

FISH STOCK STATUS REVIEW

MID-COLUMBIA FISH DISTRICT

[Condensed]

May 1 - 2, 1996
LaGrande, Oregon

Jim Newton
Steve Pribyl

CONTENTS

Hood River Winter Steelhead.....	Page 1
Deschutes River Summer Steelhead.....	Page 3
Deschutes River Spring Chinook.....	Page 5
Deschutes River Fall Chinook.....	Page 7
Deschutes River Bull Trout.....	Page 9
Hood River Summer Steelhead.....	Page 10
Hood River Coho Salmon.....	Page 12
Hood River Bull Trout.....	Page 14
Fifteenmile Creek Winter Steelhead.....	Page 16

FISH STOCK STATUS REVIEW BRIEF
LaGrande, Oregon
May 1 - 2, 1996

District	Mid-Columbia
Basin	Hood
Species	Winter Steelhead
Status	Depressed

Previous Assessment

ODFW began periodic supplementation of this population with hatchery releases in 1962. Big Creek origin smolts were released annually from 1984-1990, with numbers ranging from 20,000-40,000. Releases of Hood River stock began in 1992.

Assuming that sport harvest is an index of run size, the population has declined dramatically in the last 10 years. The Hood system was closed to the taking of unmarked steelhead January 1, 1992.

Scale verified wild winter steelhead escapement to the Powerdale trap was 396 in 1993 and 377 in 1994. The wild run peaks in April.

Marine mammal predator scars have been observed on 37.7%, and 39.3% of the wild winter steelhead run in 1992 and 1993, respectively. Marine mammal predator scars were noted on 40.1% and 36.2% of the hatchery winter steelhead run in 1992 and 1993, respectively.

Most Recent Findings

A total of 191 scale verified winter steelhead was counted at the Powerdale trap during 1995. This number is well below the 377 wild fish counted in 1994. Additionally, 105 subbasin hatchery origin, 4 stray hatchery origin, and 18 fish of unknown origin were captured during the 1995 run.

The most common life history pattern in the wild population continues to be W2/2, followed by W2/3. A variety of repeat spawning life history patterns have been seen.

Actions

Wild Fish Policy has been fully implemented for this stock. No hatchery origin adults were allowed above Powerdale Dam from 1992-1995. All hatchery origin adults during this period were recycled through the fishery downstream of Powerdale Dam.

Wild brood has been collected at Powerdale trap each year since 1992. Wild brood spawning yielded 48,985 smolts to the system in 1993, 38,034 in 1994, and 42,898 in 1995.

A wild brood collection project was completed in 1995. A total of 37 fish were matrix spawned to produce 47 family groups. A total of 65,790 eggs were taken and the resulting juveniles were reared at Oak Springs Hatchery. A total of 51,000 smolts was released in April 1996.

Beginning January 1, 1992 anglers were required to release all wild (unmarked) Hood River steelhead unharmed. Barbless hooks are also required.

The Hood River Production Master Plan was approved by the Northwest Power Planning Council on April 8, 1992. Plan implementation will include more efficient adult trapping and sorting facilities at Powerdale Dam. Adult holding ponds and juvenile acclimation ponds will be located elsewhere in the Subbasin. Completion of the adult trap facility is planned for November 15, 1996.

**Current
Assessment**

The wild run size dropped below 300 spawners in 1995 and a downward trend is evident. Development of a Hood River brood stock to supplement the depressed population, Wild Fish Policy implementation, and restrictive angling regulations may help to reverse the downward population trend.

Population recovery may ultimately depend on needed revisions to the Columbia River, Zone 6, winter gillnet fishery.

District Mid-Columbia
Basin Deschutes
Species Summer Steelhead
Status Depressed

**Previous
Assessment**

We have more than twenty years of extensive data on this population, including: life history, harvest, and escapement. This information has been summarized in a draft information report being developed by the Research Division for the last fifteen years.

Escapement estimates for wild and hatchery summer steelhead passing Sherars Falls from 1982-1995 have ranged from 500-9,600 and 4,800-17,600 respectively.

Estimated escapement of Round Butte Hatchery origin adults above Sherars Falls from 1982-1995 has ranged from 1,200 to 9,200. The escapement of out-of-basin hatchery stray adults for the same period has ranged from 2,900 to 9,800.

The wild steelhead escapement estimates above Sherars Falls declined dramatically following the 1985-86 run.

ODFW has released approximately 162,000 fin marked smolts annually from Round Butte Hatchery since 1973.

Sport anglers have been required to use barbless flies and lures only and release all wild fish since 1979.

**Most Recent
Findings**

1994-95 Run Year

A total of 1,424 summer steelhead entered the Pelton trap during the 1994-95 run year. This count is near the 5-year average count of 1,426. Round Butte Hatchery origin steelhead made up only 35% (n=190) of the total trap capture, while hatchery strays accounted for 53% (n=288) of the total. Wild (unmarked) fish made up the remaining 12% (n=65).

