bull Trout	23.5	
Cutthroat	13.5	
Cutthroat	30.5	
Cutthroat	28.0	
Cutthroat	28.2	
Cutthroat	27.9	
Cutthroat	13.5	
Cutthroat	13.8	
Cutthroat	30.0	
Bull Trout	24.1	

14TISR13E2 468469
 Rattlesnake Creek (part of Naches R. system)
 Sept. 3, 1993 1500-1540 Hrs
 Stream Section - from Hindoo Ck. downstream approx. one-quarter mile.
 Surveyor - Eric Anderson

<u>Species</u>	<u>Length (cm)</u>
Cutthroat	30.6
Rainbow	16.0
Rainbow	16.5
Cutthroat	20.2

1417

002081

2081

Hook and Line Sampling - continued

26 TISRI3E

Y68469

Rattlesnake Creek (part of Naches R. system)
Sept. 3, 1993 1100 Hrs (Sampling time, 2.5 Hrs.)
Stream Section - from 1st trail crossing above Hindoo Ck. to two miles upstream. Water Temp. 48° F.
Surveyor - Jim Cummins

<u>Species</u>	<u>Length (cm)</u>
Rainbow	27.0
Rainbow	30.0
Cutthroat	38.0
Cutthroat	19.0
Cutthroat	22.0
Cutthroat	23.0

1418

American River (tributary to Naches R.)
Aug. 27, 1993 0645 Hrs. Survey time 3 Hrs.
Surveyor - Jim Cummins
Stream Section - from Union Creek downstream approx. 1.25 miles.
No fish were caught. Observed 5 live and 12 dead spring chinook (spawning is nearly complete). Approx. 25 chinook redds.

25 TIR11E

Y79478

Union Creek - from mouth to falls (approx. .5 mile).

24 TIR11E

CA28A3

<u>Species</u>	<u>Length (cm)</u>
Bull Trout	36.5

(No other fish were caught or observed).

Rattlesnake Creek (trib. to Naches R.)
Aug. 27, 1993
Surveyor - Jim Cummins
Stream Section - from Rattlesnake Spring downstream approx. .25 mile.

11 TIR14E

Y68469

<u>Species</u>	<u>Length (cm)</u>
Cutthroat	35.5
Rainbow	21.0

(1 spring chinook redd)

1421

Find Resident: Adfluvial spawner survey - find these in Yakima City

See also #843

Bumping Lake - 1993

Deep CK. Bull Trout Spawning Survey Summary
(Mouth to \approx 1.5 mile upstream),

<u>Date</u>	<u>Redds</u>	<u>Adults</u>	<u>Temp °F</u>
13 Aug. 93	0	0	47° F
24 Aug. 93	9	2	44° F
2 Sept. 93	22	13	45° F
10 Sept. 93	14 *	0	46° F
Totals	<u>45</u>	<u>15</u>	

Stream section above .7 mile upstream of USFS Rd Bridge 1800 did not contain Redds or adults due to intermittent dry channel.

* Includes 4 old redds identified as probables.

Following pages
are just details of
this page.
Don't
need.

002453

2453

Bumping Lake THE DEPARTMENT OF WILDLIFE

Deep Cr. Bull Trout Spawner Survey 8/13/93

Spot Check 0845 Hrs.

Water Temp. 47°F

Staff Gauge at USFS RD 1800 Bridge 2.00

No Bull Trout spawning activity was observed,
No Redds, No Fish observed above or below
bridge, Several Fry observed.

Unlike last year (9/1/92) the stream approx. 1 1/2
mile from the mouth has considerable water flow.
Last year the stream was dried up above this
point.

Bumping Lake

Deep CK. Bull Trout Spawner Survey (1st Pass)

8/24/93 0900 Hrs. Water Temp. 44°F at USFS RD 1800 Bridge, BOR Staff Gauge 2.00

Surveyors - Eric Anderson, Jim Cummins

Above Bridge at USFS RD 1800 to \approx 1.5 miles upstream (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
6	5	0	5	216217 #1615

No Redds or Fish in braided channels, none in slide area. Surveyed to a point 1.5 miles upstream from junction of Rds. 1800 and 1808, Redd construction appears to have recently started. Eight fry observed.

09T15R12E1

Below Bridge at USFS Rd. 1800 to Bumping LK. (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscel.
3	1	2	4	Four Fry observed

1616

33T16R12E1 PA 49

216217

Total (Redds)

Definite	Probable	Possible	Fish (Spawners)
9	6	2	9

2455

002455

Bumping Lake

Deep Ck. Bull Trout Spawner Survey (2nd Pass)

9/2/93 0900 Hrs. Water Temp. 45°F at USFS RD
1800 Bridge, BOR staff gauge 1.90

Surveyor - Eric Anderson

Above Bridge at USFS Rd 1800 to \approx .7 mile upstream (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
old 6	old 3 (2 changed)	old ϕ	7	1 head found
New 13	New 1 (to Definite)	New 6	216 217	at bridge
Total 19	Total 4	Total 6		campground

OSTIS RIZE

(Otoliths taken
maxillary Lenth 6 cm
Branchiostegals RIZ LI)

Main channel was dry on this date .7 mile upstream from junction of Rds, 1800 + 1808. Dry channel was approx. 100 ft. long, adequate water flow above dry channel, appears to have gone subterranean. One 19 inch dead bull trout was found in dry channel. Bees on fish too aggressive to get meristic characteristics.

Dry channel was not present on 8/24/93. Bumping LK water releases (drawdown) that recently started may be causing dry channel conditions. Upper portions of braided channels become a series of beaver dams that appear to block passage. Twelve fry observed.

Below Bridge at USFS Rd 1800 to Bumping LK (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscel.
old 3	old 1	old 1 (1 changed)	6	1 head in deep
New 9	New 1	New 2 (to definite)		pool (poaching)
Total 12	Total 2	Total 3	216 217	(could not retrieve)

33T16 RIZE

Right channel (facing downstream) was dry for \approx 100 meters. Was ok on 8/24/93. Four fry observed.

Total (Redds, Old + New).

Definite	Probable	Possible	Fish (Spawners)
21	2	9	13

2456

002456

Bumping Lake

Deep CK. Bull Trout Spawner Survey (3rd + Final Pass),

9/10/93 0830 Hrs. Water temp. 46°F at USFS RD 1800
 Bridge, BOR staff gauge 1.90

Surveyor - Eric Anderson

Above Bridge at USFS Rd 1800 to .7 mile upstream (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
Old 19	Old 3 (1 changed to definite)	Old 6	∅	Observed several fry.
New 7	New ∅	New ∅		
Total 26	Total 3	Total 6	Sample 16/17	216217

Stream was dried up along most of the rock slide (much more than on 9/2/93 survey). One stranded dead bull trout in dry channel (approx 24" long). Two definite redds were high + dry. Several more in probable danger if channel continues to dry.

Below Bridge at USFS Rd 1800 to Bumping Lk (Redds). ^A

Definite	Probable	Possible	Fish (Spawners)	Miscel.
Old 12	Old 1 (1 changed to definite)	Old 3	∅	
New 3	New ∅	New ∅		
Total 15	Total 1	Total 3	33T16R12E	216217

Total (Redds, Old + New) (Spawning appears complete).

