MID-COLUMBIA FISH DISTRICT
ANNUAL REPORT
2004

Fish Liberations

Spring Chinook

Deschutes River: The 2004 release of 251,674 spring Chinook smolts into the Deschutes River was completed during April, 2004 (Table 1). This year's release is less than the 2003 release of 336,552 and represents the sixth consecutive year that the entire spring chinook production was reared in the Pelton Ladder. As in past years, the entire production was marked ADCWT and was released immediately downstream from the Pelton Reregulation Dam at river mile 100.

Hood River: A total of 160,033 Deschutes stock spring chinook smolts were released into the Hood River subbasin from three acclimation locations (Table 1). The Blackberry Acclimation site on the West Fork Hood River near Dry Run Bridge released 56,847 Chinook smolts from that facility. The Jones Creek site near Twin Bridges, also on the West Fork Hood River, successfully acclimated and released 39,227 smolts. The Parkdale Acclimation and Adult Holding site acclimated and released spring chinook smolts including 31,932 non-migrants that were trucked to the mouth of the Hood River. The spring Chinook juveniles released into the Hood River in 2004 is higher than the 2003 release of 126,929 smolts.

Summer Steelhead

Deschutes River: Round Butte Hatchery raised and successfully released 167,534 Deschutes stock summer steelhead smolts into the Deschutes River at river mile 100 in early April, 2003 (Table 1). This release into the Deschutes is similar to the release in 2003. The 2004 summer steelhead release was fin marked ADRM.

Hood River: A total of 40,429 Hood River stock summer steelhead were released into the Hood River in 2004 (Table 1). Of the release group, 35,546 were volitionally released from the Blackberry Creek Acclimation site, and 4,883 non-migrants were released near the mouth of Hood River after failing to leave the acclimation ponds. Volitional releases occurred at two dates, beginning on the 9th and the 23rd of April. The volitional release was ended on the 6th of May, and all remaining fish were determined to be non-migrants and release near the mouth of Hood River. All fish were marked with an ADLM fin mark.

Additionally, a total of 18,730 lot 24 (Foster/Skamania stock) smolts were direct released into the mainstem Hood River below Powerdale Dam on the 15th of March. This group was fin marked AD only and continued to represent a declining number of Skamania stock releases into the Hood River.

Winter Steelhead

Hood River: A total 59,407 of winter steelhead smolts were released into the Hood River subbasin in 2004 (Table 1). All smolts were marked ADLV fin mark. Hood River stock winter steelhead were again acclimated and released from two locations in the subbasin. The East Fork Irrigation District sand trap facility acclimated a total of 28,914 winter steelhead smolts. Non-migrants were trucked from this site and not force released, similar to last year. Additionally, two groups totaling 29,945 smolts were acclimated and released from the Parkdale Fish Facility. In addition to the release groups mentioned above, a total of 548 non-migrants were collected from the acclimation facilities after failing to migrate and released near the mouth of Hood River. The average size of the non-migrants was substantially smaller than fish that migrated from the acclimation ponds.

Standing Water Bodies

Sixteen district lakes or reservoirs were stocked with rainbow trout during the calendar year (Table 2). A total of 255, 478 fingerling, legal, and broodstock rainbow trout were released into district standing water bodies in 2004.

Fingerling Releases: Four district lakes or reservoirs were stocked with rainbow fingerling this year which included Baker Pond, Pinehollow Reservoir, Rock Creek Reservoir, and Taylor Lake that totaled 146,716.

Legal Releases: Legal rainbow trout were released in all sixteen of the stocked district lakes of 2005. A total of 106,832 were released.

Brood Trout: Eleven district lakes or reservoirs were stocked with a total of 1,930 brood trout that were excess to the needs of Oak Springs Hatchery.

Air Stock Lakes: No air stocking occurred in 2004.

District Streams: No fingerling trout were stocked into district streams in 2004.

STEP Program trout: One local private pond and Taylor Lake were stocked with unfed rainbow trout hatched in in-class incubators during the year.

Warmwater Game Fish

No warmwater game fish were released into district waters during 2004.

FISH INVENTORY

SPRING CHINOOK

Deschutes River: The 2004 Deschutes River spring chinook salmon run year was completed at Round Butte Hatchery (RBH) in late August, 2004. A total of 359 adult spring

chinook returned to the Pelton Trap during the 2004 run year, a low run relative to other recent years (Table 3). Due to not enough adult spring Chinook returning to RBH to satisfy the 600 fish broodstock need, broodstock was taken from excess spring Chinook returns to Warm Springs National Fish Hatchery. Jack spring Chinook returns to the Pelton Trap in 2004 were comparable to recent years (Table 4).

The 2004 return of hatchery origin adults to WSNFH was less than recent years but was a strong run (Table 5). A total of 3,363 adult and 125 jack hatchery origin spring chinook were captured during the run year (Table 5).

A total of 2,351 wild adult spring chinook were captured at the WSNFH barrier dam in 2003. This represents a good run of wild adults and the fifth consecutive year that the 1,300 wild adult escapement goal was attained (Table 5). The capture of wild jack spring chinook at WSNFH decreased from 2003 but was comparable to most recent years (Table 5).

Wild spring chinook redd counts in the Warm Springs River system were conducted by the Confederated Tribes of Warm Springs (CTWS) Department of Natural Resources during 2004. The number of redds counted was the second highest count on record and the adult per redd ratio continued to be high (Table 6). The adult per redd ratio may be an indication of pre-spawning mortality.

The annual pre-season prediction for spring chinook run strength is calculated jointly by ODFW, CTWS and the US Fish and Wildlife Service. The pre-season prediction for 2004 was 2,150 wild spring Chinook. This prediction for the 2004 return indicated that the wild escapement goal of 1,300 adults across the barrier dam at WSNFH would be met or exceeded and that both WSNFH and RBH would return more hatchery origin adults than was needed for broodstock. The Lower Deschutes Subbasin Fish Management Plan goals and objectives for spring chinook allow a sport fishery to proceed if the pre-season prediction suggests that the wild escapement goal will be met. The decision to allow a sport season for hatchery only, mandatory wild release and seven days per week was made in cooperation with CTWS although as a measure to allow for increased wild escapement, the sport fishery opening was April 15, 2004. The hatchery only spring Chinook fishery was in force until July 31, 2004. This was the fifth consecutive year a seven-day per week, mandatory wild release spring chinook fishery had been conducted.

The Sherars Falls sport fishery was sampled using the traditional statistically expandable sampling schedule. A somewhat higher number of sport anglers fished a lower number of hours as in 2003, to catch a lower number of hatchery spring chinook (Table 7). Sport angler compliance with the wild spring chinook release regulation was excellent.

The CTWS allowed tribal fishers unlimited harvest of hatchery and wild origin spring Chinook. The fishery began April 15, 2004. The tribal dipnet and hook and line fisheries were jointly sampled by ODFW and CTWS. Tribal fishers harvested a total of 358 adult spring Chinook (Table 8). Wild adult Chinook harvest greatly increased while hatchery Chinook harvest decreased in 2004.

Hood River: The Powerdale Trap, similar to the trap used in the late 1960's and early 1970's was reconstructed and put into operation in the Powerdale Dam fish ladder in December 1991, to collect information on anadromous fish populations in the Hood River system. Powerdale Dam, a PacifiCorp dam used to divert water downstream three miles for power generation, is located at river mile 4 on the Hood River. This trap was operated continuously from December, 1991 until December, 1996 when the Bonneville Power Administration (BPA) funded Powerdale Dam adult salmon and steelhead trapping facility was completed. Data on Hood River anadromous species reported here were collected at these two trap facilities.

Initial spring chinook captures at the Powerdale Trap are reported in Table 9. These data are reported on a provisional basis as the run progresses and are presented in monthly reports prior to the availability of final scale analysis data. Final run total summaries used by the BPA funded Hood River Production Project reported here and in annual reports for that project are calculated from scale analysis for origin and age. Preliminary data may not correspond to the more detailed, age specific capture data presented by the BPA Hood River Production Project.

The preliminary total number of 438 adult and jack, hatchery and wild spring chinook returning to the Hood River in 2004 was slightly higher than most years on record (Table 9).

Table 10 presents the more detailed, origin specific spring chinook returns to Powerdale Dam. A total of 136 naturally produced spring chinook was the highest number on record. However, the number of subbasin hatchery origin returns decreased substantially from the past three years with a relatively low return.

The age structure of 2004 adult returning natural spring Chinook and hatchery spring Chinook appeared to be different in the number of years spent in saltwater (Table 11). The most common age for natural spring Chinook in 2004 was age four with two years spent in saltwater, which was 51% of the total adults captured. In contrast, age four adult Deschutes stock hatchery returns made up only 41% of the total adults captured. About 70% of the Deschutes stock hatchery returns were comprised of age two precocials (mini-jacks) and age three one salts.

The anticipated low return of adult spring chinook to the Hood River precluded a sport harvest opportunity in 2004. The permanent rule for chinook harvest remained in effect (closed January 1 to July 31). The Warm Springs Tribe also did not enact a spring Chinook harvest opportunity for tribal members on the Hood River in 2004. Estimated effort and harvest in past years is presented in Table 11.

FALL CHINOOK

Deschutes River: A cumulative total of 218 adult fall chinook were captured at the Pelton Trap during the 2004 run year (Table 13). This was a relatively high capture year for fall Chinook adults at the Pelton Trap and was well above the 5 year average of 132 adults. The 2004 run year capture of 80 jack fall Chinook, however, is considerably less than the 5 year average of 153 (Table 14).

Based on a pre-season prediction of an adult fall chinook return considerably greater than the target escapement figures of 4,000 adults to the mouth of the Deschutes and 2,000 adults upstream from Sherars Falls, a sport harvest of unmarked fall chinook was allowed by temporary order from August 1, 2004 to October 31, 2004. Sport anglers and tribal fishers were sampled by ODFW on the standard statistical harvest schedule. Effort and catch for adult fall chinook by sport anglers was comparable to recent years with an estimated 280 adults harvested (Table 15).

Tribal dipnet fishers were jointly sampled by CTWS and ODFW, an arrangement that allows for greater coverage of the fishery. The joint sampling arrangement worked out very well this year.

Tribal fishers harvested an estimated 771 adult and 49 jack fall chinook during their harvest season, a substantial increase from the tribal harvest over recent years (Table 16).

The Sherars Falls adult migrant fish trap was operated from June 21, 2004 to October 29, 2004. Adult and jack fall chinook were trapped and tagged at this facility and standard biosampling was conducted. Tags are placed to facilitate later Peterson mark-recapture population estimates of the number of adult and jack fall chinook passing Sherars Falls. All fall chinook sampled at the trap were biosampled, tagged with two Floy tags and released to continue their journey.