Peterson mark-recapture estimates of summer steelhead passing Sherars Falls were made for the 1993-94 run. The estimated number of wild summer steelhead increased slightly over the low for the period of record. Estimated escapement of the Round Butte Hatchery component was the low for the period of record.

1995-96 Run Year

Final escapement estimates for the 1995-96 run will not be available until June, 1995. Capture of 1995-96 run year summer steelhead at the Pelton trap is quite strong.

Monitoring of sport harvest at the mouth and Macks Canyon Road and catch rate of steelhead at the Sherars Falls Trap indicate that the 1995-96 run will likely be larger than the 1994-95 run.

The Sherars Falls adult salmon and steelhead trap was operated from late June to October 31, 1995 to tag summer steelhead for later mark-recapture population estimates. Although strong correlations do not exist between catch per unit effort and final population estimates, it appears 1995-96 escapement will be higher.

Actions

A one-mile section of river from Sherars Falls downstream to Buckhollow Creek was closed to all sport and Indian fishing from June 16 to October 31, 1994. The Warm Springs Tribes had a limited dipnet fishery during 1995 with a small steelhead harvest.

The Lower Deschutes River Fish Management Plan is nearing completion. This plan originally included a run size goal of 16,000-22,000 fish to the river, with a spawning escapement of 10,000 natural spawners and 600-1,000 hatchery brood. Final goals will likely be lower.

An extensive stream habitat enhancement project, funded by BPA is nearing completion on Trout Creek and tributaries. More than 100 miles of riparian livestock fencing has been installed on Trout Creek and tributaries in the past ten years.

Current Assessment

The current escapement of wild steelhead is above 300 individuals. However, straying of out-of-basin hatchery and wild steelhead could require that this population be exempted from the Wild Fish Management Policy.

District	Mid-Columbia
Basin	Deschutes
Species	Spring Chinook
Status	Depressed

**Previous
Assessment**

The Deschutes River supports one of the few remaining wild spring chinook populations in the Columbia Basin.

A concise Deschutes River Spring Chinook Information Report was completed by ODFW Research Division in 1989.

Escapement of wild spring chinook (adults plus jacks) over the barrier dam at WSNFH ranged from 237 to 2,600 from 1977 to 1995.

ODFW began rearing a portion of the Round Butte Hatchery spring chinook production in the Pelton Fish Ladder in 1980. Beginning with the 1993 release, smolt numbers were reduced to 240,000 to provide funding for 100% AD-CWT marking.

The Warm Springs National Fish Hatchery made its first release (178,890) in 1978.

Wild spring chinook spawning is confined to Shitike Creek and the Warm Springs River system.

**Most Recent
Findings**

A total of 706 adult spring chinook entered Pelton trap in 1995. This count is greater than the 1994 cumulative total of 591, but less than the 5-year average count of 1,515. Jack spring chinook capture at Pelton trap improved over 1994.

The 1995 return of wild adult spring chinook past WSNFH was 162, a low for the period of record.

The sport fishery was closed in 1994 and 1995.

Redd counts in the Warm Spring River, were the lowest for the period of record.

Actions

The Deschutes River Fish Management Plan is nearing completion.

A four day per week emergency sport angling closure with a mandatory wild release regulation was enacted for 1996 based on a projected run to the river of 1,318 wild adult and about 3,725 hatchery adult spring chinook.

All hatchery-reared spring chinook released into the lower Deschutes and Warm Springs River have been marked with an adipose CWT mark beginning with the 1991 brood.

Return of adult hatchery origin spring chinook to WSNFH in 1995 were so low that they requested and were provided 366,000 green eggs from Round Butte Hatchery to supplement their small egg take.

**Current
Assessment**

The wild population has declined markedly the past three years and dropped below the 300 spawner threshold in 1995. This decline is likely an expression of natural environmental variability and may reflect several years of drought related pressures on the population. Round Butte Hatchery adult returns to the Deschutes have also declined but remain a major component of the total run. Extreme care must be taken to avoid over harvest of the wild population.

District Mid-Columbia
Basin Deschutes
Species Fall Chinook
Status Depressed

Previous Assessment

A concise informational report on Deschutes River Fall Chinook was completed by ODFW Research Division in 1988.

This wild run has never been supplemented with hatchery fish.

Wild fall chinook adult run size to the Deschutes River ranged between 2,813 and 8,250 from 1977-1994 (average run 5,195).

Most Recent Findings

An estimated 1,072 adult fall chinook (95% CI 574-1,914) passed above Sherars Falls in 1995. This low passage shows the continued decline of the portion of the run that passes and spawns above Sherars Falls.

Total run size estimate for adult fall chinook to the Deschutes in 1995 was 7,624. This run to the river estimate is greater than the 1994 estimate and is the second largest for the period of record.

Distribution of fall chinook spawning in 1995 remained predominately in the lower 43 miles of the Deschutes, a continuing an unexplained trend for the past several years.

Actions

Sport fisheries in the Deschutes were closed to all chinook harvest from June 16 - October 31, 1994 and 1995 to protect fall chinook stocks.