Definite	Probable	Possible	Fish (spawners)
41	4	9	∅

2457

002457

Deep 1K 9-18-93. 0630
460F staff gage 1.90

old Redds - above Rd Bridge 1800

<u>Def.</u>	<u>Prob.</u>	<u>Pos.</u>

1 Prob changed to ^{New} Def.

New Redds

<u>Def</u>	<u>Prob.</u>	<u>Pos.</u>

Eric Anderson

Stream dried up along most
of rock slide area.

1 Stranded dead BLT in channel
about 24"
2 Def Redds ¹⁴ were high + dry
below rock slide,

No Live Fish observed, spawning complete

Below USFS Rd 1800 Bridge
Old Redds

<u>Def</u>	<u>Prob.</u>	<u>Pos.</u>
III II	I	III
III		

1 Prob changed to Def.

New Redds

<u>Def</u>	<u>Prob.</u>	<u>Pos.</u>
III		

Eric Anderson

~~Season Total~~

45 Redds (including 4 Probables)

Deep LK (Bumping LK) 9/2/93

0900 Hrs - Staff Gauge at Rd 1800
Bridge 1.90 Water Temp. 45.0 F

1 Head Found at Bridge R1800
- Poaching (Otoliths Taken)
Max. 1 yth b. Ocan, Branchiostegs 12R 13L

Old Redds - above USFS RD 1800

<u>Det.</u>	<u>Prob.</u>	<u>Pos.</u>
III 1	III	

(includes 2 Prob. changed to ^{New} Det.)

Eric Anderson

New Redds

<u>Det (F)</u>	<u>Prob. (F)</u>	<u>Pos. (F)</u>
III (III) x F	1	III
III (II) x F		
III		

Flow ok above
dry channel but no fish or redds
Main stream goes subterranean 17m,
From junction
For approx 100' - 1(19") dead
BLT in dried up channel

Below USFS RD #800
Mouth to Bridge
old Redds

<u>Det</u>	<u>Prob</u>	<u>Pos</u>
III	I	I

includes 1 Pos. changed to ^{New} Det.

New Redds

<u>Det(F)</u>	<u>Prob(F)</u>	<u>Pos(F)</u>
---------------	----------------	---------------

III (III) ^F	I	II
III (III) ^F		

Head in Deep pool

Right Channel (Facing Downstream)
went subterranean for \approx 100 meters.
was OK on 8/24/93

Eric Anderson

8/24/93 440F Deep CX
 Above Bridge staff Gudge 2.00
 09:00 Hrs

Def./F	Pro/F	Pos./F
1	0	

1.5m. From Y.

No Redds above braided
 channels - none along slide
 area

below Bridge

Def/F	Pro/F	Pos./F
	1	

Eric Anderson & Jim Cormanias

Record#	MUCODE	DATE	INITIALS	WATEMP	ONREDD	OFFREDD	TOTLIVE	DEAD	CAUSE	REDDS	FALSE
631	Y52Y53	09/20/90	WDW	46F	0	0	11	0		16	0
632	Y52Y53	10/01/90	WDW	44F	0	0	0	0		32	0
1102	Y52Y53	08/20/93	EA	50F	0	1	1	0		0	0
1103	Y52Y53	08/31/93	EA	45F	0	0	0	0		0	0
1099	Y52Y53	08/19/93	EA	50F	0	9	9	0		0	0
1100	Y52Y53	08/31/93	EA	45F			12	0		5	0
1101	Y52Y53	09/08/93	EA	46F			5	2	POACHERS	38	4

Record#	MUCODE	DATE	INITIALS	WATEMP	ONREDD	OFFREDD	TOTLIVE	DEAD	CAUSE	REDDS	FALSE
30	Y58Y59	09/08/84	JS		6	140	146	1	CLUBBED	3	6
29	Y58Y59	09/15/84	JS	11C	20	25	45	0		29	22
1111	Y58Y59	09/12/85	JS				90	FALSE	IN CLUDED	69	INC
547	Y58Y59	09/17/85	JS				62	0		37	18
1112	Y58Y59	09/13/86	JS				45	PARTIAL	SURVEY	16	8
1113	Y58Y59	09/12/87	JS				20	FALSE	IN CLUDED	35	INC
584	Y58Y59	09/02/88	EA	43F			25	0		8	0
585	Y58Y59	09/09/88	EA	45F			25	0		22	0
586	Y58Y59	09/16/88	EA	48F	0	0	23	1	unknown	25	0
587	Y58Y59	09/26/88	EA	43F	0	0	0	0		25	0
588	Y58Y59	09/14/89	EA	?	0	0	36	0		30	0
589	Y58Y59	09/28/89	EA	47F	0	0	5	0		39	0
590	Y58Y59	09/25/90	EA	45F	0	0	27	0		69	21
591	Y58Y59	09/13/91	JLC	45F	0	0	61	FALSE	IN CLUDED	108	INC
592	Y58Y59	10/01/91	EA	46F	0	0	15	FALSE	IN CLUDED	123	INC
1045	Y58Y59	09/04/92	JLC	42F	LOTS	LOTS		NONE	NO COUNT	UNK	UNK
1041	Y58Y59	09/09/92	CWU				40	0		78	0
1043	Y58Y59	09/14/92	EA	46F			37	0		125	13
1042	Y58Y59	09/15/92	CWU				30	0		135	6
1044	Y58Y59	09/25/92	CWU				0	0		142	2
1104	Y58Y59	09/09/93	EA	47F	46	7	53	0		95	13
1105	Y58Y59	09/21/93	EA	46F			16	0		133	2
1106	Y58Y59	10/01/93	EA	46F	1	2	3	0		140	0

Deep Creek

Record#	MUCODE	DATE	INITIALS	WATEMP	ONREDD	OFFREDD	TOTLIVE	DEAD	CAUSE	REDDS	FALSE
581	Z16Z17	09/29/89	EA		0	0	0	2	ANGLERS?	17	0
582	Z16Z17	09/24/90	EA	47F	0	0	0	0		15	5
583	Z16Z17	09/10/91	EA	44F	0	8	8	1	UNKNOWN	84	3
1046	Z16Z17	09/01/92	EA	47F			21	4	POACHERS	77	8
1047	Z16Z17	09/10/92	EA	46F			3	0		78	7
1107	Z16Z17	08/13/93	EA	47F	0	0	0	0		0	0
1108	Z16Z17	08/24/93	EA	44F	9	0	9	0		15	2
1109	Z16Z17	09/02/93	EA	45F	13	0	13	3	2FM, 1STR	37	9
1110	Z16Z17	09/10/93	EA	46F	0	0	0	1	STRANDED	45	9

March 1, 1994

GOLD CREEK BULL TROUT SPAWNING SURVEYS

YEAR	LOWER CREEK (INCLUDING POND)		UPPER CREEK (ABOVE POND)	
	Total Redds Counted	Most Adult Bull Trout Observed	Total Redds Counted	Most Adult Bull Trout Observed
1984	2	(2)	no data	
1985	2	(2)	no data	
1986	21	(13)	no data	
1987	15	(7)	no data	
1988	12	(6)	no data	
1989	2	(4)	no data	
1990	2	(0)	9	(2)
1991	6	(16)	10	(20)
1992	3	(0)	11	(0)
1993	2	(2)	9	(17)

lgb

Larry Brown, Area Fish Biologist
Washington Department of Fish and Wildlife

Rimrock LK. - 1993

Indian CK. Bull Trout Spawner Survey Summary
(Hwy. 12 Bridge to \approx 1.75 miles upstream)

<u>Date</u>	<u>Redds</u>	<u>Adults</u>	<u>Temp °F</u>
9 Sept. 93	85	53	47° F
21 Sept. 93	42	16	46° F
1 Oct. 93	13*	3	46°

S. Springs and mainstem above and below S. Springs was not surveyed due to dry channel in mainstem. Approx. 2.25 miles not surveyed due to dry channel block. See attached for details.