A total of 565 adult fall Chinook were captured at an average rate of 0.68 fish per hour (Tables 17 and 18). We also captured a total of 98 jack fall Chinook at an average rate of 0.12 fish per hour, (Tables 19 and 20). Catch per hour data from the Sherars Falls trap for both adult and jack fall chinook are not good predictors of the final mark-recapture population estimates.

Peterson mark-recapture population estimates for both adult and jack fall chinook passing Sherars Falls are made each year by tagging fall chinook at the Sherars Falls trap and making later recoveries of both tagged and untagged fish at the Pelton Trap and from spawned out carcasses recovered by survey crews from the Pelton Reregulation Dam downstream to Trout Creek.

An estimated 2,991 adult fall chinook passed above Sherars Falls in 2004 (Table 21). Although this estimate is slightly lower than the previous three years, it is well above the target escapement of 2,000 adults contained in the Lower Deschutes River Fish Management Plan. An estimated 999 jack fall chinook also passed Sherars Falls in 2004, a slight decrease from the past few years but well within the range of previous estimates (Table 21).

Two aerial, helicopter conducted, fall chinook redd counts were made in 2004. Excellent counting conditions were experienced on the first flight from Pelton downstream to White River, however, downstream of White River turbid water conditions limited counting ability. Visibility was excellent on the second count, conducted on the 29th of November, for the entire 100 miles of river. All fall Chinook redds in the entire lower 100 miles of river were counted. As described previously, two independent counters are used to count redds in each reach on each of the flights. The largest of the four independent counts is used as the final figure for the year for each section and reach under the philosophy that it is easier to miss counting redds rather than mistaking something for a redd. A total of 1,672 redds were counted for the entire 100 mile reach, which is the second highest count for the period of record (Table 22).

The proportion of redds counted downstream from Sherars Falls continued to increased from the previous several years (Table 23). The mechanisms controlling the number of fall chinook spawning above or below Sherars Falls remain unknown.

Total run size estimates (fish to the mouth of the Deschutes) and escapement estimates for adult fall chinook were made for the 2004 run based on the estimated escapement of adults above Sherars Falls and redd count data both above and below Sherars Falls and harvest in the Deschutes River. An estimated 13,102 adult fall chinook returned to the Deschutes during the 2004 run year, the fourth largest estimated return for the period of record (Table 24). Since 2001, the number of fall Chinook estimated in the Deschutes has maintained greater than 11,100 adults which is unprecedented compared to previous years on record (Table 24). Both run to the river and escapement figures for 2004 are likely minimum values due to the incomplete nature of the redd counts.

Total run size estimates (fish to the mouth of the Deschutes) and escapement estimates for jack fall chinook were made for the 2004 run based on estimated escapement of adult fall chinook below Sherars Falls, the ratio of estimated jacks to adults above Sherars Falls and harvest in the Deschutes River. An estimated 4,121 jack fall Chinook returned to the Deschutes during the 2004 run resulting in an escapement to the spawning grounds of 3,968 (Table 25). Both figures are comparable to recent years.

Hood River: Classification of spring and fall races is made based on a combination of factors including date of capture, body condition and confirmation, brightness, scale tightness and erosion, degree of ripeness relative to the time of year, and external parasite load. All fall chinook captured at the Powerdale Trap are biosampled, tagged, and passed above the dam to continue their journey.

A total of 35 Chinook classified as fall chinook were captured at the Powerdale Trap during 2004 (Table 26). The majority of these fish appear to be of natural origin with a small percentage composed of stray hatchery origin fish. The natural origin fish appear to be primarily four years old with one year being spent in freshwater (Table 27). Three year old and five year old fish with one freshwater year are also common.

COHO

Deschutes River: Within the last two years, coho have been appearing in larger numbers the Deschutes. We captured a total of 35 unmarked and 1 marked hatchery coho in 2004 at the Sherars Falls adult migrant trap. Similarly, we captured 48 unmarked and 1 marked coho in 2003. Between 1995 and 2002 we only captured a total of 26 marked and unmarked coho. Although the origin of these fish has not been documented, we believe most are unmarked hatchery origin strays. In fall 2004, an ODFW employee noticed numerous coho staging at the mouth of Buckhollow Creek. Although undocumented, it is possible that natural production may be occurring.

Hood River: A total of 126 unmarked origin, 466 hatchery origin and 27 coho of unknown origin (as determined by scale analysis) entered the Powerdale Trap during 2004 (Table 28). All unmarked coho were passed upstream after biosampling and tagging. We believe many of the unmarked coho are strays from hatchery programs on the Washington side of the Columbia River. Similar to past years, stray hatchery origin coho as determined by hatchery fin mark were not allowed to pass upstream into the spawning grounds. Hatchery origin coho were recycled back to the mouth of the Hood River.

Coho escapement to Powerdale Trap by age and origin is presented in Table 29. Analysis of freshwater growth scale patterns suggest that stray coho sampled in the Hood River are reared at a variety of Columbia River mainstem and tributary hatcheries and are released as far upstream as the Umatilla River.

SUMMER STEELHEAD

Deschutes River 2003-04 Run Year: A total of 3,676 summer steelhead entered the Pelton Trap during the run year (June 1, 2003 to May 31, 2004). This total is less than the 5-year average of 4,492 (Table 30). Round Butte Hatchery origin returns made up 70.9% of all returns to the trap, a larger percentage than recent run years (Table 31). The percentage of stray hatchery origin summer steelhead captured at the Pelton Trap, while the lowest in ten years, was still high (Table 31). The percentage of wild fish captured remained about 3% of the total capture at Pelton Trap (Table 31).

Peterson mark-recapture population estimates for the various components of the 2003-04 summer steelhead run passing Sherars Falls were made after the completion of the run year on May 31, 2004. All summer steelhead captured at the Sherars Falls Trap during operation from June 18, 2003 to October 31, 2003 were biosampled, tagged with a Floy tag and released to continue their journey. Subsequent captures of both tagged and untagged individuals were made at both RBH and WSNFH and were used to calculate the estimated number of each component of the run passing Sherars Falls.

The estimated number of 5,265 RBH origin summer steelhead passing Sherars Falls decreased from the 02-03 run year but was comparable to the five year average of 5,758 (Table 32). The estimated number of 6,542 stray hatchery origin summer steelhead was a large decrease from the

five year average of 16,086 (Table 32). The estimated number of 5,524 wild summer steelhead is below the management goal of 6,575 wild steelhead above Sherars Falls (Table 32).

Summer steelhead spawning ground surveys were conducted on Bakeoven and Buckhollow creeks in March and April of 2004. In Bakeoven Creek, we counted 87 redds which was lower than the previous three years continuing a decline since 2001 (Table 34). We counted a total of 211 redds in Buckhollow Creek which was fairly high compared to most years on record (Table 35).

Summer steelhead spawning ground counts were conducted on the Trout Creek system during March, April and May of 2004 (Table 36). A total of 277 redds were counted in 64.2 miles (Table 37). The number of redds counted decreased dramatically from the previous four years while the number of miles surveyed remained very similar. The number of redds per mile decreased for the third year in a row and was the lowest count since 1999 (Table 37).

Deschutes River 2004-05 Run Year: The 2004-05 summer steelhead run year started at the Pelton Trap on June 28, 2004 but final results will not be available until May 31, 2005 when the run year accounting is complete. Catch of summer steelhead at the Pelton Trap through December, 2004 was lower than the comparable figure for the past several years less than the 5-year average (Table 38).

Wild and hatchery origin summer steelhead were trapped and tagged at the Sherars Falls Trap from June 21, 2004 to October 29, 2003 to facilitate later Peterson mark-recapture population estimates. All captured summer steelhead were biosampled, tagged with a Floy tag and released to the river. The mark-recapture population estimates for the 2004-05 run year will not be available until June 1, 2005 when the run year is complete and all captures of previously tagged fish are made at the Pelton Trap and WSNFH.

Catch rate, as measured in fish per hour, of wild and hatchery summer steelhead at the Sherars Trap provides an early suggestion of run strength but does not particularly well correlated with the final Peterson mark-recapture population estimates for the run year. However, direction of trend between trap catch and population estimate are usually well correlated.

Raw catch of wild summer steelhead during the 2004 trapping season was the lowest since 1998 while catch rate was the lowest since 1995 (Tables 39 and 40). The season long raw catch and the season long average catch rate for hatchery origin summer steelhead followed the same pattern resulting in the lowest catch per hour figure since 1994 (Tables 41 and 42).

A list of hatchery origin steelhead fin marks observed at the Sherars Falls Trap for the 2004 trapping season shows that stray hatchery origin steelhead, particularly adipose only marked fish, continue to make up a large percentage of all hatchery fish captured there (Table 43). The percentage of stray hatchery origin steelhead noted at the Sherars Falls Trap in 2004 was 55.2%, which is lower than most years on record but still large and alarming (Table 44).

Statistical harvest census of steelhead anglers was conducted in 2002 at the Heritage Landing (mouth west bank), and Macks Canyon Road site (river mile 0 and 42, respectively) from July 1 to October 31. The traditional statistically expandable collection procedure of stratifying the period into two-week blocks and further stratifying those periods into weekday and weekend classifications was followed. Sample rate was targeted to not exceed an expansion rate of 3.0 for any stratification.

We estimated a total of 2,408 wild summer steelhead released and 1,293 hatchery summer steelhead harvested at Heritage Landing (mouth west bank) (Table 45). Expanded effort and catch data suggests lower effort and total catch of both wild and hatchery origin summer steelhead than most years on record.

Angler effort and catch of both wild and hatchery origin summer steelhead at the Macks Canyon Road site was also relatively lower than the past few years. We estimated a total of 350 hatchery steelhead which was close to the harvest of 2003, however, fewer wild steelhead were reported than the previous few years (Table 46).

The expanded catch and effort data are more valuable for comparison purposes when converted to rate data, in this case, fish per 100 angler hours. Both wild and hatchery origin steelhead were caught at comparable rates to the past several years with an average of 4.3 wild and 2.4 hatchery steelhead per 100 angler hours (Table 47).

The Sherars Falls reach was open for both summer steelhead and fall chinook during 2004 and the standard statistical harvest sampling of sport anglers and tribal fishers was conducted. Effort and steelhead catch by sport anglers was greater than 2003, but angler success was about the same for total fish estimated captured (Table 48).

Tribal hook and line and dipnet fishers at Sherars Falls expended slightly more effort and kept more wild steelhead than in recent years (Table 49).

Columbia River Anadromous: Anglers fishing for anadromous species in the Columbia River are sampled when they return to the Heritage Landing ramp. Angler effort was one of the lowest on record but success for fall Chinook was good (Table 50). However, estimated catch for wild and hatchery steelhead was one of the lowest on record.