CTWS had two restricted fishing seasons for tribal members at Sherars Falls in 1995. The seasons were July 17-29 and October 2-December 31. A maximum harvest cap was established at 63 fish.

The Lower Deschutes Fish Management Plan is nearing completion.

PGE is conducting a river geomorphology study that could identify changes in the river channel and spawning gravel as part of the FERC re-licensing process.

**Current
Assessment**

The total number of adult spawners is greater than 300 individuals. However, the decline in spawner numbers above Sherars Falls is alarming and continues to cause management problems.

District Mid-Columbia
Basin Deschutes
Species Bull Trout
Status Sensitive Species - Critical

Previous Assessment Bull trout are found in the lower Deschutes River (above Sherars Falls), Shitike Creek, and Warm Springs River.

Most spawning occurs in the upper Warm Springs River and Shitike Creek.

Most Recent Findings WSNFH caught five bull trout (both at 42 cm) at their weir during 1995.

Downstream migrant trapping initiated on lower Shitike Creek in the spring of 1996 has resulted in the capture of a number of juvenile bull trout.

Actions Restrictive angling gear and bag limits on the Deschutes River have probably significantly reduced harvest (i.e. artificial flies and lures only, barbless hooks, 2 fish per day 10-13 inches only) since 1979.

Beginning in 1994, anglers in the Deschutes River are now required to release all bull trout unharmed.

Current Assessment This population may be below 300 spawners. It is possible that the population may be favorably responding to restrictive angling regulations and increased public awareness.

District Mid-Columbia
Basin Hood
Species Summer Steelhead
Status Depressed

Previous Assessment

Hatchery smolts (Hood River, Washougal, Skamania, and Foster stocks) have been released annually since 1958.

In recent years the annual releases of Skamania Stock (South Santaim) smolts has averaged approximately 80,000.

Assuming the sport harvest is an index of run size, the population appears to have remained relatively stable through time.

Steelhead counts were made at Powerdale Dam (RM 4.5) from 1963-71. Trapping at Powerdale Dam was started again in December, 1991 to collect information on Hood Basin anadromous stocks.

Estimated escapement for the 1994-95 run year was 211 wild, 1,641 subbasin hatchery and 5 stray hatchery.

Both wild and subbasin hatchery production return primarily as ocean age 2 adults. A variety of freshwater life histories were noted in wild production.

Run timing of wild and subbasin hatchery summer steelhead is generally early and appears fairly similar.

Marine mammal predator scars and gill net marks were noted on 32% and 13% of summer steelhead, respectively, of the 1992-93 run and on 42% and 15% of the 1993-94 run, respectively.

Most Recent Findings

Based on run timing data from the 1992-93, and 1993-94, the 1994-95 run years, the wild run year is 87% to 99% complete by January 1.

The 1995-96 subbasin hatchery origin run will likely be less the 1994-95 run and also less than the 1993-94 run.

Marine mammal scars and gillnet marks were observed on 45% and 10% of summer steelhead, respectively, for the 1994-95 run year through January 1, 1995.

Actions

The Hood River system has been on a wild release and barbless hook regulation as of January 1, 1992.

The Hood River Basin Master Plan was approved by the Northwest Power Planning Council on April 8, 1992. Plan elements include adult collection and holding facilities as well as increased inventory and data collection. Facility planning is progressing rapidly and adult trapping facilities construction is scheduled for completion in November 1996.

**Current
Assessment**

It appears that wild summer steelhead run size fluctuates around 300 spawners and that wild release is necessary and justified.

District Mid-Columbia
Basin Hood
Species Coho
Status Sensitive Species - Critical, Likely Extinct

Previous Assessment Adult trapping at Powerdale Dam (rivermile 4.0) from 1963-71 and 1992-94 showed an annual escapement of 346 to 32. No wild coho were sampled in 1993.

Most Recent Findings A total of 51 coho salmon (39 stray hatchery, 1 unreadable scale, and 11 wild) was counted through the Powerdale Dam trap during 1995.

Actions An upstream migrant trapping facility at Powerdale Dam, which would assist in monitoring the status of this population is under construction and scheduled for completion in November.

Current Assessment This population is well below the 300 spawner level. Data show the current run is solely composed of stray hatchery fish some years.

District Mid-Columbia
Basin Hood
Species Searun Cutthroat
Status Sensitive species - Critical, Likely Extinct

Previous Assessment Trapping at Powerdale Dam (R. M. 4.0) from 1962-71 showed an annual escapement of 8-177 fish above this site. Trapping during 1992-95 showed very few searun cutthroat.

Most Recent Findings No searun cutthroat were counted at Powerdale Dam fish trap in 1993, 1994, or 1995.

Actions The Hood River Production Master Plan was approved by the Northwest Power Planning Council on April 8, 1992. Implementation of this plan has led to the construction of an upstream migrant trap adjacent to Powerdale Dam.

In 1980 the trout season opener in the mainstem and West Fork was moved to late May with an eight inch minimum length to provide additional protection for downstream migrants.

Current Assessment It appears that this population is well below 300 spawners and may only be the result of sporadic anadromous morphs from basin resident populations.