* Includes 5 old redds identified as probables.

--Riverview Lake

Indian Creek Bull Trout Spawner Survey (3rd + final pass)

10/1/93 1000 Hrs. Water Temp, 46°F at Hwy 12 Bridge

Surveyor - Eric Anderson

Mainstem - Bridge at Hwy 12 to N. Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
old 63	old 3	φ	2	
New 2	New φ			
Total 65	Total 3			

Mainstem - above N. Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
old 12	old 1	φ	1	(includes one approx. 8" on new redd)
New 1	New φ			
Total 13	Total 1			

North Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
old 52	old 1 (1 changed to definite)	φ (2 cancelled)	φ	
New 5	New 0			
Total 57	Total 1			

Total New Redds (Spawning appears complete).

Definite	Probable	Possible	Fish (Spawners)
8	5 (old + New)	φ	3 (1 on redd, 2 off)

Rimrock Lake

Indian Creek Bull Trout Spawner Survey (2nd Pass)

9/21/93 0930 Hrs. Water Temp. 46°F at Hwy 12 Bridge

Surveyor - Eric Anderson (accompanied by Harry Morse, I+E)

Mainstem - Bridge at Hwy 12 to N. Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
old 47	old 2 (2 changed to Definite)	old ϕ	5	
New 16	New 1	(7 cancelled 1 changed to definite)		
Total 63	Total 3			

Mainstem - above N. Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
old 10	old 1	old ϕ	ϕ	
New 2	Total 1	(1 changed to Definite)		
Total 12				

North Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
old 28	old 1 (4 changed to definite)	old ϕ (4 changed to definite)	11	Includes 2 new definites, 1 prob + 1 pos. above beaver dams.
New 24	New 1	New 2		
Total 52	Total 2	Total 2		

Total New Redds

Definite	Probable	Possible	Fish (Spawners)
42	2	2	16

Rimrock Lake

Indian Creek Bull Trout Spawner Survey (1st Pass)

9/9/93 0915 Hrs. Water Temp 47°F at Hwy 12 Bridge

Surveyors - Eric Anderson, Jim Cummins

Mainstem - Bridge at Hwy 12 to N. Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
47	4	8	28	(includes 7 large fish in pool not spawning)

Mainstem - above N. Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
10	1	1	2	(includes one at 14" (1 fry observed))

No fish or redds above end of road. Uppermost redd about 300 yds. above confluence with N. Spring. Dry channel in mainstem above that point. Possible relationship with water releases from Rimrock Lk + dry weather.

North Spring (Redds)

Definite	Probable	Possible	Fish (Spawners)	Miscellaneous
28	5	4	23	(one 5" fish observed but not counted)

Total (Redds)

Definite	Probable	Possible	Fish (Spawners)
85	10	13	53

Indian CK 10-1-93

1000 Hrs.
Temp. 46° F

~~old~~ N. Spring

Det

~~##~~ ~~##~~ ~~##~~ ~~##~~

~~##~~ ~~##~~ ~~##~~ =

~~##~~ ~~##~~ ~~##~~

(includes 2 old,
above Beaver Dam)

Prob.

1

(1 Prob to Det,
above Beaver Dam)

Pos.

∅

2 possible
cancelled

Fish

∅

New

~~##~~

Mainstem above N. Fork

~~old~~ Det

~~##~~ ~~##~~

"

Prob

1

Pos

∅

Fish

1

↑

1 approx 8"
on redd

new

1

Eric Anderson

mainstem below N. Fork to Hwy 12 Bridge

old

Def

~~7~~ ~~7~~ ~~7~~
~~7~~ ~~7~~ ~~7~~
~~7~~ ~~7~~ ~~7~~
~~7~~ ~~7~~ ~~7~~
=

Prob.

||

Pos.

φ

Fish

2

↑
||

New

||

Eric Anderson

9/21/93

Indian ck. Spawner

0930 Hrs

Mainstem ^{Bridge} to N. Spring

46° F

Survey

old

Def.

Pro.

Pos.

Fish

47

2

0

5

~~77~~
~~77~~
~~77~~
~~77~~
~~77~~
New

11

11

~~77~~
~~77~~
1

1

7 Pos. canceled
1 Pos. to Def.
2 Pro to Def.

Eric Anderson

mainstem above N. Spring

old

Def.

Pro.

Pos.

Fish

10

1

0

0

~~77~~
~~77~~
New

11

1 Pos.
changed to Def.

N, Spring

Old

<u>Def.</u>	<u>Prob.</u>	<u>Pos.</u>	<u>Fish</u>
82 # # # # # # # # # # New	1 4 Pro to Def 4 Pos to Def	0	11
<hr/>			
# # # # # # # # # # # # # # #	1	11	# # # # # # # # # # # # # # #

Includes
New Above Beaver Dams

2 Def
1 Pro
1 Pos

Eric Anderson

9/9/93 Indian CK, 0915 Hrs
47°F

mainstem - Bridge to N. Spring

<u>Det.</u>	<u>Prob.</u>	<u>Pop.</u>	<u>Fish</u>

Eric Anderson

Very large fish
sited in this
pool

Indian Cr. MAINSTOWN
9/9/93

def	Prob	Pas	fish
III	I	I	1-14"
III			1 1 for

North Spring.

III	III	III	III III
III			III III III

III

III

III

III

1 5"

No fish or redds above end of road. Upper most redd about 300 yards above confluence with N Spring. Dry channel above that point

Jim Cummings

Also Filed in Box Canyon Creek
& Kachess R. Files

October 26, 1993

To: Jim Cummins, Regional Fisheries Resource Manager
Fisheries Management / Yakima

From: Larry Brown, Area Fish Biologist
Fisheries Management / Wenatchee

Larry

Subject: 1993 BULL TROUT SPAWNING SURVEY DATA

Stream Name	Date of Survey	Water Temp.	Adult BLC Obs.	Total Redds Observed		
				Definite	Probable	Possible
Panther Creek	Aug. 27	51F	15	0	0	0
	Sep. 03	52F	12	1	1	2
	Sep. 13	49F	18	8	2	3
	Sep. 22	44F	19	28	9	6
	Oct. 01	48F	5	36	9	8
	Oct. 15	47F	0	22	19	12

"Best" Panther Cr Season Total Count is 45 redds and 8 false redds

Box Canyon Creek	Sep. 01	53F	6	0	0	0
	Sep. 14	50F	0	0	0	0
	Sep. 21	43F	0	0	0	0
	Sep. 30	48F	2	2	1	0
	Oct. 18	44F	0	1	3	0

"Best" Box Canyon Cr Season Total Count is 4 redds and 0 false redds

Kachess River	Aug. 31	47F	0	0	0	0
	Sep. 16	49F	0	0	0	0
	Sep. 30	48F	0	0	0	0
	Oct. 18	43F	0	0	0	0
Mineral Creek	Aug. 31	49F	0	0	0	0
	Sep. 16	51F	0	0	0	0
	Sep. 30	49F	0	0	0	0
	Oct. 18	44F	0	0	0	0

No adult bull trout or bull trout redds observed in either stream.
Kachess River was subterranean below survey area entire season.
One BLC juvenile observed in Kachess River index area (minnow trap).
Westslope cutthroat in both streams (hook/line and minnow traps).