Hood River 2003-04 Run Year: The Powerdale Trap, was operated throughout the entire report period, and represents total escapement to the trap. All summer steelhead captured at the Powerdale Trap were scale sampled, examined for marks, measured to the nearest 0.5 cm fork length, and tagged with an individually numbered Floy tag. Following biosampling, fish are released above the dam, recycled to the mouth of the river, or collected for broodstock. All wild fish captured were all released above the dam, with the exception of the fish that were collected for broodstock. Hatchery fish captured were released above dam in a ratio equal to that of wild fish, and hatchery fish in excess of the number allowed over the dam were recycled to the mouth of the Hood River. A total of 1,776 2003-04 run year hatchery fish were returned to the mouth of the river for additional angler opportunity. Stock discrimination between winter and summer steelhead was made using a combination of phenotypic characteristics such as external

coloration, degree of scale tightness and scale erosion, state of sexual maturity relative to the time of year, external parasite load, and general appearance.

Final run year data summaries are calculated from scale analysis data for origin and age and may not be comparable to results reported earlier. Total run year 2003-04 summer steelhead escapement to Powerdale dam by origin and stock were: 245 wild origin, 654 Hood River stock, 1,225 Skamania stock, and 13 stray hatchery steelhead. Numbers of wild summer steelhead declined substantially from the previous years return (Table 51) Origin and age were determined by scale analysis and fin mark.

Wild summer steelhead adults returning during the 2003-04 run year left the Hood River primarily as freshwater age 2 and 3 smolts and returned principally as 2-salt adults although both 1-salt and 3-salt adults are well represented in returns (Table 52). Subbasin hatchery adults returning during the 2003-04 run year were nearly all from smolts that migrated in the year they were released (freshwater age 1) (Table 52). Typical of summer steelhead in most inland locations, few repeat spawners were noted from scale analysis (Table 52).

Scale verified wild summer steelhead were collected for broodstock at the Powerdale Trap during the 2003-04 run year (2004 brood year) and delivered to the Parkdale Fish Facility for holding and spawning. Broodstock was collected throughout the entire temporal distribution of the run, using similar methodology as that has been used in past years. All fish were live spawned and released back to the Hood River following spawning. A total of 23 females and 18 males were collected as broodstock, of which 13 females and 7 males were utilized for spawning, resulting in a collection of 81,214 green eggs (Table 54). A total of 62,405 fry were hatched from the egg take at the Oak Springs Fish Hatchery.

WINTER STEELHEAD

Hood River 2003-04 Run Year: The Powerdale Trap, was operated throughout the report period, and represents total escapement to the trap. All winter steelhead handled at the Powerdale Trap, follow the same methodologies described for Hood River summer steelhead.

A total of 578 wild, 922 Hood River stock hatchery origin, and 37 stray origin winter steelhead escaped to the Powerdale Trap for the 2003-04 run year. The 2003-04 run declined slightly from the previous year, but remained relatively strong when compared with the period of record from Powerdale (Table 55). Additionally, a total of 451 2003-04 run year hatchery origin fish were returned to the mouth of for additional angler opportunity.

Using similar methodologies to those described for summer steelhead broodstock, scale verified wild winter steelhead were collected from the 2003-04 run year (2004 brood year) and delivered to the Parkdale Fish Facility for holding and spawning. A total of 22 females and 30 males were utilized for spawning, which resulted in a collection of 89,759 green eggs(Table 57). A total of 79,486 winter steelhead fry were hatched from the egg take.

Fifteen Mile Creek: Fifteenmile Creek steelhead spawning surveys were modified from the previous format in 2003. The primary purpose of modification was to improve the accuracy and precision of the surveys, in order to better monitor the actual abundance of spawners throughout the entire subbasin. Additionally, surveys were designed to monitor redd longevity, and gather additional run timing information. Primary changes to the traditional survey methodology included abandoning the index reaches, and adopting a comprehensive survey approach that represented the entire known steelhead spawning distribution of the subbasin. Representative index reaches of the former survey design were maintained at two miles in length in both Fifteenmile and Eightmile Creek, while a one-mile index reach was maintained in Fivemile Creek.

Survey design for 2004 consisted of stratifying the entire known steelhead spawning distribution of each stream in the Fifteenmile subbasin into several five-mile long reaches. This stratification resulted in identifying 11 reaches in Fifteenmile Creek, 4 in Ramsey Creek, 7 in Eightmile Creek, and 4 in Fivemile Creek. A one-mile reach was selected randomly from within each of the five-mile reaches for survey. Next year, a different one-mile reach will be selected at random (drawn without replacement) for survey. Redds were individually marked with painted rocks, and flagged, so they would not be counted on subsequent surveys. Three independent redd counts were conducted in each random one mile reach which resulted in counting a total of 212 redds (Table 59). Not all of the one-mile random reaches were counted once during each of the count periods in 2004.

A total of 212 redds were counted in 23.5 miles surveyed for 9.0 redds per mile in 2004 (Table 59). The highest densities of redds were counted in Eightmile Creek. Pass 1 surveys were conducted from April 27 to May 7, Pass 2 surveys were conducted from May 12 to May 19, and Pass 3 surveys were conducted from May 24 to June 3.

RESIDENT FISH

Deschutes River: Expanded effort and harvest of redband trout by trout anglers in the Deschutes was collected in conjunction with summer steelhead harvest census at both the Heritage Landing (Table 60) and Macks Canyon Road (Table 61) sites. Effort and success were much lower at the Heritage Landing site and slightly lower at the Macks Canyon road site. Angler effort (number of anglers) was about the same as 2003 at Heritage Landing while effort at the Macks Canyon site dropped from 2,279 anglers in 2003 to 1,276 in 2004 (Table 61). Combined angler catch per hour was the lowest estimated since 1997 and the fewest anglers since 1992 (Table 62). As noted in past years, the vast majority of trout landed in the Deschutes fisheries sampled by this work continue to be released (Table 62).

Hood River: Bull trout were captured at the Powerdale Trap during the early 1960's and 1970's (Table 63). Bull trout have been captured each year since 1992 with the current trapping efforts on Hood River. We captured a total of four new bull trout ranging in size from 50 to 54 cm in 2004 (Table 64). Two of the four bull trout captured were reported to have hooking scars which appears to be a perennial problem with the bull trout we capture at Powerdale Trap. All captured bull trout were biosampled and released upstream.

A statistical creel was conducted a Laurance Lake to determine the amount of angler use at the reservoir, estimate angler success, and assess the impact of angling on bull trout. Details of this study can be found in the project report (Appendix A).

Three upstream migrating searun cutthroat were sampled at the Powerdale Trap during 2004, a decrease from the six individuals captured in 2003.

Table 1. Mid-Columbia District Anadromous Fish Liberations

Reporting Period: ANNUAL, 2004

Lake or Stream	Species	Number Released	No/lb	Water Temp	Date Released	Mark / Miscellaneous
Deschutes River	STS	31,660	4.0	49	04-05-04	100% ADRM
		28,119	3.7	49	04-05-04	100% ADRM
		30,225	3.9	49	04-05-04	100% ADRM
		30,030	3.9	49	04-06-04	100% ADRM
		33,600	4.0	49	04-06-04	100% ADRM
		13,900	4.0	49	04-06-04	100% ADRM
	Total STS	167,534				
Deschutes River	CHS	83,523	10.1		06-01-04	100% AD
		82,674	9.6		06-08-04	98.7% AD
		85,477	10.7		06-08-04	98.0% AD
	Total CHS	251,674				
Hood River	STS	10,541	6.3	43	03-15-04	100% AD
		8,189	6.3	43	03-15-04	100% AD
		17,784	4.9	44	04-09-04	100% ADLM
		17,762	5.0	42	04-23-04	100% ADLM
		1,695	5.8	45	05-06-04	100% ADLM
		1,392	6.5	54	05-06-04	100% ADLM
		1,006	5.0	55	05-06-04	100% ADLM
		790	5.8	53	05-06-04	100% ADLM
	Total STS	59,159				

Table continues

Table 1 (continued). *Mid-Columbia District Anadromous Fish Liberations*

Lake or Stream	Species	Number Released	No/lb	Water Temp	Date Released	Mark / Miscellaneous
Hood River	CHS	31,932	13.4		04-02-04	100% ADRV
		28,872	13.2	43	04-07-04	100% ADLM
		18,480	13.2	39	04-07-04	100% ADLM
		27,975	13.5	42	04-20-04	100% ADLM
		18,601	13.5	39	04-20-04	100% ADLM
		285	13.3	57	05-03-04	100% ADLM
		1,861	13.3	59		100% ADLM
		32,027	13.4		04-02-04	100% ADLM
	Total CHS	160,033				
Hood River	STW	14,892	6.0	41	04-08-04	100% ADLV
		28,914	5.5	41	04-16-04	100% ADLV
		15,053	4.6	41	04-29-04	100% ADLV
		551	12.3	54	05-05-04	100% ADLV
	Total STW	59,410				

Table 2. Mid-Columbia District Standing Water Body Fish Liberations.

Reporting Period: ANNUAL, 2004

Lake or Stream	Species	Number Released	Date Released	Mark / Miscellaneous
Baker Pond	RB Legal	200	04-23-04	
	RB Fingerling	1,000	03-29-04	
Badger Lake	RB Legal	507	08-31-04	
		500	08-26-04	
		497	08-19-04	
		500	08-12-04	
		500	08-06-04	
		500	07-30-04	
		500	07-21-04	
		500	07-13-04	
		503	07-07-04	
		500	06-30-04	
	RB Legal Total	5,007		
Bikini Pond	RB Legal	300	06-04-04	
		1,500	05-17-04	
		1,800		
	RB Broodstock	10	06-04-04	
Clear Lake	RB Legal	3,400	06-05-04	
		3,100	05-25-01	
		3,254	05-17-04	
		3,250	05-12-04	
		3,060	04-29-04	
		16,064		
	RB Broodstock	40	06-03-04	
		60	05-25-04	
		60	05-17-04	
		60	05-12-04	
		60	04-29-04	
		280		
Frog Lake	RB Legal	3,000	06-05-04	
		2,900	05-11-04	
		5,900		
	RB Broodstock	40	06-03-04	
		100	05-11-04	
		34	05-11-04	
		174		
Hanel Pond	RB Legal	500	5-07-04	
Horseshoe Lake	RB Legal	2,000	06-30-04	

Table 2. (Cont.)