District Mid-Columbia
Basin Hood
Species Bull Trout
Status Sensitive Species - Critical

Previous Assessment

The only known population occurs in the Middle Fork and Clear Branch Creek.

Clear Branch Dam (constructed in 1969) blocked all upstream migration, which isolated a segment of the population above this structure.

Most Recent Findings

A total of 11 bull trout (33.5 - 55.5 cm) was captured at the Powerdale Dam fish trap during 1995.

Random creel census collected at Laurance Lake between 4/22 and 10/31/95 indicated 250 anglers caught 550 Rb and 5 But (released).

Inventory work in 1994 revealed bull trout in Compass Creek, a tributary to Coe Creek. Bull trout were observed in Pinnacle Creek in 1995.

Actions

An emergency angling regulation was enacted on Laurance Lake in 1991 which required anglers to release all unmarked trout. Anglers are also restricted to the use of artificial flies and lures with barbless hooks.

The Hood basin was closed to taking of bull trout in 1991.

Tributaries flowing into Laurance Lake (Pinnacle and Clear Branch) and Clear Branch below the dam were closed to all angling in 1994.

Laurance Lake, beginning in 1994, is open to angling from the 4th Saturday in April to October 31 rather than year around.

USFS has blocked vehicle access to the upper reservoir and Clear Branch above the reservoir.

The USFS will install an upstream migrant fish trap at the base of Clear Branch Dam by July 1996.

**Current
Assessment**

Genetic analysis indicates all Hood River bull trout are part of one distinct, and genetically unique population. The population probably has less than 300 spawners.

District Mid-Columbia
Basin Fifteenmile Creek
Species Winter Steelhead
Status Seriously Depressed

Previous Assessment

Fifteenmile Creek supports the eastern most wild winter steelhead population in the Columbia Basin.

It is believed that there is approximately 91 stream miles of suitable spawning habitat and 44 stream miles of suitable rearing habitat.

No hatchery steelhead have ever been released into this drainage.

Very little quantitative or qualitative life history information exists on this population.

Most Recent Findings

Winter steelhead spawning ground counts were not done on Fifteenmile or Ramsey creek in 1995. The 1996 counts were a slight increase over the 1994 count.

Actions

This stream system has undergone significant instream and riparian restoration/enhancement work since 1975. A BPA funded project is currently underway.

Beginning January 1, 1992 the general trout angling season opener was delayed until late May, to provide additional protection for wild smolts. Legal trout releases were terminated after 1991.

An ODFW minimum streamflow for Fifteenmile Creek has been converted to an instream water right.

Current Assessment

The run size is likely at or below 300 spawners. Hopefully the population will increase as the result of enhanced adult passage, instream and stream side habitat enhancement, as well as protective fish screening.

Ultimately the fate of this population may hinge on needed revisions to the Columbia River, Zone 6, winter gillnet fishery.

FISH STOCK STATUS REVIEW

June 4, 1996

District Mid-Columbia
Basin Hood River
Species Bull Trout
Status Sensitive

Previous Assessment

There is little information on the historic distribution of bull trout in the Hood River Basin.

Up to twelve bull trout per year were trapped at Powerdale Dam (rivermile 4.0) from 1963 - 1971 (Table 1).

Bull trout captures at Powerdale Dam from 1992, 1993, and 1994 totaled 6, 2, and 10, respectively (Table 1).

The only known population occurs in the Middle Fork Hood River and Clear Branch.

Clear Branch Dam (Laurance Lake), constructed in 1969 at rivermile 1.25, blocked all upstream migration and restricted downstream migration to coincide with periods of dam spill.

Population inventories in 1989 and 1990 revealed small populations of bull trout above and below Clear Branch Dam (Tables 2 and 3).

Most Recent Findings

A total of 11 bull trout was captured at Powerdale Dam during 1995 (Table 1).

Some Bull Trout tagged at powerdale Dam have been recaptured at that site the year following tagging. One tagged fish was captured in the Columbia River near Drano Lake (west of Hood River).

1995 USFS snorkel spawning surveys above Laurance Lake produced the lowest counts on record. The highest count was five bull trout.

Bull trout have now been found in Coe Branch, Compass and Pinnacle creeks.

Random creel survey at Laurance Lake in 1995 showed that 250 anglers interviewed caught and released 5 bull trout, while also catching 550 rainbow trout.

Current
Assessment

Analysis of genetic samples, collected from bull trout in the Hood River Basin, by Paul Spruell indicates there is one genetically unique population in the Hood River Basin. These fish are not closely related to the lower Deschutes or Willamette populations.

Hood River bull trout numbers are at a very low level.

Limiting
Factors

The population was fragmented after construction of Clear Branch Dam, which blocked upstream migration.

Warm water temperatures below Clear Branch Dam may delay or prevent spawning.

The general lack of high quality rearing habitat, including instream structure and side channel alcoves could limit production. Downstream migrants at Laurance Lake can only migrate during periods of dam spill. The submerged outlet tower does not meet fish screening criteria. Diversions from the mainstem Hood River do not meet screening criteria.