Note: total redds are defined as "Definite"+"Probable", while "Possible" redds are considered to be false redds, test digs, or scratches (no eggs).

KACHESS/MINERAL

There was no apparent entry of adfluvial bull trout adults into the upper Kachess River drainage this year. The Kachess River sinks into heavy alluvial deposits about 1/2 mile above the lake during summer and fall low flow periods. In some past years, adult adfluvial bull trout have been observed above the dessicated zone. I placed minnow traps and captured one juvenile bull trout (121 mm TL) and one westslope cutthroat (172 mm TL) in Kachess River, about 200 meters above it's confluence with Mineral Creek. No juvenile bull trout were observed in Mineral Creek, although westslope cutthroat were found to be common (hook and line sampling). Bull trout persist in the system despite atrocious passage/survival conditions for about 1/2 mile above the reservoir.

BOX CANYON CREEK

Despite observations of a fair number of adult bull trout in the Peek-a-boo falls plunge pool early in the season (minimum of six individual fish identified), it appears that only two (possibly three) females actually survived to spawn. No redds were observed in the best lower gradient gravels immediately above the box canyon. Known redd activity was confined to one pool just 50 meters down from Peek-a-boo falls and a riffle area adjacent to and below an old log (cover) some 100 meters above the old spur road crossing about 300 meters farther downstream. The lowest redd was coincident with WDF's old stream sediment sampling site No. SS-1-3 from Watson's 1989 studies (the flagging is still there). Fortunately, the Cle Elum Ranger District has taken steps to disallow public camping on Box Canyon Creek at the lower site by grading and "tank trapping" this old spur and at least one other informal spur road upstream about a mile or so.

Water quality in Box Canyon Creek suffers from excessive nutrient input and possible fecal contamination due to the many undeveloped, primitive camping sites along the stream. As my surveys progressed over the season, I noted excessive development of sphaerotilis and/or zoogloea bacterial growth. The unsightly, messy, goopy, ivory/brown junk covered the substrate virually everywhere by October. This water quality problems does not exist upstream of the road culvert, above the informal streamside camping areas. I suspect that the public must ultimately be excluded from lower Box Canyon Creek, in the interest of water quality and to protect the few remaining bull trout in the system.

PANTHER CREEK

On the upscale side, the 1993 bull trout escapement in Panther Creek was at or near the known record for the past 11 years. Adult bull trout were noted high in the system, within 25 meters of the final barrier falls, on my initial trip on August 27. The fish probably arrived during higher flows in July, as a lot of the box canyon cataracts appeared impenetrable (to my frail eyes anyway). On each survey trip all redds encountered were "flagged", noting date, location, and classification by protocol (Definite, Probable,

1993 BULL TROUT SPAWNING SURVEYS
Page 3 of 3

and Possible). I removed the flagging after the Oct. 1st survey as I did not intend to return for two weeks and feared high water might interfere with clean-up efforts. It was a good exercise on October 15th, counting and classifying redds without flag "prompting" from previous counts. The comparison is about what one might expect after two weeks of redd "aging" and possible superimposition (45 "good" redds on Oct. 01 vs 41 "good" redds on Oct. 15). I documented my first observation of redd superimposition this year. One of the earliest redds (no.2) was subsequently covered by another spawning pair some 19 days later (redd no.33). The second redd did not appear to uncover the original egg pocket, but was started from the first pit and progressed upstream, generally enlarging the overall redd size. On October 1 a small (only 18"+) female was observed on a small back-eddy redd attended by one large 28"+ male. About an hour later this same female was noted about 50 meters downstream, digging on the tailspill of redds 2/33. Her efforts appeared tentative and she did not actually construct a new redd at that site after some 30 minutes of "messing around". The larger male bull trout was in constant, agitated attendance the whole time.

Attached are graphics showing the complete 1993 bull trout spawning cycle on Panther Creek. I am convinced that bull trout spawning surveys should follow the protocol listed in the Draft Bull Trout/Dolly Varden Management and Recovery Plan: including (1) performance of several surveys beginning in August or early September throughout the cycle or until the fish have vacated the area, flagging each redd encountered and classifying each redd at each visit or survey date. To do less increases the probability that an incomplete redd count will be achieved or that weather/water/redd life conditions might preclude complete and accurate spawning survey data. In particular, a stream prone to fall freshet or one with heavy periphyton growth should be surveyed completely several times during the season.

Panther Creek is relatively stable with little periphyton growth, and yet my final (without benefit of prior flagging) redd counts were reduced from the count made two weeks earlier, a result of redd "aging" and of superimposition.

Another example of the need to follow protocol was on Box Canyon Creek. The three redds (one redd attended) observed on September 30th were virtually invisible from more than 10 feet away on October 18th. Had I not made the series of surveys, relying only on a single, late survey, I would likely have missed the 3 earlier redds, counting only the single new, and very visible, redd found that day.

cc: Craig Burley, WDW, Olympia
Eric Anderson, WDW, Yakima
Ken MacDonald, WNF, Wenatchee

15T12R13E (DAB0A9)

1/07/94

Shellneck Cr. 0920 Hrs. 9/17/93

Anderson

Mouth to headwaters

BLC Spawner survey

Water Temp. 40°F

Def
||||

Pro.
||

Pos.
|

Fish
||||

- 4 Pos. Ids were BLC
- 1 Pair spawning on Redd were BLC $\approx 7''$
- Suspect unidentified fish were also BLC
- No fish sighted above where road crosses stream.

Tieton R. S.F.

Record#	MUCODE	DATE	INITIALS	WATEMP	ONREDD	OFFREDD	TOTLIVE	DEAD	CAUSE	REDDS	FALSE
631	Y52Y53	09/20/90	WDW	46F	0	0	11	0		16	0
632	Y52Y53	10/01/90	WDW	44F	0	0	0	0		32	0
1102	Y52Y53	08/20/93	EA	50F	0	1	1	0		0	0
1103	Y52Y53	08/31/93	EA	45F	0	0	0	0		0	0
1099	Y52Y53	08/19/93	EA	50F	0	9	9	0		0	0
1100	Y52Y53	08/31/93	EA	45F			12	0		5	0
1101	Y52Y53	09/08/93	EA	46F			5	2	POACHERS	38	4

Record#	MUCODE	DATE	INITIALS	WATEMP	ONREDD	OFFREDD	TOTLIVE	DEAD	CAUSE	REDDS	FALSE
30	Y58Y59	09/08/84	JS		6	140	146	1	CLUBBED	3	6
29	Y58Y59	09/15/84	JS	11C	20	25	45	0		29	22
1111	Y58Y59	09/12/85	JS				90	FALSE	IN CLUDED	69	INC
547	Y58Y59	09/17/85	JS				62	0		37	18
1112	Y58Y59	09/13/86	JS				45	PARTIAL	SURVEY	16	8
1113	Y58Y59	09/12/87	JS				20	FALSE	IN CLUDED	35	INC
584	Y58Y59	09/02/88	EA	43F			25	0		8	0
585	Y58Y59	09/09/88	EA	45F			25	0		22	0
586	Y58Y59	09/16/88	EA	48F	0	0	23	1	unknown	25	0
587	Y58Y59	09/26/88	EA	43F	0	0	0	0		25	0
588	Y58Y59	09/14/89	EA	?	0	0	36	0		30	0
589	Y58Y59	09/28/89	EA	47F	0	0	5	0		39	0
590	Y58Y59	09/25/90	EA	45F	0	0	27	0		69	21
591	Y58Y59	09/13/91	JLC	45F	0	0	61	FALSE	IN CLUDED	108	INC
592	Y58Y59	10/01/91	EA	46F	0	0	15	FALSE	IN CLUDED	123	INC
1045	Y58Y59	09/04/92	JLC	42F	LOTS	LOTS		NONE	NO COUNT	UNK	UNK
1041	Y58Y59	09/09/92	CWU				40	0		78	0
1043	Y58Y59	09/14/92	EA	46F			37	0		125	13
1042	Y58Y59	09/15/92	CWU				30	0		135	6
1044	Y58Y59	09/25/92	CWU				0	0		142	2
1104	Y58Y59	09/09/93	EA	47F	46	7	53	0		95	13
1105	Y58Y59	09/21/93	EA	46F			16	0		133	2
1106	Y58Y59	10/01/93	EA	46F	1	2	3	0		140	0