Lake or Stream	Species	Number Released	Date Released	Mark / Miscellaneous
Kingsley Reservoir	RB Legal	5,000	05-26-04	
		4,500	05-07-04	
		9,500		
	RB Broodstock	10	05-26-04	
		25	05-07-04	
		35		
Laurance Reservoir	RB Legal	3,500	06-01-04	
		3,500	05-05-04	
		7,000		
Lost Lake	RB Legal	4,000	07-01-04	
		4,185	06-02-04	
		1,148	06-02-04	
		4,800	05-06-04	
		14,133		
	RB Broodstock	50	06-02-04	
		45	05-13-04	
		175	05-13-04	
		270		
Middle Fork Pond	RB Legal	500	05-14-04	
	RB Broodstock	3	05-14-04	
Olallie Lake	RB Legal	3,000	06-18-04	
		4,666	06-04-04	
		7,666		
	RB Broodstock	50	06-29-04	
		50	06-18-04	
		40	06-04-04	
		140		
Pinehollow Reservoir	RB Legal	3,430	05-05-04	
		3,500	04-12-04	
		3,500	04-08-04	
		3,100	03-16-04	
		13,530		
	RB Fingerling	8,489	04-28-04	
		8,493	04-28-04	
		9,344	02-19-04	
		24,990	02-11-04	
		51,316		

Table 2. (Cont.)

Lake or Stream	Species	Number Released	Date Released	Mark / Miscellaneous
Pinhollow Reservoir (cont.)	RB Broodstock	634	10-28-04	
		20	04-08-04	
		20	04-12-04	
		20	03-16-04	
		694		
	STS Fingerling	9,715	11-30-04	
		10,000	11-16-04	
		19,715		
Rock Creek Reservoir	RB Legal	3,600	05-04-04	
		4,000	05-24-04	
		4,000	04-12-04	
		3,999	03-16-04	
		15,599		
	RB Fingerling	10,002	04-28-04	
		10,075	04-28-04	
		20,308	02-11-04	
		40,385		
	RB Broodstock	65	05-24-04	
		63	05-04-04	
		63	04-12-04	
		63	03-16-04	
		254		
Smock Prairie Reservoir	RB Legal	1,000	06-03-04	
	RB Broodstock	10	06-03-04	
Taylor Lake	RB Legal	1,625	05-11-04	
		1,666	04-12-04	
		1,666	03-16-04	
		1,476	02-20-04	
		6,433		
	RB Fingerling	300	10-28-04	
		25,000	03-30-04	
		25,300		
	STS Fingerling	10,000	11-15-04	
	RB Broodstock	20	05-11-04	
		20	04-12-04	
		20	03-16-04	
		60		

Table 3. Mid-Columbia Miscellaneous Fish Liberations

Lake or Stream	Species	Number Released	No/lb	Date Released	Mark / Miscellaneous
Oregon Coast Aquarium	CT	9,688	140	08-16-04	
IHN Positive	STS	159,845	2400	04-13-04	
Mort Pit Excess to Program	CT	59,083	760	06-01-04	

Table 3. Pelton Trap adult spring Chinook capture, by month, by run year. Cumulative run year total (shown in parentheses). * Run year not complete.

	MONTH					
Run Year	Apr	May	Jun	Jul	Aug	Sept
04	0 (0)	61 (61)	169 (230)	90 (320)	39 (359)	0 (359)
03	44 (44)	2,517 (2,561)	646 (3,207)	180 (3,387)	82 (3,469)	34 (3,503)
02	0 (0)	1,322 (1,322)	2,217 (3,539)	666 (4,205)	166 (4,371)	20 (4,391)
01	0 (0)	1,153 (1,153)	575 (1,728)	375 (2,103)	240 (2,343)	16 (2,359)
00	0 (0)	215 (215)	207 (422)	58 (480)	33 (513)	13 (526)
99	0 (0)	534 (534)	311 (845)	75 (920)	6 (926)	0 (926)
98	0 (0)	37 (37)	216 (253)	46 (299)	7 (306)	0 (306)
5-Year Average	0 (0)	652 (652)	705 (1357)	244 (1601)	90 (1692)	10 (1702)

Cumulative disposition, current run year, adult and jack:

Tribes or foodbank	=	144
Brood	=	372
River	=	23
DOA	=	54

Table 4. Pelton Trap jack spring Chinook capture, by month, by run year. Cumulative run year total (shown in parentheses). * Run year not complete.

	MONTH					
Run Year	Apr	May	Jun	Jul	Aug	Sept
04	0 (0)	1 (1)	111 (112)	112 (224)	10 (234)	0 (234)
03	0 (0)	1 (1)	17 (18)	6 (24)	1 (25)	3 (28)
02	0 (0)	19 (19)	214 (233)	51 (284)	3 (287)	0 (287)
01	0 (0)	63 (63)	728 (791)	513 (1304)	92 (1,396)	6 (1,402)
00	0 (0)	21 (21)	133 (154)	37 (191)	27 (218)	1 (219)
99	0 (0)	9 (9)	64 (73)	10 (83)	0 (83)	0 (83)
98	0 (0)	1 (1)	47 (48)	5 (53)	0 (53)	0 (53)
5-Year Average	0 (0)	23 (23)	237 (260)	123 (383)	24 (407)	1 (409)

Cumulative disposition, current run year, adult and jack:

Tribes or foodbank	=	144
Brood	=	372
River	=	23
DOA	=	54

Table 5. Hatchery and wild spring Chinook capture at the Pelton Trap (Round Butte Hatchery) and Warm Springs National Fish Hatchery Trap, by year.

	Pelton Trap				Warm Springs National				
	Wild a/		Hatchery b/		Wild c/		Hatchery c/		
Year	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Total
1977	17	3	22	5	1,505	101	0	0	1,653
1978	9	1	11	3	2,584	76	0	0	2,684
1979	23	1	22	4	1,322	73	0	0	1,445
1980	12	6	42	42	968	34	0	0	1,104
1981	41	5	334	73	1,525	50	0	85	2,113
1982	23	2	347	91	1,408	46	895	21	2,833
1983	9	0	567	47	1,523	18	355	16	2,535
1984	15	6	257	326	1,192	98	789	203	2,886
1985	70	37	1,318	224	1,099	56	1,090	19	3,913
1986	40	4	1,509	311	1,656	55	161	188	3,924
1987	137	20	1,077	271	1,697	86	512	230	4,030
1988	50	5	1,101	371	1,578	69	483	341	3,998
1989	43	7	1,564	677	1,344	65	2,407	131	6,238
1990	40	5	2,043	168	1,821	46	1,252	59	5,434
1991	30	3	1,553	342	777	40	579	65	3,389
1992	39	3	1,887	137	1,050	15	785	6	3,922
1993	53	0	1,343	55	532	6	307	2	2,298
1994	49	2	542	61	425	10	44	8	1,142
1995	28	1	678	200	162	75	94	146	1,384
1996	45	0	684	35	1,261	26	624	83	2,758

Table continues

Table 5 (cont). Hatchery and wild spring Chinook capture at the Pelton Trap (Round Butte Hatchery) and Warm Springs National Fish Hatchery Trap, by year.

	Pelton Trap				Warm Springs National				
	Wild a/		Hatchery b/		Wild c/		Hatchery c/		
Year	Adult	Jack	Adult	Jack	Adult	Jack	Adult	Jack	Total
1997	89	1	784	32	861	9	1,072	66	2,914
1998	16	1	290	52	248	23	536	118	1,283
1999	21	0	926	83	366	127	1,881	889	4,293
2000	57	19	469	200	2,623	82	6,567	207	10,195
2001	87	7	2,272	1,395	2,155	97	3,659	807	10,479
2002	50	0	4,300	287	1,440	52	5,020	321	11,470
2003	37	3	3,432	24	1,400	119	5,469	551	11,035
2004	19	0	359	234	2,351	78	3,263	125	6,402

a/ Adult/jack determination by length. Adults are greater than 60 cm fork length.
b/ Adult/jack determination by fin mark and length.
c/ Adult/jack determination by scale analysis/CWT returns

Table 6. Wild spring Chinook redd counts in index areas Warm Springs River basin, by year. Adult and jack numbers determined by length frequency and scale analysis. This age breakdown may be different than the hatchery record of jack and adult numbers based solely on length.

Year	Run to WSNFH		Passed Upstream		Total Redds	Fish/ Redd	Adults/ Redd
	Adults	Jacks	Adults	Jacks			
1982	1408	46	1587 a/	46	421	3.9	3.8
1983	1523	18	1251	34	433	3.0	2.9
1984	1192	98	1322 a/	164	415	3.6	3.2
1985	1099	56	1264 a/	56	377	3.5	3.4
1986	1656	55	1211	55	417	3.0	2.9
1987	1697	86	1550	86	478	3.4	3.2
1988	1578	69	1259	69	396	3.4	3.2
1989	1344	65	1254	65	407	3.2	3.1
1990	1821	46	1721	46	535	3.3	3.2
1991	777	40	777	40	242	3.4	3.2
1992	1050	15	959	14	161	6.0	6.0
1993	532	6	528	6	142	3.8	3.7
1994	425	10	425	10	157	2.8	2.7
1995	162	75	160	75	62	3.8	2.6
1996	1261	26	1222	23	303	4.1	4.0
1997	861	9	859	9	352	2.5	2.4
1998	248	23	262 b/	29 c/	122 d/	2.4	2.1
1999	366	127	365 e/	126 f/	121	4.1	3.0
2000 g/	2,623	82	2,551	79	658	4.0	3.9
2001	2,155	97	2,154	97	751	3.0	2.9
2002	1,440	52	1,440	52	221	6.8	6.5
2003	1,400	119	1,359	117	262	5.6	5.2
2004	2,351	78	2,320	65	428	5.6	5.4

a/ Includes some hatchery origin spring Chinook passed upstream.
b/ Includes 15 hatchery origin adults
c/ Includes 6 hatchery origin jacks
d/ Includes 2 redds below WSNFH
e/ Includes 26 hatchery origin adults upstream
f/ Includes 6 hatchery origin jacks upstream
g/ Does not include 285 hatchery adults and jacks upstream

Table 7. Expanded statistical sport harvest estimates of spring Chinook (April 16 – June 15) at Sherars Falls, Deschutes River, by year. Data does not include released fish. In years where zeroes appear no sport fishery was allowed.

			Wild		Hatchery		
Year	Anglers/Fishers	Hours	Adult	Jack	Adult	Jack	Fish Per Hour
1980	2,481	13,845	298	39	8	52	0.03
1981	0	0	0	0	0	0	
1982	4,093	20,894	445	57	429	106	0.05
1983	3,148	16,487	303	52	242	51	0.04
1984	0	0	0	0	0	0	
1985	4,193	22,321	652	53	720	208	0.07
1986	1,184	7,705	113	9	111	73	0.04
1987	3,790	22,916	466	35	549	210	0.05
1988	4,087	19,603	566	63	975	336	0.10
1989	3,768	16,456	497	22	1,283	313	0.13
1990	6,046	30,861	725	50	1,169	113	0.07
1991	5,926	26,453	441	44	1,206	387	0.08
1992	5,458	24,429	548	16	1,472	80	0.09
1993	5,206	22,378	222	29	565	55	0.04
1994	0	0	0	0	0	0	
1995	0	0	0	0	0	0	
1996	2,495	14,128	2	0	304	39	0.02
1997	0	0	0	0	0	0	
1998	0	0	0	0	0	0	
1999	0	0	0	0	0	0	
2000	6160	36,558	8	6	2,454	348	0.08
2001	4998	24,493	0	5	1,550	941	0.10
2002	6254	20,590	3	0	2,101	207	0.11
2003	3,912	20,857	0	0	1,339	72	0.07
2004	4,540	19,021	0	0	1,005	197	0.06

Table 8. Expanded statistical Tribal harvest estimates of spring Chinook (April 16 – June 15) at Sherars Falls, Deschutes River, by year. The estimates include dipnet, hook and line, and snagging (1987 snagging only). Does not include released fish. In years where zeroes appear no Tribal fishery was allowed.