Actions

An emergency angling regulation was adopted for Laurance Lake in 1991 which requires the release of all unmarked trout (hatchery rainbow are adipose clipped). Anglers are also required to use artificial flies or lures with barbless hooks.

The entire Hood River Basin was closed to the taking of bull trout in 1993.

Tributaries flowing into Laurance Lake (Clear Branch and Pinnacle Creek) and Clear Branch below the dam were closed to all angling in 1994. The year around angling season at Laurance Lake was reduced to the late April through October season in 1994.

The USFS has completed instream habitat restoration in Clear Branch above the reservoir by adding large woody debris. The USFS has closed vehicle access along the upper half of the reservoir and Clear Branch above the reservoir.

A USFS contractor is scheduled to begin construction of an upstream migrant trap at the base of Clear Branch Dam in June 1996. The USFS has agreed to remove and or replace road culverts that are limiting distribution of fish into Pinnacle Creek.

Middle Fork Irrigation District has agreed to provide a fish ladder at their Coe Branch irrigation diversion in 1996. During recent construction of a new spillway for Clear Branch Dam, the irrigation district incorporated design modifications aimed at improving downstream migration.

An interagency Hood River Bull Trout Working group has been formed and is in the process of developing a conservation strategy for the Hood River bull trout.

Pacific Power and Light Co. (PacifiCorp) is currently working to re-license the Powerdale Project. The fishery agencies have called for new downstream migrant fish screens to meet existing criteria. PP&L has recently made modifications to the Powerdale Dam fishway that are designed to improve upstream passage.

**Progress Towards
Recovery**

State and federal resource management agencies, the Confederated Tribes of Warm Springs, and Hood River water users are all working together to improve the population status.

**Problems, Concerns
or Setbacks**

Smallmouth bass were first caught in Laurance Lake in May 1996.

The small bull trout population, located in a small geographic area, is vulnerable to environmental catastrophe (i.e. fire, glacial flooding, volcanic activity).

Other Strategies

The upstream migrant trap at Clear Branch Dam will provide the opportunity to pass upstream migrant bull trout over the dam.

There may be other habitat in the basin that would be suitable for re-introduction of bull trout (i.e. West Fork Hood River).

Table 1. Hood River Bull Trout Counts at Powerdale Dam Trap, 1963 - 1995.

Month	Apr	May	June	July	Aug	Sept	Oct	Unknown	Total
Year									
1963		3	2	1					6
1964			5					4	9
1965				1				2	3
1966								1	1
1967			1	3		1	1	6	12
1968			6	3					9
1969			5						5
1970									0
1971			1						1
1992		5	1						6
1993		1	1						2
1994		3	5	2					10
1995			4	4	2		1		11

Table 2. Bull Trout Inventory in Clear Branch above Laurance Lake, July 20, 1989.

<u>Sample Site</u>	<u>No. Fish</u>	<u>Size Range</u>
Beaver Pond	0	
Side Channel	12	83 - 132 mm
Main Creek	5	82 - 140 mm

Table 3. 1990 Middle Fork Hood River Bull Trout Population Survey

<u>Stream</u>	<u>No. Fish</u>	<u>Size Range</u>
Clear Branch (below dam)	2	25 - 30 cm
Bear Creek	1	30 - 35 cm
Tony Creek	0	
Rogers Spring Creek	0	

FISH STOCK STATUS REVIEW

June 4, 1996

District Mid-Columbia
Basin Lower Deschutes
Species Bull Trout
Status Sensitive

Previous Assessment

Bull trout are found in the lower Deschutes River (above Sherars Falls), Shitike Creek, and the Warm Springs River system.

Abundance of bull trout has not been estimated, but appears low. A few bull trout were captured annually in the Deschutes River during late winter rainbow trout inventory work (1979 - 88).

Most spawning occurs in the upper Warm Springs River and Shitike Creek.

A few upstream migrant bull trout have been observed annually at the Warm Springs National Fish Hatchery trap (Table 4).

A few bull trout have been caught in the Pelton Trap (Table 5).

Most Recent Findings

Five adult bull trout were caught at the WSNFH trap in 1995.

No bull trout were captured in the Pelton Trap in 1995.

A downstream migrant "screw trap" in the lower Shitike Creek in late March and April 1996 caught 159 juvenile bull trout (110 - 170 mm).

Two bull trout were captured in the Deschutes River (Trout Creek reach) during 1996 rainbow population inventory. These were adult fish measured at 54.5 and 55 cm.

Bull trout spawning surveys have been conducted on Shitike Creek and the Warm Springs River during spring chinook surveys by CTWS (Table 6).

Current
Assessment

Analysis of genetic samples from lower Deschutes River subbasin bull trout indicates that this is a distinct population that is not closely related to the upper Deschutes/Metolious population.

Deschutes River bull trout numbers are too low to make a Peterson mark-recapture population estimate.

Limiting
Factors

The Pelton/Round Butte hydro-electric complex eliminated any potential connection with the upper river population.