Record#	MUCODE	DATE	INITIALS	WATEMP	ONREDD	OFFREDD	TOTLIVE	DEAD	CAUSE	REDDS	FALSE
581	Z16Z17	09/29/89	EA		0	0	0	2	ANGLERS?	17	0
582	Z16Z17	09/24/90	EA	47F	0	0	0	0		15	5
583	Z16Z17	09/10/91	EA	44F	0	8	8	1	UNKNOWN	84	3
1046	Z16Z17	09/01/92	EA	47F			21	4	POACHERS	77	8
1047	Z16Z17	09/10/92	EA	46F			3	0		78	7
1107	Z16Z17	08/13/93	EA	47F	0	0	0	0		0	0
1108	Z16Z17	08/24/93	EA	44F	9	0	9	0		15	2
1109	Z16Z17	09/02/93	EA	45F	13	0	13	3	2FM, 1STR	37	9
1110	Z16Z17	09/10/93	EA	46F	0	0	0	1	STRANDED	45	9

Rimrock LK. - 1993

S. Fork Tieton Bull Trout Spawner Survey Summary

(Bear CK to Grey CK. Campground, 4.2 miles)

<u>Date</u>	<u>Redds</u>	<u>Adults</u>	<u>Temp °F</u>
19 Aug. 93	φ	9*	50°F

* Bull Trout observed in stream but not spawning yet.

(Grey CK. C.G. to USFS Rd. Bridge 1010, 4.6 miles)

<u>Date</u>	<u>Redds</u>	<u>Adults</u>	<u>Temp °F</u>
20 Aug. 93	φ	1*	50°F

* Lower section only 1 BLC observed.

(Grey CK. C.G. to Rimrock LK., 5.7 miles)

<u>Date</u>	<u>Redds</u>	<u>Adults</u>	<u>Temp °F</u>
31 Aug. 93	φ	φ	45°F

(Falls above Bear CK. to Grey CK. C.G., 5.6 miles)

<u>Date</u>	<u>Redds</u>	<u>Adults</u>	<u>Temp. °F</u>
31 Aug. 93	4	12	45°F
8 Sep. 93	34*	5	46°F
Totals	38	17	

* Includes 1 old + 2 new Redds identified as probables.

Rimrock LK

S. Fork Tieton Bull Trout Spawner Survey

9/8/93 0930 Hrs. Water Temp. 46°F at Falls above Bear CK.

Surveyor - Eric Anderson

Falls above Bear CK. to Grey Creek C.G. (≈ 5.6 miles, Falls is ≈ 1 mile above Bear CK. (Redds)

Definite	Probable	Possible	Fish (Spawners)
old 4	old 1 (1 cancelled)	old 0	5
New 31	New 2	New 4	
Total 35	Total 3	Total 4	

Spawning appears nearly complete. Most redds between Falls above Bear CK to Blue Slide. None between Blue Slide and Grey CK. C.G. Did not survey Grey CK. C.G. to mouth, probably some redds in lower section but habitat not as good as upper section. Next year suggest 3 surveys, one survey should be right before Labor Day weekend + again approx. 10 days later - do entire Creek, Falls to mouth. Approx. 4 Ft Falls at mouth, due to dropping H₂O level in lake, still passable. Found 2 heads + entrails - 1 near Falls, 1 near Rd 1050 at unimproved campground. No meristic characteristics taken, too many bees on specimens.

- 1st Creek right side Facing downstream (Discovery CK), steep gradient, shallow at mouth, possible but not probable BLT passage.
- 2nd Creek left side Facing downstream (Bear CK) - good potential for spawning.
- 3rd Creek left side Facing downstream (Corral CK) - possible BLT habitat.
- 4th Creek left side Facing downstream (Camp CK) - impassable, too steep.

Rimrock Lake

S. Fork Tieton Bull Trout Spawner Survey

8/31/93 0920 Hrs. Water Temp. 45°F below Grey CK.
Campground.

Surveyors - Eric Anderson, Jim Cummins

Grey CK. Campground to Rimrock LK. (≈ 5.7 miles)

- No Redds, No adult bull trout observed.

Numerous unknown fry 1/4 - 1/2 in. long in stranded pools below USFS Rd. 1010 Bridge.

Spruce CK^(?) above 1st Bridge past Grey CK. C.G. (right side facing downstream) looks like good bull trout spawning habitat, approx. 2 cfs, lots of cover and woody debris, fairly good gravels in lower several hundred yards. Bridge + road not on map. Need to check in future.

Short and Dirty Creek below USFS Rd Bridge 1010 has potential spawning habitat (right side facing downstream). Need to check in future.

Water level at mouth of S. Fork Tieton ok, no drop or exposure of falls due to water withdrawal from Rimrock LK, no block to bull trout passage.

Falls above Bear CK. to Grey CK. C.G. ^{≈ 5.6 miles} (Falls is ≈ 1 mile above Bear CK)

Redds	Definite	Probable	Possible	Fish (spawners)
	4	1	0	12

Potential spawning habitat in Bear CK - need to check in future.

Hook & Line Samples - Bull Trout (29.5 cm, 42.0 cm, 43.1 cm - Ripe Males)
Bull Trout (41.5 cm, 45.5 cm - Females)
Bull Trout (20.5 cm - unknown)
Cutthroat (21 cm)

Early - some fish not spawning yet.

Rimrock Lake

S. Fork Tieton Bull Trout Spawner Survey + Hook/Line

8/20/93 1100 Hrs. Water Temp. 50°F below Grey Creek
Campground

Surveyed Grey Creek Campground to USFS Rd. 1010 Bridge,
(4.6 miles).

Weather overcast, good water clarity.

Surveyor - Eric Anderson

No Redds observed.

Hook + Line - caught + released one bull trout (18.5 in).

Observed no other bull trout adults, several fry observed.

Appears to be quite barren, underutilized habitat. Good
spawning habitat for bull trout is patchy.

Approx. 4 Ft. Cascade Falls below Bakeoven Flats
not impassable for bull trout.

One black bear observed on bank at 20-25 ft.

Rimrock Lake

S. Fork Teton Bull Trout Spawner Survey + Hook/Line

8/19/93 1125 Hrs. Water Temp. 50°F above Bear Ck.

Surveyed Bear Ck. to Grey Ck. Campground (4.2 miles)

Weather Sunny + Clear, good water clarity.

Surveyor - Eric Anderson

No Redds observed.

Hook + Line - caught + released 2 Bull Trout (18 + 20 in.)
1 Cutthroat (10 in.)

3 bull trout followed lure but did not strike (size range 16 - 20 in.)