			Wild		Hatchery		
Year	Anglers/Fishers	Hours	Adult	Jack	Adult	Jack	Fish Per Hour
1980	393	958	113	0	0	0	0.12
1981	0	0	0	0	0	0	
1982	332	744	197	4	126	12	0.46
1983	585	1,599	188	2	106	19	0.20
1984	0	0	0	0	0	0	
1985	320	1,862	126	5	125	29	0.15
1986	145	1,327	22	0	27	8	0.04
1987	441	2,524	397	11	321	52	0.31
1988	402	2,549	228	13	280	65	0.23
1989	309	1,579	240	25	457	32	0.48
1990	497	2,407	291	6	406	19	0.30
1991	399	2,092	99	12	216	69	0.19
1992	393	2,321	140	2	374	6	0.22
1993	211	1,023	122	4	191	4	0.31
1994	0	0	0	0	0	0	
1995	95	442	3	1	35	0	0.09
1996	296	1,431	57	0	130	6	0.13
1997	0	0	0	0	0	0	
1998	203	1,067	45	0	53	0	0.09
1999	30	252	0	0	8	11	0.08
2000	463	2,428	299	27	491	72	0.37
2001	323	1,498	169	1	352	31	0.37
2002	254	1,228	179	5	703	12	0.73
2003	342	1,707	7	0	316	4	0.19
2004	389	1573	202	8	156	10	0.24

Table 9. Powerdale Dam adult fish trap unmarked and marked spring Chinook catch. Data may not coincide with final scale verified data summary. Cumulative counts (shown in parentheses). Mini-jacks not included in totals. * Run year not complete.

	Month							
Run Year	March	April	May	June	July	August	Sept	October
2004	0 (0)	5 (5)	124 (129)	221 (350)	54 (404)	27 (431)	7 (438)	0 (438)
2003	0 (0)	1 (1)	279 (280)	117 (397)	17 (414)	3 (417)	5 (422)	0 (422)
2002	0 (0)	0 (0)	348 (348)	657 (1005)	111 (1116)	22 (1138)	5 (1143)	0 (1143)
2001	0 (0)	24 (24)	681 (705)	270 (975)	83 (1058)	36 (1094)	18 (1112)	0 (1112)
2000	0 (0)	1 (1)	76 (77)	91 (168)	8 (176)	13 (189)	11 (200)	0 (200)
1999	0 (0)	0 (0)	20 (20)	46 (66)	23 (89)	18 (107)	14 (121)	0 (121)
1998	0 (0)	0 (0)	14 (14)	39 (53)	17 (70)	4 (74)	24 (98)	3 (101)
1997	0 (0)	0 (0)	49 (49)	227 (276)	59 (335)	31 (366)	0 (366)	0 (366)
1996	0 (0)	0 (0)	9 (9)	70 (79)	20 (99)	18 (117)	2 (119)	0 (119)
1995	0 (0)	0 (0)	8 (8)	50 (58)	24 (82)	4 (86)	6 (92)	0 (92)
1994	0 (0)	6 (6)	206 (212)	37 (249)	39 (288)	7 (295)	15 (310)	0 (310)
1993	0 (0)	1 (1)	240 (241)	153 (394)	87 (481)	22 (503)	7 (510)	0 (510)
1992	0 (0)	12 (12)	244 (256)	157 (413)	27 (440)	7 (447)	5 (452)	1 (453)

Table 10. Bi-monthly counts of upstream migrant spring Chinook (adults and jacks, excluding minijacks) salmon at Powerdale Dam, by run year.

Origin, Run Year	April		May		June		July		August		September		October		Total
	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-31	01-15	16-30	01-15	16-31	
Natural,															
1992	0	0	1	8	5	11	4	4	0	0	0	1	0	0	34
1993	0	0	1	4	3	9	6	8	2	6	2	0	0	0	41
1994	0	0	1	5	0	1	3	8	1	2	0	12	0	0	33
1995	0	0	0	2	4	2	4	4	0	0	1	1	0	0	18
1996	0	0	1	7	50	4	9	3	8	6	1	0	0	0	89
1997	0	0	1	8	29	14	5	12	10	1	0	0	1	0	81
1998	0	0	3	7	18	9	7	7	4	2	6	16	3	0	82
1999	0	0	0	0	1	4	4	1	1	1	4	7	0	0	23
2000	0	0	3	10	6	13	9	2	0	12	5	4	0	0	64
2001	0	0	1	13	6	1	2	5	2	3	5	3	0	0	41
2002	0	0	0	5	6	13	9	14	12	6	5	0	0	0	70
2003	0	1	9	15	17	9	17	15	2	0	2	1	0	0	88
2004	0	3	10	14	9	23	6	16	13	5	6	27	4	0	136
Subbasin Hatchery,															
1992	0	9	77	145	75	63	15	4	4	1	2	2	1	0	398
1993	0	1	25	206	89	51	51	17	5	9	5	0	0	0	459
1994	0	6	34	166	28	7	4	17	1	0	1	1	0	0	265
1995	0	0		6	28	10	9	1	0	1	1	0	0	0	54
1996	0	0	0	0	10	4	1	0	0	0	0	0	0	0	15
1997	0	0	1	33	107	65	34	6	15	8	0	0	0	0	269
1998	0	0	1	1	10	1	2	0	0	0	0	0	0	0	15
1999	0	0	0	20	30	11	8	6	4	6	2	0	0	0	87
2000	0	1	6	58	58	19	4	0	0	2	0	0	0	0	148
2001	0	23	76	595	193	70	67	6	7	10	3	0	0	0	1,050
2002	0	0	50	276	417	210	63	14	5	1	3	0	0	0	1,039
2003	0	0	92	145	58	12	11	1	1	2	1	1	0	0	324
2004	0	4	36	48	89	56	6	7	1	10	3	0	0	0	260

Table continues

Table 10 (cont). Bi-monthly counts of upstream migrant spring Chinook salmon (adults and jacks, excluding minijacks) at Powerdale Dam, by run year.

Origin,	April		May		June		July		August		September		October		
Run Year	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-31	01-15	16-30	01-15	16-31	Total
Stray Hatchery,															
1992	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
1993	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
1994	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0	1	1	1	0	0	3
1996	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
1997	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1998	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
1999	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2000	0	0	0	1	0	2	0	0	0	0	0	0	0	0	3
2001	0	1	2	1	1	0	1	2	3	1	0	0	0	0	12
2002	0	0	0	0	8	0	2	2	1	0	0	0	0	0	13
2003	0	0	5	9	5	4	5	2	0	0	0	0	0	0	30
2004	0	0	2	3	5	0	0	0	0	0	0	0	0	0	10
Unknown,															
1992	0	3	5	8	3	1	0	0	1	0	0	0	0	0	21
1993	0	0	0	5	0	0	2	1	0	0	0	0	0	0	8
1994	0	0	1	1	0	1	0	0	0	0	0	1	0	0	4
1995	0	0	0	0	0	1	1	1	0	3	0	2	0	0	13
1996	0	0	0	1	8	5	5	1	1	3	1	0	0	0	25
1997	0	0	0	5	9	3	1	2	3	0	0	0	0	0	23
1998	0	0	0	1	0	1	0	2	0	0	0	2	1	0	7
1999	0	0	0	0	0	0	0	2	0	4	1	0	0	0	7
2000	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
2001	0	0	0	5	0	1	1	2	3	9	6	1	0	0	28
2002	0	0	0	3	3	0	3	3	1	3	0	0	0	0	16
2003	0	0	4	6	8	3	4	3	1	1	0	1	0	0	31
2004	0	0	5	9	17	22	12	3	3	6	2	3	0	1	83

Table 11. Spring Chinook salmon escapements to the Powerdale Dam trap by origin, run year, and age category. Fish of unknown origin were allocated to origin categories based on scale analysis and the ratio of fish of known origin. Total escapement shown excludes minijacks (age 2.2).

Origin, Stock, Run Year	Total Adult Escapement	Freshwater.Total Age									
		1.2	1.3	1.4	1.5	2.2	2.3	2.4	2.5	2.6	3.5
Natural,											
Hood River, a/											
1992	35	0	1	22	1	0	0	8	3	0	0
1993	42	0	1	15	10	1	0	8	8	0	0
1994	34	1	2	14	5	0	0	5	6	1	0
1995	20	0	4	1	4	0	0	2	9	0	0
1996	97	1	4	7	0	0	0	83	1	0	1
1997	73	0	0	6	1	13	1	24	41	0	0
1998	81	0	11	14	1	5	1	16	37	1	0
1999	24	0	2	5	3	1	3	9	2	0	0
2000	66	0	6	3	0	3	0	54	3	0	0
2001	45	1	6	3	0	1	2	21	12	0	0
2002	63	1	1	8	3	0	1	41	18	0	0
2003	97	0	2	4	0	2	11	31	49	0	0
2004	144	0	1	36	6	7	13	74	11	3	0
Subbasin hatchery,											
Carson,											
1992	417	–	–	–	–	0	3	396	18	0	–
1993	461	–	–	–	–	–	15	213	233	0	–
1994	261	–	–	–	–	–	–	244	17	0	–
1995	36	–	–	–	–	–	–	–	35	1	–
Deschutes, d/											
1993	0	–	–	–	–	4	–	–	–	0	–
1994	5	–	–	–	–	b/	5	–	–	0	–
1995	31	–	–	–	–	4	b/	27	–	0	–
1996	17	–	–	–	–	0	15	b/	2	0	–
1997	281	–	–	–	–	11	1	280	–	0	–
1998	17	–	–	–	–	14	1	12	3	0	–
1999	93	–	–	–	–	182	5	88	0	0	–
2000	148	–	–	–	–	916	128	18	2	0	–
2001	1,056	–	–	–	–	32	496	560	0	0	–
2002	1,054	–	–	–	–	2	24	1,009	19	0	--
2003	346	–	–	–	–	14	15	197	133	1	--
2004	334	-	-	-	-	168	182	138	14	0	--

Table continues

Table 11 (cont.). Spring Chinook salmon escapements to the Powerdale Dam trap by origin, run year, and age category, Fish of unknown origin were allocated to origin categories based on scale analysis and the ratio of fish of known origin. Total escapement shown excludes minijacks (age 2.2).