Upstream migrants were routinely killed at a Warm Springs River fish weir for a number of years.

There may be some habitat limitations on some stream reaches located on the Reservation. Degradation and/or loss of riparian habitat along the Deschutes River may have adversely affected rearing bull trout.

Actions

Restrictive angling regulations and a reduced trout bag limit on the lower Deschutes River have probably significantly reduced bull trout harvest.

Deschutes River anglers have been required to release all bull trout since 1994.

The draft Lower Deschutes River Subbasin Fish Management Plan is now out for public review.

Significant improvement has occurred in riparian habitat along the river within livestock fenced exclosures. CTWS is beginning to protect the riparian corridor along the reservation.

Progress Toward
Recovery

The CTWS is actively monitoring upstream and downstream migration on the Warm Springs River. They have begun monitoring downstream migration on Shitike Creek. Annual spawning surveys are being made in conjunction with spring chinook

surveys. Riparian habitat restoration work has been done and more is planned for CTWS stream corridors.

Current sport angling regulations in the Deschutes River provide good protection for bull trout.

Problems,
Concerns, or
Setbacks

Brook trout are present in high lakes in the upper portion of the Shitike Creek and Warm Springs River watersheds. No hybridization has been documented.

Brown trout escaping from Lake Simtustus are now found downstream from the Pelton Reregulation Dam, although they are no longer being stocked.

The unresolved Deschutes River water right allocation for the Confederated Tribes could potentially result in reduced river flow and negatively impact all fish production.

Other
Strategies

Re-establishment of fish passage over the Pelton/Round Butte complex could re-connect the two populations.

Restoration of lower Deschutes River riparian habitat and in-channel habitat diversity could benefit rearing bull trout.

Table 4. Bull Trout Counts at Warm Springs National Fish Hatchery, 1991 - 1995.

<u>Year</u>	<u>Bull Trout</u>	<u>Size Range</u>
1991	2	48 and 60 cm
1992	0	
1993	1	42 cm
1994	2	42 cm
1995	5	42 - 48 cm

Table 5. Bull Trout Counts at the Pelton Trap, 1992 -1995.

<u>Year</u>	<u>Date Captured</u>	<u>Bull Trout</u>
1992		0
1993	6/28, 7/2, 7/13, 7/26	4
1994	8/2, 8/31	2
1995		0

Table 6. Bull Trout Redd Counts in Shitike Creek and Warm Springs River Index Areas, 1984 - 1995.

<u>Index Area</u>	<u>KM</u>	<u>Year</u>													
		84	85	86	87	88	89	90	91	92	93	94	95		
Shitike Creek	1.1	5	2	3	3	12	12	9	6	6	5	2	1		
	3.2							6	1		3	4	1		
	4.5								1	0	0				
Warm Springs River	6.4							15	12	9	8	5	26		

FISH STOCK STATUS REVIEW

June 4, 1996

District Mid-Columbia
Basin Lower Deschutes
Species Rainbow Trout
Status Stable

Previous Assessment

Rainbow trout are found throughout the lower 100 miles of the Deschutes River, but are most numerous from rivermile 12 to 100.

Aney (1967) determined that 97% of the trout spawning occurs above the mouth of White River (rivermile 46), and 75% of the trout spawning occurs between the Pelton Regulating Dam and the mouth of the Warm Springs River.

Schroeder (1989) summarized 17 years of trout research data from the lower Deschutes River in ODFW Information Report 89-6.

The average density of rainbow trout > 19 cm above Sherars Falls (rivermile 44) was approximately 1,770 fish/mile in the 1970's and 1,630 fish/mile in the 1980's. Density of rainbow trout below Sherars Falls was considerably lower than above the falls.

Rainbow trout sexually mature at 3 or 4 years with a mean length of 30 - 33 cm. Growth rates are sharply reduced after sexual maturity (Figure 1).

Supplementation of the river with catchable-sized rainbow was discontinued in 1978.

Most Recent Findings

1995 trout population estimates were made in the Nena Creek and North Junction study reaches for the first time since 1988 (Table 7).

1996 trout population estimates were made in the Jones Canyon and Trout Creek study reaches for the first time since 1986 and 1979, respectively (Table 8).

Current Assessment

The trout population in the North Junction area has apparently changed little since 1988.

The trout population in the Jones Canyon area has apparently more than doubled since 1986.

The trout populations at Nena Creek has apparently dropped by one third since 1988.

The trout population in the Trout Creek study area has also dropped by approximately one third since 1979.

The current 10 -13 inch slot limit combined with the artificial flies and lures, barbless hook angling regulations have created a de facto catch and release fishery. The regulation has not met the stated objective of "stockpiling" large numbers of "trophy" trout.

Angling associated injuries were observed on 11.2% and 9.3% of the trout sampled in the Nena Creek and North Junction areas, respectively, in 1995. Similar injuries were observed on 13.8% and 7.7% of the fish sampled in the Trout Creek and Jones Canyon study reaches, respectively, in 1996.