Observed 7 adult bull trout in slack water pool (18 - 24 in.) between Minnie Meadows + Grey Ck. Campground.

Observed 12 Fry along margins.

This reach had some stream braiding, good spawning habitat in sections. Appears to be fairly barren, underutilized habitat.

Wednesday - September 1, 1993

0800 → 1700 (8hrs)

to Box Canyon Creek for prelim spawning survey. H₂O 53°F @ 1300
Creek still flowing to lake (barely)
No Redds - only BCC seen were
cruising in "peek-a-boo" pool.

Saw at least 6 different BCC.
(based on size/color)

Biggest surprise is size of WCT -
fished thru box canyon to gravel
flats. about one hour.

WCT 17, 18, 22, 30.5, 23, 30

RXC 23 - very nice, fat fish

The two 30 cm CT were gorgeous

Met Paul & Christopher Mongello
at Little Kachess - Chris had
caught a 20" WCT day before.

They had 2 lings from a
10-hook SL 7PM-9AM

nice size @ 632 & 698 mm
both males - took otos

* Return Otos to Paul when done aging
(earrings)

Bleeders	9-3-93	8-27-93
definite	1	0
probable	1	0
Possible	2	0
Adult BLE	12	15

Friday Sept. 3, 1993 Panther Creek, ✓

White R. - glacial - cloudy 52F @ 1000

Panther Cr. - Clear - warmer 54F @ 1015
- used yellow/white flagging for redds.

(SPCK) white R end of island - rt. channel

(SPCK-1) Panther Cr. - riffle below Jet Pool

(SPCK-2) Jct. Pool Tail - (dead ♀) on bank
by vandals - not animal eaten

(SPCK-3) Rock Wall tailout - huge redd -
adult now gone

(BLC-1-POSS) just above Rock Wall pool -

(1 ♂ BLC) in Pool abv. poss. redd

1 RB 25-26 cm resting in pool

(BLC-2-DEF) (22" ♀) digging - attended by

(3 males) 28" 24" 17" - much display

(Huge 28" 30" ♂) and smaller (24" ♂)

cruising deep pool at climb over

Nothing in old log falls pool/eddy

final cataract below falls - (1 ♂)

in Pool, (2 ?) under rock, (1 ♂) in

plunge pocket

(BLC-3-PROB) dead water tucked between
two boulders. (1 ♂) abt 24"

(BLC-4-POSS) - tail barrier pool - may be
only hydraulic wash - Needs watching

R BLC redds - 12 adult BLC - 3 SPCK redds

September 13, 1993 PANTHER CREEK REED ✓
 W/Sandy Noble, Brian Cates, Carolyn Scafidi-FWS
 - first new redd will be No. 5 -

White R 49F Panther Cr 49F @ 1200

BLC-5 DEF Below JCT Pool 75m Left

BLC-6 DEF Below JCT Pool 72m Left

SPCK-1 almost invisible now w/ periphyton/algae

SPCK-2 " " " " "

BLC-7 PROB 150m below trail - Left

BLC-8 DEF 20m below trail - Left

BLC-9 DEF 50m above trail - Left

BLC-10 POSS 5m above No. 9

SPCK-3 2 Ad BLC - Rockwall Pool
 still very visible - very large - entire tailout

BLC-1 POSS - still only POSS. - people "dam"

still one large ♂ in pool above

BLC-2 DEF well finished - Poacher Tailout
 one large ♂ 2m below in riffle
 one small 15-16" BLC in classic Pool

BLC-11 DEF old log falls pool - Pair on Redd
 both large 26"-28" also 2 ♂ same pool
 - Redd in back eddy left rockwall

BLC-12 POSS - false redd below last cataract

BLC-13 PROB - tiny redd behind rock same pool
 3 BLC Adults - and baited hook/leader
 with fluorescent redd eggs

BLC-14 DEF in last cataract eddy
also 3 adults

BLC-3 DEF - pair adults on redd
back eddy under plunge

Note: moved location abt. 2 m out from
PROB. redd noted last trip

also 1 adult BLC just under last rockpile

BLC-4 POSS. - No change since 9/3

looks like just hydraulic wash.

No adults observed in final pool

total observations 9-13-93

SPCR redds 3

BLC DEF, 8 } 10 total BLC count

BLC PROB, 2 }

BLC POSS. 4 - not counted

Adult BLC 18 fish ^{4 on redds}_{14 off}

Tuesday Sept 14, 1993 Box Canyon Cr.

- 1030 - camp at Peek-a-boo site and large
- camp at skid Rd below 4 vehicles
- 1100 50F - heavy brown periphyton/algae except high velocity areas
- Side channels/pools w/ sphaerotilus
- Beer cans & plastic garbage abundant especially at Peek site and end of skid Rd below.

Need to CLOSE AREA - No

sign of any fish except a few Trout

- No redds

- No cruisers in peek pool

- either they made it over & up OR they were taken by poachers

- Better check above next creek

Best Blue Huckleberry Crop I've ever seen in this area, just getting ripe (still a bit fast)

Posted more closed water signs near Culbert Xing and on footbridge at camp

Still a trickle reaching the lake.

CRK SIGN

Sept. 16, 1993

0730 → 1930 ✓

Kachess R / Mineral Creek

49°F 1400 51°F

CRISPANIN

set minnow traps with Power Bait

2 each in Main Kachess R ^{22-13-08 B}Mineral Cr, & Little Kachess R. ^{22-13-05 Q}

A58A59

A56A57

Long day due to Road Const. on
Stewart End up Salmon la sac.

Sept. 17 1000

0600 → 1600

Retrieve Minnow Traps

Upper Kachess - ~~trap~~ 1-CT 101 mm TL

(highest)

Most of bait is ~~trap~~ ^{red} exhausted (maybe + 4 hrs)

Upper Kachess 1 CT 172 mm TL

(lowest)

1 BLC 121 mm TL

Mineral

(highest)

NO fish
lotsa bait left (yellow)

Mineral

(lowest)

No fish - good bait (yellow)

Lower Kachess

No fish either trap

fair - good yellow bait still

Expect that catch was from random
movement - NOT due to Bait. Upper Kachess
is tiny & traps would intercept random movement.

Suggest trying pickled herring or ✓
some other really stinky and
fleshy bait substances.

(USFS using "fishy" canned
catfood with good results)

Suspect that poaching and →
vandalism has eliminated
this adult cycle - Do
one more survey on Sept. 29/30
and final about Oct. 18th or so

Tuesday - Sept. 21, 1993

with J.C. - survey Box Canyon Creek
all the way to culvert crossing.
→ meet in Cle Elum @ 8:00 AM
10AM 43°F

Outspurn ✓

LB Nothing below Peek falls

LB Nothing in Peek pool

LB Nothing for 0.7 mi above Peek

JC from 0.7 mi above Peek to Culvert

LB Culvert to 15' falls (20 minutes ^{1/4 mile})

entire creek - Nothing found

The adult BFC observed earlier in
Peek Pool have **DISAPPEARED!!**

Did see 1/2 dozen nice 7-10" CTS
above Peek falls / below Culvert

USFS has dozed water bars
and vehicle barriers on spur
road below Peek-a-boo falls and
on at least one other scramble
road between upper (bomber)
falls and culvert crossing.

At least a good start, even
though a bit late this
cycle, which appears decimated.

Wednesday Sept. 22, 1993

Meet Chuck Phillip - transfer computer.
Panther Creek Redd Survey

White of @

Panther 44 of @ 1100

~~CXSPANNING~~

First "New" redd will be No. 15.