Origin, Stock, Run Year	Total Adult Escapement	Freshwater.Total Age									
		1.2	1.3	1.4	1.5	2.2	2.3	2.4	2.5	2.6	3.5
Stray hatchery, Unknown,											
1992	1	–	–	1	0	0	0	0	–	–	–
1993	2	–	–	2	0	0	0	–	–	–	–
1994	0	–	–	0	0	10	0	–	–	–	–
1995	5	–	–	0	0	0	3	1	1	–	–
1996	16	–	–	2	1	0	0	13	0	–	–
1997	6	–	–	0	0	0	1	0	6	–	–
1998	3	–	1	0	0	0	1	1	0	–	–
1999	1	–	–	0	0	6	0	0	1	–	–
2000	3	–	–	0	0	4	1	2		–	–
2001	30	–	–	0	0	52	5	21	4	–	–
2002	23	–	–	0	0	10	2	6	5	–	–
2003	30	–	–	0	0	0	5	21	4	--	–
2004	28	-	1	0	0	17	5	5	0	0	--

a/ Developed from Deschutes and Carson stock hatchery production releases.
b/ Hatchery returns in this age category would be progeny of 1992 brood. No hatchery fish were released into the Hood River subbasin from this brood.
c/ Data analysis incomplete.
d/ Hood River returns were used, at least in part, as broodstock some years.

Table 12. Estimated harvest of natural and Hood River hatchery origin (as determined by CWT analysis) adult and jack spring Chinook from April 1 to September 15, in the Hood River sport fishery, by year. Estimates from Hood River Production Project statistical harvest sample. Does not include released fish. In years where no spring Chinook fishery occurred zeroes are in place for anglers and angler hours.

			Naturally Produced		Hatchery Origin	
Year	Anglers	Hours	Adult	Jack	Adults	Jacks
1996	5,712	16,273	45	7	5	7
1997	5,071	11,943	40	0	25	3
1998	3,940	9,554	8		3	8
1999 a/	0	0	0	0	0	0
2000 b/	4,737	12,029	8	0	0	20
2001 c/	4,369	11,481	0	4	23	31
2002 d/	5,500	13,326	0	0	279	10
2003 e/	0	0	0	0	0	0
2004 f/	0	0	0	0	0	0

Table 13. Pelton Trap adult wild fall Chinook capture, by month, by run year. Cumulative run year total (shown in parentheses).

	Month							
Run Year	June	July	August	September	October	November	December	January
2004	0 (0)	2 (2)	2 (4)	3 (7)	71 (78)	118 (196)	22 (216)	2 (218)
2003	0 (0)	14 (14)	7 (21)	2 (23)	40 (63)	45 (108)	46 (154)	16 (170)
2002	1 (1)	21 (22)	2 (24)	18 (42)	60 (102)	88 (190)	39 (229)	2 (231)
2001	-- --	12 (12)	7 (19)	8 (27)	31 (58)	69 (127)	22 (149)	0 (149)
2000	-- --	1 (1)	3 (4)	2 (6)	30 (36)	33 (69)	11 (80)	0 (80)
1999	-- --	1 (1)	2 (3)	4 (7)	25 (32)	30 (62)	18 (80)	0 (80)
5-Year Average	-- --	10 (10)	4 (14)	7 (20)	37 (58)	53 (111)	27 (138)	4 (132)

Cumulative disposition of adults and jacks, current run year:
Tribes or foodbank =
Released into river = all not DOA
Dead / killed = 1

Table 14. Pelton Trap wild jack fall Chinook capture, by month, by run year.

Cumulative run year total (shown in parentheses).

	Month						
Run Year	June	July	August	September	October	November	Decemb
2004	0 (0)	0 (0)	0 (0)	1 (1)	26 (27)	54 (69)	10 (79)
2003	0 (0)	0 (0)	0 (0)	0 (0)	6 (6)	23 (29)	36 (65)
2002	1 (1)	21 (22)	2 (24)	18 (42)	60 (102)	88 (190)	39 (229)
2001	-- --	0 (0)	0 (0)	6 (6)	37 (43)	139 (182)	36 (218)
2000	-- --	0 (0)	0 (0)	1 (1)	45 (46)	102 (147)	11 (158)
1999	-- --	2 (2)	0 (2)	1 (3)	17 (20)	47 (67)	24 (91)
5-Year Average	-- --	5 (5)	0 (5)	5 (10)	33 (43)	80 (123)	29 (152)

Cumulative disposition of adults and jacks, current run year:
Tribes or foodbank =
Released into river = all not DOA
Dead / killed = 13

Table 15. Deschutes River expanded sport harvest data on wild fall Chinook at Sherars Falls (June 16– October 31) by year. Does not include released fish or hatchery fish. In years where zeroes appear no sport fishery was allowed.

Year	Anglers/ Fishers	Hours	Adult	Jack	Adult Per Hour
1980	4,120	21,171	277	908	0.01
1981	4,869	22,837	355	684	0.02
1982	5,247	26,061	474	930	0.02
1983	3,906	19,411	264	290	0.01
1984	3,522	17,503	172	581	0.01
1985	4,423	20,262	145	638	0.01
1986	4,447	20,240	215	1,077	0.01
1987	4,607	20,528	408	186	0.02
1988	3,726	19,514	407	183	0.02
1989	4,152	17,737	292	82	0.02
1990	3,130	11,837	152	89	0.01
1991	890	3,833	66	41	0.02
1992	0	0	0	0	0.00
1993	0	0	0	0	0.00
1994	0	0	0	0	0.00
1995	0	0	0	0	0.00
1996	0	0	0	0	0.00
1997	0	0	0	0	0.00
1998	2,110	11,738	139	49	0.01
1999	1,592	11,139	127	56	0.01
2000	2,956	14,153	118	96	0.01
2001	0	0	0	0	0.00
2002	5,079	15,640	283	74	0.02
2003	2,439	10,943	175	57	0.02
2004	2,759	12,287	219	3	0.02

Table 16. Deschutes River expanded Tribal harvest data on wild fall Chinook at Sherars Falls (June 16– October 31) by year. Does not include released fish, hatchery fish, snagged fish by tribal fishers, or tribal fishers leaving before sampling begins (0700 hours). Data is Tribal dipnet and hook and line fishery combined.

Year	Anglers/ Fishers	Hours	Adult	Jack	Adult ChF Per Hour
1981	605	5025	1,389	364	0.28
1982	516	4628	1,425	364	0.31
1983	953	5131	1,160	369	0.23
1984	714	6277	786	417	0.13
1985	710	6126	656	789	0.11
1986	523	5848	923	344	0.16
1987	724	4736	1,622	56	0.34
1988	744	5978	1,824	60	0.31
1989	973	6347	1,385	61	0.22
1990	548	3929	744	29	0.19
1991	174	931	88	7	0.09
1992	36	332	37	4	0.11
1993	64	246	11	0	0.04
1994	81	401	70	4	0.17
1995	114	425	33	16	0.08
1996	80	355	78	6	0.22
1997	238	1001	202	8	0.20
1998	303	1142	332	27	0.29
1999	275	1451	236	20	0.16
2000	303	1225	272	10	0.22
2001	261	1106	334	26	0.30
2002	345	1984	692	1	0.35
2003	411	1809	762	15	0.42
2004	478	1918	771	49	0.40

Table 17. Number of wild fall Chinook adults (> 54 cm) captured at the Sherars Falls Trap, by two week period, by year.

	June	July		August		September		October		
Year	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	Total
1977	14	27	115	177	60	48	304	73	38	856
1978	17	17	69	87	94	137	314	271	35	1,041
1979	7	19	25	42	14	66	291	97	24	589
1980	10	10	11	13	20	81	89	157	29	420
1981	1	12	17	28	48	152	122	118	28	526
1982	-	3	10	11	69	57	64	49	20	283
1983	-	-	-	5	24	41	39	96	23	228
1984	-	-	1	3	14	4	9	7	2	40
1985	-	-	10	13	23	23	20	28	0	117
1986	-	-	20	30	24	26	32	51	15	198
1987	-	-	-	21	38	70	68	90	15	302
1988	0	16	13	16	20	57	140	57	9	328
1989	9	14	9	10	15	17	30	64	37	205
1990	8	6	10	7	7	15	20	15	32	120
1991	3	6	5	8	11	20	16	8	7	84
1992	8	2	5	4	11	15	61	32	22	160
1993	1	8	8	5	7	8	18	56	12	123
1994	-	0	0	7	2	6	27	20	22	82
1995	1	2	7	5	9	22	55	60	40	201
1996	-	-	14	15	22	75	50	196	16	388
1997	-	-	15	12	27	71	125	51	16	317
1998	0	12	5	10	32	79	88	69	12	307
1999	-	-	-	4	14	14	107	61	36	236
2000	0	4	2	9	25	30	128	81	25	304
2001	3	10	7	26	30	106	128	143	55	508
2002	2	12	16	9	29	37	169	144	48	459
2003	4	8	4	11	19	75	227	196	103	647
2004	1	8	11	4	11	38	172	226	93	564

Table 18. Catch rate (fish/hour) of wild fall Chinook adults (>54 cm) at the Sherars Falls trap, by period, by year.

	June	July		August		September		October		
Year	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	Average
1977	0.57	0.38	1.76	2.19	1.27	1.19	4.15	4.20	1.78	1.94
1978	0.30	0.34	0.82	0.69	0.66	0.75	2.65	2.49	0.58	1.28
1979	0.10	0.19	0.25	0.41	0.24	0.91	2.97	1.09	0.29	0.76
1980	0.12	0.16	0.10	0.15	0.27	0.96	0.87	1.74	0.36	0.54
1981	0.02	0.14	0.20	0.39	0.52	1.65	1.99	1.18	0.44	0.76
1982	-	0.09	0.24	0.21	0.81	0.78	0.93	0.59	0.30	0.56
1983	-	-	-	0.11	0.28	0.59	0.56	1.49	0.43	0.59
1984	-	-	0.10	0.04	0.20	0.08	0.19	0.16	0.04	0.12
1985	-	-	0.16	0.15	0.28	0.28	0.31	0.36	0.00	0.25
1986	-	-	0.18	0.37	0.28	0.26	0.42	0.52	0.15	0.31
1987	-	-	-	0.38	0.56	0.97	0.89	1.38	0.33	0.79
1988	0.00	0.22	0.17	0.19	0.24	0.82	1.41	1.15	0.16	0.52
1989	0.12	0.22	0.11	0.15	0.17	0.20	0.36	0.93	0.42	0.29
1990	0.10	0.08	0.11	0.10	0.10	0.21	0.22	0.18	0.34	0.16
1991	0.05	0.08	0.06	0.12	0.15	0.27	0.17	0.10	0.08	0.12
1992	0.11	0.03	0.06	0.05	0.15	0.20	0.71	0.30	0.28	0.23
1993	0.01	0.11	0.11	0.07	0.07	0.11	0.21	0.84	0.20	0.18
1994	-	0.00	0.00	0.09	0.03	0.03	0.34	0.26	0.26	0.15
1995	0.02	0.05	0.08	0.06	0.10	0.31	0.60	0.81	0.51	0.30
1996	-	-	0.16	0.20	0.29	0.84	0.87	2.20	0.23	0.72
1997	-	-	0.17	0.18	0.38	0.85	1.53	0.70	0.26	0.60
1998	0.00	0.18	0.08	0.16	0.43	1.07	0.78	0.72	0.17	0.50
1999	-	-	-	0.09	0.17	0.17	0.91	1.01	0.36	0.49
2000	0.00	0.10	0.03	0.11	0.29	0.46	1.77	1.17	0.31	0.53
2001	0.12	0.13	0.11	0.37	0.36	1.47	1.66	2.18	0.87	0.85
2002	0.28	0.23	0.26	0.09	0.38	0.52	1.81	1.96	0.67	0.77
2003	0.07	0.19	0.06	0.14	0.34	0.85	2.79	2.83	1.14	1.03
2004	0.02	0.12	0.14	0.04	0.06	0.50	1.40	2.71	1.17	0.68

Table 19. Number of wild fall Chinook jacks (< 54 cm) captured at the Sherars Falls Trap, by two-week period, by year.