Limiting Factors

Biological characteristics (i.e. age at maturity, food preference, etc.) and habitat limitations dictate growth and ultimate size of these fish.

Competition with other salmonids and non-game species may effectively limit the population.

Heavy angling pressure, combined with some angling regulation violations, may limit fish numbers in more accessible areas (i.e. Nena Creek).

The lack of riparian, and especially emergent vegetation, may limit juvenile rearing habitat.

The hydro project has largely reduced the natural recruitment of gravel and large woody structure

for the lower river, which is important for spawning and rearing.

Alteration of the natural river flow and temperature regime below the hydro project may have adversely affected trout production.

Actions

ODFW is an active participant in the FERC relicensing process for the Pelton/Round Butte Project.

PGE has ongoing studies on the lower river addressing the following issues:

- Early life history of Rainbow and StS
- Geomorphology
- Historical River Temperatures
- Rainbow and Steelhead Genetics
- Upstream fish passage over the project

The Central Region has been actively involved in the water right allocation discussions between the State of Oregon and the Confederated Tribes.

There had been notable riparian habitat improvement along some reaches of the river.

The interagency Lower Deschutes River Management Plan specifically addresses protection and restoration of instream, riparian, and upland habitat. This plan also established maximum boater use limits designed to help protect or restore the river ecosystem.

The Lower Deschutes River Subbasin Fish Management Plan is now out for public review.

ODFW provides the funding for two of five OSP cadets assigned to the lower river during the recreation season.

Recent Progress

The state, federal, CTWS, and local agencies are working more closely together under the umbrella of the river management plan.

CTWS is moving ahead with plans to restore degraded riparian habitat on the reservation bordering the river.

Problems, Concerns, or Setbacks

The February 1996 flood exacerbated the brown trout problem downstream from the Pelton Reregulating Dam. It appears that the heavy

spill may have flushed brown trout into the river.

The unresolved water right allocation issue between the state and CTWS poses potential river flow related problems.

We are uncertain of the effects of inter-specific competition with the multitudes of other fish species in the river.

Other
Strategies

Re-licensing of the Pelton/Round Butte Project offers some distinct opportunities to address and potentially resolve a number of limiting factors, including:

Gravel and Large Wood recruitment

Regular flushing flows to move or clean gravel

Restore upstream passage over the project

Habitat restoration as project mitigation

River temperature adjustment

There are many groups and organizations interested in protecting and/or restoring the lower Deschutes River and tributaries that could be encouraged and directed.

Figure 1. Growth curves of rainbow trout in the Deschutes River (Schroeder, et al, 1989).