Code	CLASS	comments
BLC-6	DEF	as last wk
BLC-5	DEF	as last wk
BLC-15	DEF	- New Pocket up 2 m fm 5
BLC-16	DEF	(10) left of SPCK-2
BLC-17	PROB.	- tentative but large, at top edge of SPCK-2
BLC-18	DEF	- at tail of SPCK-2
BLC-19	POSS	- Rt. Bank head of JCT Pool
BLC-20	POSS	- 50 m above JCT Pool - Rt.
BLC-21	DEF	- below log Jam b Rt.
BLC-22	DEF	(#8 on Redd) 200 m below tr.
BLC-23	POSS.	- FALSE 10 m above BLC22
BLC-7	POSS.	- was called PROB last wk
BLC-8	DEF	20 m below Tr
BLC-24	DEF	15 m above trail - LARGE head
BLC-25	DEF	- small pocket at end of tailwash
BLC-9	DEF	(1 - partly eaten BLC) (SKIN - NO HEAD)
BLC-10	PROB	up graded fm POSS

104 def (incl. No.2. covered by No.33)

4 pub

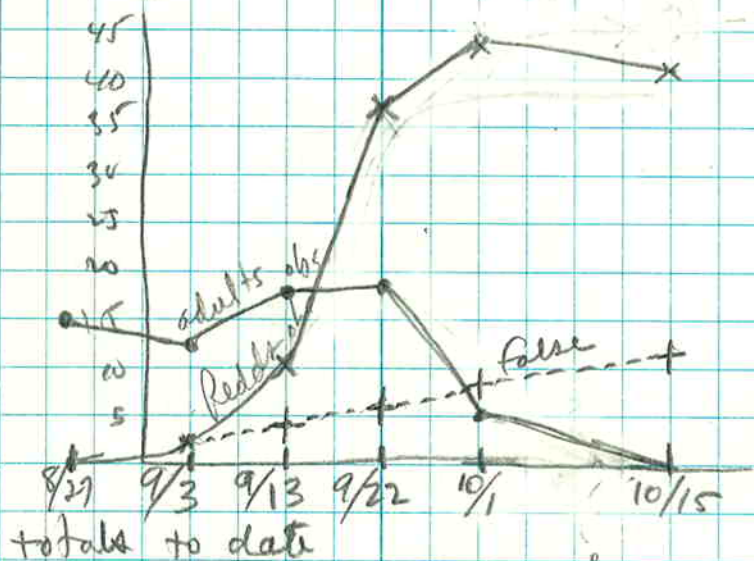
2 poss

20

Sept. 22, 1993 Panther Cr (cont.)

Code	Class	Comments
SPCK-3	DEF	No BLC activity
BLC-1	PROB.	upgraded from POSS
BLC-26	PROB.	backeddy 300 m below Poacher
BLC-27	DEF	RT 260 m below Poacher
BLC-28	DEF	RT 255 m below Poacher
BLC-29	PROB.	center Cattract 100 m below Poacher
BLC-30	DEF	(♂ ♀) Classic 80 m below Poacher
BLC-31	POSS	5 m above ^{3'} on Left (Test) ^{Long}
BLC-32	POSS	Test 10 m below BLC-2
BLC-33	DEF	SUPERIMPOSITION-BLC-2
BLC-2	<u>Covered</u>	(♂ ♀ on red) + (2 other ♂)
BLC-34	DEF	(♂ ♀ on) - 5 m above BLC-2 (6 fish all together in Poacher Pool)
BLC-35	DEF	classic Tailout
BLC-36	DEF	(♂ ♀ on) one other (Penny)
BLC-37	DEF	(♀ on) head of Classic Pool No. 36 Just beginning mid Stream
BLC-11	DEF	Might have missed this one - Not too obvious
BLC-38	DEF	50 m above old Log Pool
BLC-39	DEF	10 m below No 12
BLC-12	DEF	upgrade POSS to DEF
BLC-13	POSS	only upgrade to <u>PROB</u> although still <u>small</u>

3 def.
3 prob.
— poss.



	BLC	DEF	PROB	POSS
8-27	15	0	0	0
9-3	12	1	1 (2)	2
9-13	18	8	2 (10)	3
9-22	19	28	9 (37)	6
10-1	5	36	9 (45)	8

Sept. 22 1993

(cont.)

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Code	Class	Comments
BLC-40	PROB	RT bank oppo No. 12
BLC-41	DEF	Center 5m above No. 13
BLC-44	DEF	(3 ♀ on) Center under boulder
BLC-3	DEF	(♀ still on) - eddy
BLC-4		- hyd. wash only - NO fish here
BLC-42	PROB	- smallish in eddy 15 ft below BLC-3
BLC-43	PROB	on way down at eddy left Bank where did HAAS Meas. behind flat boulder under Rockwall

totals also.

SPCK	Redds	3	} 37 Good BLC Count. - One of the highest.
BLC	DEF	28 ^k	
	PROB	9	
	POSS	6	
Adult	BLC	19	- Very active Spawning

including one covered by new (33 over 2) superimp.

@ WHITE RIVER UPPER CROSSING

Saw two BLC redds at ford above grasshopper Island (0330 tagged one) I tagged the other as BLC -

One ^{guck} redd turnwater Bridge shoal below long pool - Fish (1500-2000) are still up in pool

Thursday Sept. 30, 1993

Box Canyon Creek Spawner Survey
From top box Canyon to "Peek" Falls.

- Nothing at all through best gravelly
spawning reach above canyon.

Temp. 48F @ 1030

BLC-1 DEF Rt bank channel under log
abt. 75-100 m above spect
rd. xing. - Marked Log

BLC-2 PROB 2nd Pocket up 1.2 m, could
be single redd, but protocol
says count each pocket.

BLC-3 DEF attend by ^{one} pair - large fish,
tail of 2nd big pool below
Peek pool - \approx 35 m down.
Substrate very sandy.

Upper Kachess River 48F @ 1330

Mineral Creek 49F @ 1330

No fish or redds found
on either tributary or in
mainstem Kachess River
which is still subterranean
about 150 m below trail.

FRIDAY - OCTOBER 1, 1993

p. 1 of 4

PANTHER CREEK - 48 F @ 0900

White R. - 48 F @ 0900

CODE	CLASS	COMMENTS
BLC-44	PROB	Rt Bank 20m down fm 6, 5, 15
BLC-45	POSS (False)	Rt Bank opp. 6
BLC-46	DEF	Mid - alongside 5, 6
BLC 5	DEF	} all still Very distinct
BLC 6	DEF	
BLC-15	DEF	
SPCK-1	Not Vis	Now
SPCK-2	Not Vis	Now
BLC-16	DEF	
BLC-17	PROB	at head of old SPCK-2
BLC-18	DEF	
BLC-19	POSS	False
BLC-20	POSS	False
BLC-21	DEF	Small
BLC-47	DEF	Left Bank - May be 22 ^{No} Flag?
BLC-22	DEF	actually only 100m below trail
BLC-23	POSS	False - uncovered big boulder
BLC-7	POSS	I MISSED (False) ^{went back}
BLC-8	DEF	Left Bank, 20m below trail
BLC-25	DEF	Small - at Rock behind 24
BLC-24	DEF	Large Classic - Flag gone