	June	July		August		September		October		
Year	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	Total
1977	1	4	9	22	19	48	150	17	11	281
1978	1	0	3	9	12	18	101	135	16	295
1979	1	1	14	28	8	67	277	122	5	523
1980	0	1	10	9	17	60	110	173	9	389
1981	1	4	11	14	32	116	171	79	19	477
1982	-	0	0	1	19	22	31	28	9	110
1983	-	-	-	0	5	5	14	30	4	58
1984	-	-	0	0	2	5	1	4	2	14
1985	-	-	1	4	7	15	14	45	1	87
1986	-	-	6	5	5	16	13	20	3	68
1987	-	-	-	15	19	47	37	36	3	157
1988	0	2	3	6	22	49	92	42	6	222
1989	1	1	8	4	12	5	16	38	35	120
1990	0	1	1	7	2	12	14	15	19	71
1991	0	2	0	3	12	27	38	26	16	124
1992	2	0	3	1	2	5	18	30	20	81
1993	0	0	0	0	1	8	15	11	3	38
1994	-	0	0	4	3	17	16	18	12	70
1995	0	1	1	3	5	15	37	48	39	149
1996	-	-	1	2	2	5	9	23	0	42
1997	-	-	0	0	1	4	12	4	2	23
1998	0	0	0	2	1	13	42	18	4	80
1999	-	-	-	1	8	6	25	29	22	91
2000	0	0	0	5	7	15	59	40	8	134
2001	0	3	0	8	19	29	76	70	33	238
2002	0	0	1	2	1	6	35	27	12	84
2003	0	0	0	3	1	12	35	62	66	177
2004	1	0	3	1	2	5	31	46	9	98

Table 20. Catch rate (fish/hour) of wild fall Chinook jacks (< 54 cm) at the Sherars Falls Trap, by two-week period, by year.

	June	July		August		September		October		
Year	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	Average
1977	0.04	0.06	0.14	0.27	0.40	1.19	2.05	0.98	0.52	0.64
1978	0.02	0.04	0.04	0.07	0.08	0.17	1.25	1.24	0.15	0.36
1979	0.01	0.01	0.14	0.27	0.14	0.93	2.83	1.37	0.06	0.68
1980	0.00	0.02	0.09	0.11	0.23	0.71	1.08	1.92	0.11	0.50
1981	0.02	0.05	0.13	0.20	0.34	1.26	2.79	0.76	0.30	0.64
1982	-	0.00	0.00	0.02	0.22	0.30	0.45	0.34	0.14	0.22
1983	-	-	-	0.00	0.06	0.07	0.20	0.47	0.07	0.15
1984	-	-	0.00	0.00	0.03	0.09	0.02	0.09	0.04	0.04
1985	-	-	0.02	0.07	0.08	0.19	0.22	0.58	0.05	0.18
1986	-	-	0.06	0.06	0.06	0.16	0.17	0.20	0.03	0.11
1987	-	-	-	0.27	0.28	0.65	0.48	0.55	0.07	0.41
1988	0.00	0.03	0.04	0.07	0.26	0.71	0.93	0.85	0.11	0.35
1989	0.01	0.02	0.10	0.06	0.13	0.06	0.19	0.55	0.40	0.17
1990	0.00	0.01	0.01	0.10	0.03	0.17	0.15	0.18	0.20	0.10
1991	0.00	0.01	0.00	0.04	0.16	0.37	0.41	0.31	0.19	0.18
1992	0.03	0.00	0.04	0.01	0.03	0.07	0.21	0.28	0.26	0.12
1993	0.00	0.00	0.00	0.00	0.01	0.11	0.17	0.17	0.05	0.06
1994	-	0.00	0.00	0.05	0.04	0.28	0.20	0.23	0.16	0.13
1995	0.00	0.02	0.01	0.04	0.06	0.21	0.41	0.65	0.50	0.22
1996	-	-	0.01	0.03	0.03	0.06	0.16	0.26	0.00	0.08
1997	-	-	0.00	0.00	0.01	0.05	0.16	0.06	0.03	0.04
1998	0.00	0.00	0.00	0.03	0.01	0.18	0.37	0.19	0.06	0.13
1999	-	-	-	0.02	0.10	0.07	0.21	0.48	0.22	0.19
2000	0.00	0.00	0.00	0.06	0.08	0.23	0.81	0.58	0.10	0.23
2001	0.00	0.04	0.00	0.12	0.23	0.40	0.99	1.07	0.52	0.40
2002	0.00	0.00	0.02	0.02	0.01	0.10	0.41	0.37	0.21	0.14
2003	0.00	0.00	0.00	0.04	0.02	0.14	0.39	0.90	0.73	0.28
2004	0.02	0.00	0.04	0.01	0.02	0.07	0.25	0.55	0.11	0.12

Table 21. Estimated escapement of adult (≥54 cm) and jack (<54 cm) fall Chinook salmon in the Deschutes River above Sherars Falls, by year.

Year	Age	Population estimate (95% C.I.)		Tagged	Examined For Tags	Recaptured
1977	Adults	3,927	(3,277-4,705)	811	560	115
	Jacks	1,482	(890-2,626)	272	75	13
1978	Adults	3,564	(3,177-4,706)	992	760	211
	Jacks	2,323	(1,462-3,871)	320	122	16
1979	Adults	2,308	(1,919-2,774)	567	454	111
	Jacks	3,042	(2,062-4,680)	489	148	23
1980	Adults	2,009	(1,640-2,461)	427	431	91
	Jacks	1,505	(1,003-2,366)	398	82	21
1981	Adults	2,495	(2,104-2,959)	542	601	130
	Jacks	2,922	(1,812-4,973)	440	105	15
1982	Adults	3,820	(2,940-4,957)	286	731	54
	Jacks	2,625	(1,071-6,563)	99	104	3
1983	Adults	3,152	(2,265-4,522)	228	467	33
	Jacks	738	(301-1,844)	58	49	3
1984	Adults	1,582	(785-3,460)	48	225	6
	Jacks	966	a/	14	43	0
1985	Adults	1,576	(1,060-2,449)	113	317	23
	Jacks	3,208	a/	82	120	2
1986	Adults	3,137	(2,231-4,563)	197	506	31
	Jacks	4,846	a/	66	178	2
1987	Adults	3,201	(2,406-4,357)	302	485	45
	Jacks	1,184	(634-3,133)	158	66	8
1988	Adults	2,477	(1,735-3,487)	324	220	28
	Jacks	1,305	b/	218	12	2
1989 c/	Adults	1,252	(911-1,782)	204	225	36
	Jacks	375	(244-570)	120	61	19
1990 c/	Adults	1,101	(674-1,771)	117	139	14
	Jacks	360	(199-670)	71	39	7
1991 c/	Adults	983	(542-1,718)	83	116	9
	Jacks	486	(277-1,082)	114	37	8
1992 c/	Adults	670	(441-1,010)	159	87	20
	Jacks	599	(265-1,180)	80	36	4

Table continues

Table 21 (cont). Estimated escapement of adult (≥54 cm) and jack (<54 cm) fall Chinook salmon in the Deschutes River above Sherars Falls, by year.

Year	Age	Population estimate (95% C.I.)		Tagged	Examined For Tags	Recaptured
1993 c/	Adults	1,035	(600-1,742)	122	100	11
	Jacks d/	--		38	5	0
1994 c/	Adults	410	(261-637)	82	88	17
	Jacks	1,073	(515-1,913)	69	137	8
1995 c/	Adults	1,072	(574-1,914)	200	47	8
	Jacks	1,006	(409-2,012)	148	26	3
1996 c/	Adults	2,328	(1,466-3,651)	387	101	16
	Jacks	453	(164-889)	39	33	2
1997 c/	Adults	3,764	(2,338-5,975)	316	189	15
	Jacks	183	(66-362)	24	21	2
1998 c/	Adults	4,094	(2,972-4,659)	303	201	14
	Jacks	2,608	(1,884-4,025)	79	162	4
1999 c/	Adults	1,888	(1,265-2,798)	230	187	22
	Jacks	1,185	(576-1,761)	91	102	7
2000 c/	Adults	1,875	(1,473-2,385)	300	404	64
	Jacks	3,954	(1,961-7,420)	134	204	6
2001 c/	Adults	4,278	(3,391-5,377)	467	648	70
	Jacks	4,043	(2,791-5,828)	382	284	26
2002 c/	Adults	3,940	(3,160-4,908)	459	667	77
	Jacks	1,169	(647-2,135)	84	109	7
2003	Adults	3,884	(3,300-4,569)	647	862	143
	Jacks	1,007	(650-1,547)	173	109	18
2004	Adults	2,991	(2,449-3,651)	555	510	94
	Jacks	999	(591-1,664)	111	115	12

a/ Estimated by relationship between number of carcasses examined for tags and escapement, 1977-83. Insufficient number recaptured to use Petersen estimate.

b/ Estimated by relationship between Pelton trap count, July-December, and escapement of jack fall Chinook salmon above Sherars Falls, 1977-86. Insufficient number of recaptures to use Petersen estimate. 95% CI not possible.

c/ Calculated using combined Pelton Trap and carcass recovery examined for tags and recaptured.

d/ No jack estimate possible due to insufficient recaptures of tagged fish

Table 22. Deschutes River helicopter fall Chinook redd counts by year.