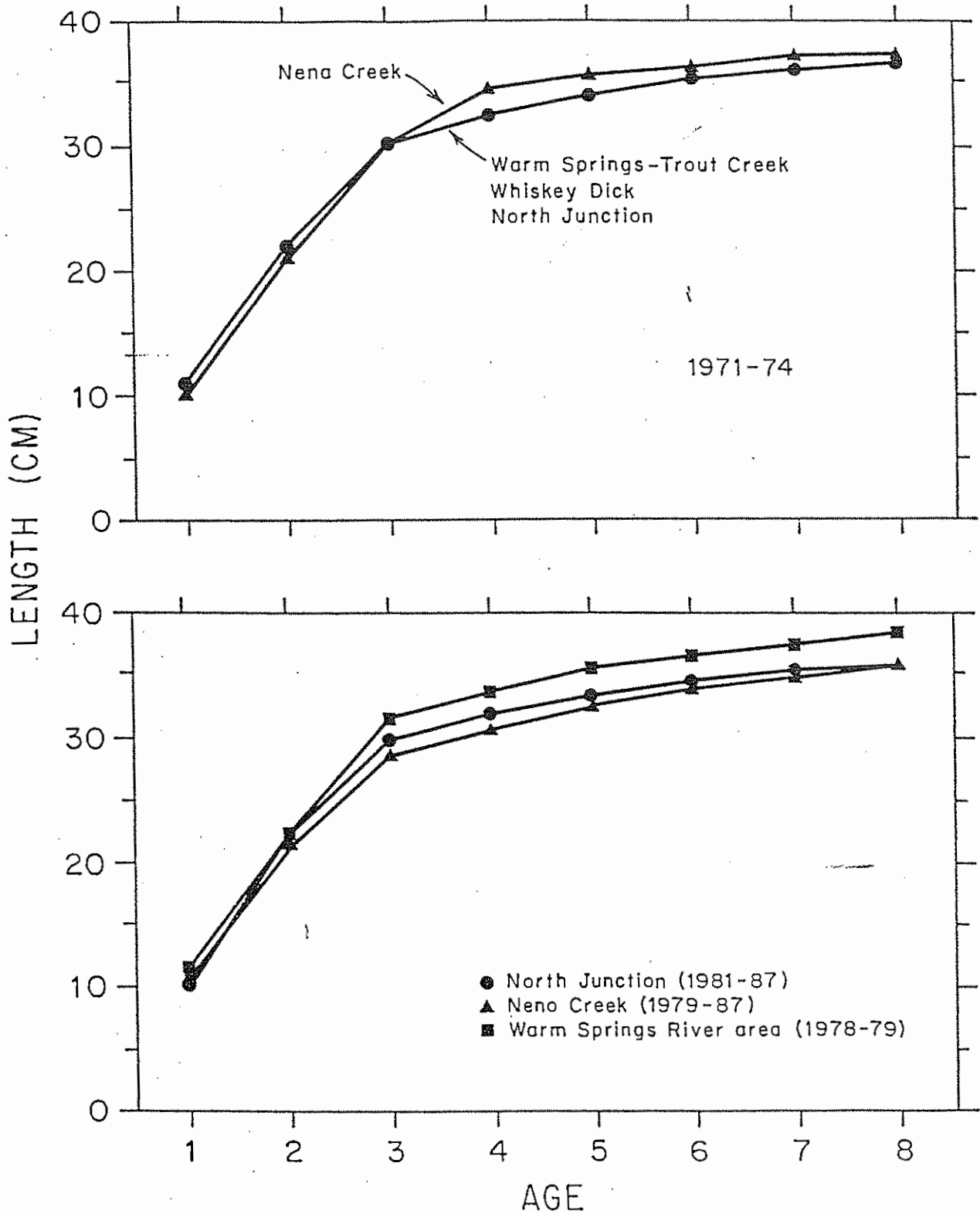


Table 7. Density (fish/mile) of rainbow trout > 19 cm, by size group, in the Nena and North Junction areas of the lower Deschutes River, 1972 - 1995 (95% confidence limits in parentheses).

Year	Size group (cm)			Total
	19.0-24.9	25.0-32.9	≥ 33.0	
Nena Creek				
1973	--- (a)	187 (80- 586)	(a)	---
1974	858 (479-1,747)	255 (169- 407)	79 (43-168)	1,192 (672-1,712)
1975	1,310 (780-2,381)	191 (126- 309)	39 (16-121)	1,540 (848-2,232)
1979	268 (188- 398)	241 (183- 326)	133 (105-169)	642 (521- 763)
1981	912 (697-1,193)	747 (574- 972)	182 (96-408)	1,841 (1,504-2,178)
1982	971 (814-1,160)	1,242 (1,094-1,411)	353 (238-550)	2,566 (2,293-2,839)
1983	928 (732-1,176)	1,218 (1,045-1,421)	244 (160-394)	2,390 (2,082-2,698)
1984	755 (397-1,698)	788 (638- 975)	101 (61-179)	1,644 (1,121-2,167)
1985	(a)	754 (478-1,269)	53 (26-132)	807 (456-1,158)
1986	409 (324- 516)	818 (709- 944)	226 (174-294)	1,453 (1,291-1,615)
1987	261 (160- 453)	641 (508- 808)	160 (119-220)	1,062 (860-1,264)
1988	567 (343-1,013)	818 (621-1,106)	299 (215-431)	1,684 (1,305-2,063)
1995	465 (213-1,021)	457 (345- 606)	212 (167-268)	1,134 (716-1,552)
North Junction				
1972	295 (126- 921)	451 (289- 745)	180 (118- 291)	926 (589-1,263)
1973	164 (70- 511)	1,074 (492-2,930)	304 (139- 829)	1,542 (637-2,447)
1974	555 (367- 884)	567 (408- 817)	438 (319- 621)	1,560 (1,231-1,889)
1975	1,179 (795-1,838)	980 (777-1,236)	322 (257- 404)	2,481 (1,952-3,010)
1981	424 (194-1,157)	484 (362- 664)	216 (156- 307)	1,124 (750-1,498)
1983	343 (235- 524)	1,148 (952-1,383)	566 (456- 704)	2,057 (1,777-2,337)
1984	253 (116- 691)	762 (559-1,066)	420 (273- 689)	1,435 (1,073-1,797)
1985	(a)	559 (407- 793)	234 (170- 333)	793 (600- 986)
1986	558 (362- 915)	690 (574- 829)	886 (732-1,071)	2,134 (1,811-2,457)
1987	211 (115- 449)	623 (502- 772)	448 (375- 536)	1,282 (1,078-1,486)
1988	(a)	757 (441-1,426)	962 (704-1,355)	1,719 (1,208-2,230)
1995	335 (200- 563)	822 (480-1,408)	497 (385- 643)	1,654 (1,127-2,181)

(a) No estimate because of insufficient recaptures (less than 3).

Table 8. Density (fish/mile) of rainbow trout > 19 cm, by size group, in the Jones Canyon and Trout Creek areas of the lower Deschutes River (95% confidence intervals in parentheses).

Year	Size group (cm)			Total
	19.0-24.9	25.0-32.9	≥ 33.0	
Jones Canyon				
1986	140	163	217	519 (275- 763)
1996	378	592	145	1,115 (807-1,423)
Trout Creek				
1978	408	719	1,050	2,177 (1,731-2,623)
1979	536	373	784	1,693 (1,439-1,947)
1996	275	519	323	1,117 (892-1,342)