CRISPAN ✓

CODE	CLASS	COMMENTS
BLC-9	DEF	
BLC-10	DEF	upgrade fm Prob
SPCK-3	steel obvious	tailspill beginning to surface
BLC-1	PROB	getting faint
BLC-48	DEF	sandy - Rt Bank ^{tailout on} from 26
BLC-26	PROB	-backeddy - Rt under Rock
BLC-27	DEF	
BLC-28	DEF	
BLC-29	PROB	
BLC-30	DEF	50' fishing line on bank ^{at} stream
BLC-31	DEF	upgrade fm POSS
BLC-32	POSS	FALSE
BLC-2	Not Vis	- covered by 33 up 1m
BLC-33	DEF	Now another pocket up 1.5m
BLC-49	DEF	2nd Pocket above 33
34	DEF	now 3 sep pockets
BLC-50	DEF	2nd Pocket to Rt & down 0.5 m
BLC-51	DEF	3rd Pocket up 2.5 m
BLC-52	DEF	under Rock eddy 20m above #50 (small ♀ 18" and ♂ 28") on redd
BLC-53	PROB	behind Rock - exposed boulder Not a very good choice 20 m below Classic tail
BLC-35	DEF	Classic tail out

Actual Pocket Count is 44 →
plus BCC-2 which is covered by
subsequent reads →

CODE	CLASS	COMMENTS
BLC-36	DEF	- deep/center - easily seen through
BLC-37	DEF	-
BLC-54	DEF	- climb up over pool & [↑] Crissis one ♀ digging up under giant boulders - Prob would miss in most years - up in a hole under closed water sign
BLC-11	PROB	- beginning to blend-in
BLC-38	DEF	
BLC-43	PROB	
BLC-39	DEF	
BLC-12	DEF	
BLC-13	POSS	downgrade fm PROB
BLC-40	PROB	
BLC-41	DEF	
BLC-14	DEF	
BLC-42	POSS	downgrade - FALSE ONLY
BLC-3	DEF	
BLC-4	NOTHING	AT ALL - Not even POSS

Had to see
♀ digging

J.L. DARLING CORP
TACOMA, WA 98421

ALWAYS WEATHER WITH US

(35)	TOTS	incl #2	
	36	DEF	only 5 BLC left
	9	PROB	decided to pull flags
	45	GOOD	as may not get back
	+ 8	POSS	before high water -
	53	(FALSE)	Next trip planned in 2 wks.

10/15

Panther Cr 10-1-93

p. 484 ✓

the small ♀ and large ♂ left No. 52
and were seen on way down
messing around old No. 2 tailspill
she wandered, all over abt 1 m² area
giving half hearted turns & digs
but dislodged very little material
♂ in close attendance/quivering
- ♀ darkish w/ only faint white ^{on} pined fins
watched for 1/2 hr - but no egg dep.
- ♀ getting more serious, but I
can't wait forever, I assume
she will deposit her eggs here &
about 50 meters below where
I saw them spawning @ 52

Pulled all flagging on Panther Cr.
Left those few on White River

Obvious that single ♀ may make more
than one redd or redd pocket.

Final trip & count will be about 10/15
without benefit of flag reminders
will be interesting comparison
(unless washed out w/ high water)

* = changed later

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1993 Panther Creek Redd Classifications

Code	9/3	9/13	9/22	10/1	10/15
BLC-1*	POSS	POSS	↑ PROB	PROB	
2*	DEF	DEF	↑ (BLC-33)	(BLC-33)	
3*	PROB	↑ DEF	DEF	DEF	
4*	POSS	POSS	↓ HYD. WASH	NOTHING	
5		DEF	DEF	DEF	
6		DEF	DEF	DEF	
7*		PROB	↓ POSS	POSS	
8		DEF	DEF	DEF	
9		DEF	DEF	DEF	
10**		POSS	↑ PROB	↑ DEF	
11*		DEF	DEF	↓ PROB	
12*		POSS	↑ DEF	DEF	
13*		PROB	PROB	↓ POSS	
14		DEF	DEF	DEF	
15			DEF	DEF	
16			DEF	DEF	
17			PROB	PROB	
18			DEF	DEF	
19			POSS	POSS (FALSE)	
20			POSS	POSS (FALSE)	
21			DEF	DEF	
22			DEF	DEF	
23			POSS	POSS (FALSE)	

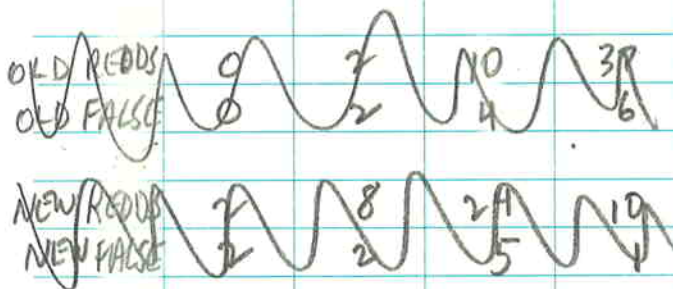
1993 Code	Panther Creek	Road	Classifications
	9/3	9/13	9/22 10/1 10/15
BLC-24			DEF DEF
25			DEF DEF
26			PROB PROB
27			DEF DEF
28			DEF DEF
29			PROB PROB
30			DEF DEF
31 *			POSS ↑ DEF
32			POSS POSS (FALSE)
33			DEF DEF
34			DEF DEF
35			DEF DEF
36			DEF DEF
37			DEF DEF
38			DEF DEF
39			DEF DEF
40			PROB PROB
41			DEF DEF
42 *			PROB ↓ POSS (FALSE)
43			PROB PROB
44			PROB
45			POSS
46			DEF

1993 Panther Creek Redd Classifications

Code	9/3	9/13	9/22	10/1	10/15
------	-----	------	------	------	-------

BLC-47				DEF	
48				DEF	
49				DEF	
50				DEF	
51				DEF	
52				DEF	
53				PROB	
54				DEF	

removed - last survey
redds / False count only



on 10/1 - Flagging
will be

with re-assignments of classes

Σ Redds	2	10	37	45	41
Σ False	2	4	6	8	12

Friday - October 15, 1993

PANTHER CREEK - FINAL SURVEY
White R 47°F Panther Cr. 47°F @ 0945

No Flagging - simple "counts" today

DEF	PROB	POSS	Comments
			Below Jct Pool
			Jct Pool
			Jct Pool to Trail
			trail to Rock Wall
			Rock Wall to Poacher
			Poacher to Log Falls
			Log Falls to Barrier

~~22~~~~19~~~~13~~

NO FISH

41 Bedds & 12 False

||

|

~~5~~

White R Below Panther

||

winter abn Grasshopper Id

extreme new growth filamentous
green algae on White R substrateBears or (?) preying on BLC as found
several spots in hiding holes where
large 6-8" rocks overturned.- small scat w/ twigs & debris on rock -
abt size of coyote, but prob small bear

Monday - October 18, 1993

BOX CANYON CREEK - FINAL SURVEY

440F @ ¹¹³⁰ - top of box canyon to Peek Falls
(on 09/30 recall dble pocket & redd = 3)BLC-4 DEF. 10m below BLC-1 - RT bank
(large) at old SS-1-3 site (exactly)

BLC-1 PROB } Barely visible due to

BLC-2 PROB } periphyton Sphaerotilus

BLC-3 PROB } Barely visible - periphyton

(TOTAL 4 Redds - No fish)

likely would have missed all
three 3-creek old redd pockets
if I didn't know where to
look - No color difference
with surrounding substrate~~Kachess R / Mineral Creek Final
(43F) @ 1400 (44F)~~~~No Adult BLC - No Redds~~