Year	Remarks	Miles Surveyed	Redds	Redds / Mile	
				Year Average	Previous 5-Year Average
1974	A	25.5	716	28.1	
1975	B	25.5	926	36.3	
1976	A	25.5	1,139	44.7	
1978	B	25.5	366	14.4	
1979	C	25.5	650	25.5	
1980	C	25.5	787	30.9	29.8
1981	C	25.5	538	21.1	30.3
1982					
1983	A	25.5	229	9.0	27.2
1984					
1985	A	25.5	285	11.2	20.2
1986	B	25.5	229	9.0	19.5
1987					
1988	A	25.5	236	9.3	16.2
1989	D	100.0	682		
1989	A	25.5	324	12.7	11.9
1990	C	100.0	204		
1990	D	25.5	101	4.0	10.2
1991	A	100.0	194		
1991	A	25.5	98	3.8	9.2
1992	A	100.0	431		
1992	A	25.5	242	9.5	7.7
1993	A	100.0	732		
1993	A	25.5	332	13.0	7.9
1994	A	100.0	785		
1994	A	25.5	302	11.8	8.6
1995	A	100.0	453		
1995	A	25.5	179	7.0	8.4
1996	B	100.0	399		
1996	B	25.5	190	7.5	9.0

(Table continues)

Table 22 (cont.). Deschutes River helicopter fall Chinook redd counts by year.

Year	Remarks	Miles Surveyed	Redds	Redds / Mile	
				Year Average	Previous 5-Year Average
1997	A	100.0	1,725		
1997	A	25.5	728	28.6	13.6
1998	B	100.0	443		
1998	B	25.5	212	8.3	12.6
1999	A	100.0	318		
1999	A	25.5	126	4.9	11.3
2000	A	100.0	499		
2000	A	25.5	274	10.8	12.0
2001	A	100.0	1,194		
2001	A	25.5	697	27.3	16.0
2002	A	100.0	1,418		
2002	A	25.5	798	31.3	16.4
2003	B	100.0	1,047		
2003	B	25.5	451	17.7	
2004	C	100	1,672		

A = October – November counts combined,
B = October counts only,
C = November counts only,
D = Total count – November only

Table 23. Deschutes River fall Chinook redd counts above and below Sherars Falls and percent of the total redd count, by year. Counts are combined October and November counts unless noted.

	Above Sherars Falls		Below Sherars Falls	
Year	57 Miles	Percent	43 Miles	Percent
1989 a/	179	26.3	503	73.8
1990 a/	101	49.5	103	50.5
1991	54	27.8	140	72.2
1992	104	24.1	327	75.9
1993	92	12.6	640	87.4
1994	59	7.5	726	92.5
1995	64	14.1	389	85.9
1996 b/	106	26.6	293	73.4
1997	314	18.2	1,411	81.8
1998 b/	166	37.5	277	62.5
1999	92	29.9	216	70.1
2000	235	47.1	264	52.9
2001	457	38.5	737	61.7
2002	456	32.2	962	67.3
2003 b/	323	30.9	724	69.1
2004	421	25.2	1,251	74.8

a/ November count only.
b/ October count only.

Table 24. Run size of adult fall Chinook salmon in the Deschutes River, by year.

Year	Harvest	Escapement	Run
1977	1,861	5,631	7,492
1978	1,971	4,154	6,125
1979	1,592	3,291	4,883
1980	1,951	2,542	4,493
1981	1,837	3,183	5,020
1982	2,016	4,890	6,906
1983	1,496	3,669	5,165
1984	970	2,025	2,995
1985	807	2,645	3,452
1986	1,153	3,801	4,954
1987	2,057	4,097	6,154
1988	2,391	3,520	5,911
1989	1,730	4,770	6,500
1990	970	2,224	3,194
1991 a/	154	3,532	3,686
1992 b/	37	3,776	3,813
1993 b/	11	8,239	8,250
1994 b/	69	5,455	5,524
1995 b/	36	7,588	7,624
1996 b/	78	8,763	8,841
1997 b/	133	20,678	20,811
1998 c/	507	10,925	11,432
1999 c/	373	6,527	6,900
2000 d/	407	3,981	4,388
2001 b/	334	11,177	11,511
2002 d/	992	12,252	13,244
2003 d/	1,078	12,590	13,668
2004 d/	1,224	11,879	13,102

a/ Sport and tribal Chinook season closed June 16 – September 30, 1991.

b/ Sport season closed. Tribal harvest limited differently by year.

c/ Sport season August 1 to October 31, Wednesdays, Saturdays, and Sundays only. Tribal harvest limited differently by year.

d/ Sport season August 1 to October 31. Tribal harvest limited by different harvest caps.

Table 25. Run size of jack fall Chinook salmon in the Deschutes River, by year.

Year	Harvest	Escapement	Run
1977	1,672	2,125	3,797
1978	1,597	2,708	4,305
1979	2,000	4,338	6,338
1980	1,507	1,904	3,411
1981	1,294	3,728	5,022
1982	1,506	3,360	4,866
1983	678	859	1,537
1984	987	1,237	2,224
1985	1,454	5,384	6,838
1986	1,428	5,872	7,300
1987	242	1,515	1,757
1988	245	1,859	2,104
1989	150	1,486	1,636
1990	140	727	867
1991 a/	59	1,746	1,805
1992 b/	4	2,483	2,486
1993 b/c/	0	NO ESTIMATE	
1994 b/	8	14,276	14,284
1995 b/	19	7,121	7,138
1996 b/	6	1,705	1,711
1997 b/	7	1,005	1,012
1998 d/	78	6,960	7,038
1999 d/	76	4,097	4,173
2000 e/	127	8,395	8,522
2001 b/	27	10,563	10,590
2002 e/	72	3,635	3,707
2003 e/	78	3,264	3,342
2004 e/	153	3,968	4,121

a/ Sport and tribal Chinook season closed June 16 – September 30, 1991.

b/ Sport season closed. Tribal harvest limited differently by year.

c/ An insufficient number of tagged jack salmon were recovered during carcass surveys. No run size or escapement estimates for jack fall Chinook could be made.

d/ Sport season August 1 to October 31, Wednesdays, Saturdays, and Sundays only. Tribal harvest limited differently by year.

e/ Sport season August 1 to October 31. Tribal harvest limited by different harvest caps.

Table 26. Bimonthly counts of upstream migrant jack and adult fall Chinook salmon captured at the Powerdale Dam trap, by origin and run year.

Origin,	July		August		September		October		November		December		
Run Year	01-15	16-31	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31	Total
Natural,													
1992	0	0	4	1	2	7	1	1	0	0	0	0	16
1993	0	0	3	1	2	0	0	0	0	0	0	0	6
1994	0	6	2	0	0	13	3	1	0	0	0	0	25
1995	0	4	0	1	3	0	0	1	0	0	0	0	8
1996	1	1	0	7	3	0	0	1	0	0	0	0	13
1997	0	4	7	2	9	2	0	0	0	0	0	0	24
1998	0	0	9	3	9	9	4	0	0	0	0	0	34
1999	0	0	3	4	3	1	3	1	1	0	0	0	16
2000	2	2	2	2	13	10	1	0	0	0	0	0	32
2001	2	3	3	5	3	3	9	1	0	0	0	0	29
2002	0	0	1	1	9	14	6	1	1	0	0	0	33
2003	0	1	5	9	6	16	14	19	0	0	0	0	70
2004	0	2	1	1	4	6	7	10	0	0	0	0	31
Stray Hatchery,													
1992	0	0	0	0	2	1	2	1	0	0	0	0	6
1993	0	0	0	0	2	1	1	0	0	0	0	0	4
1994	0	0	0	0	0	6	1	0	0	0	0	0	7
1995	0	0	0	0	2	2	0	0	0	0	0	0	4
1996	0	0	0	0	1	0	1	0	0	0	0	0	2
1997	0	0	0	0	2	0	0	0	0	0	0	0	2
1998	0	0	0	0	1	1	2	0	0	0	0	0	4
1999	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	2	0	0	0	0	0	0	2
2001	1	2	2	0	1	0	2	1	1	0	0	0	10
2002	0	0	2	0	1	0	1	0	0	0	0	0	4
2003	0	0	0	3	0	0	1	2	0	0	0	0	6
2004	0	0	0	0	0	1	1	1	0	0	0	0	3

Table continues

Table 26 (cont.). Bimonthly counts of upstream migrant jack and adult fall Chinook salmon captured at the Powerdale Dam trap, by origin and run year.

Origin,	July		August		September		October		November		December		
Run Year	01-15	16-31	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31	Total
Unknown,													
1992	--	--	--	--	--	--	--	--	--	--	--	--	0
1993	--	--	--	--	--	--	--	--	--	--	--	--	0
1994	0	0	0	0	0	3	2	1	1	0	0	0	7
1995	--	--	--	--	--	--	--	--	--	--	--	--	0
1996	0	0	0	0	1	0	0	0	0	0	0	0	1
1997	0	0	1	2	2		1	0	0	0	0	0	4
1998	0	0	0	0	0	2	0	0	0	0	0	0	2
1999	0	0	0	1	0	0	1	0	1	0	0	0	3
2000	0	0	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0	0	0	0	0	0
2002	0	0	0	0	0	1	0	0	0	0	0	0	1
2003	0	0	0	1	0	3	0	1	0	0	0	0	5
2004	0	0	0	0	0	1	0	0	0	0	0	0	1

a/ Scale analysis incomplete. Not possible to assign origin.

Table 27. Jack and adult fall Chinook escapements to the Powerdale Dam trap by origin, run year, and age category, by year. Fish of unknown origin were allocated to origin categories based on scale analysis and the ratio of fish of known origin.

Origin, Stock, Run Year	Total Escapement	Freshwater.Total Age								
		1.2	1.3	1.4	1.5	1.6	2.3	2.4	2.5	2.6
Natural,										
1992	16	2	2	10	1	1	0	0	0	--
1993	6	0	1	3	2	0	0	0	0	--
1994	32	2	4	19	2	0	1	2	2	--
1995	8	1	0	1	1	0	1	2	2	--
1996	14	0	1	10	0	0	1	2	0	--
1997	28	0	7	9	0	0	2	7	3	--
1998	36	4	11	4	10	0	0	4	3	--
1999	19	1	5	4	1	0	0	6	2	--
2000	32	1	10	12	5	0	1	3	0	--
2001	29	1	11	14	0	0	0	3	0	--
2002	34	4	12	17	0	0	0	1	0	--
2003	75	4	11	40	11	0	0	7	2	--
2004	32	1	8	11	7	0	0	5	0	--
Stray Hatchery,										
1992	6	1	3	2	0	--	0	0		--
1993	4	0	1	2	1	--	0	0	0	--
1994	7	0	0	5	0	--	0	2	0	--
1995	4	0	0	1	0	--	0	3	0	--
1996	2	0	0	0	0	--	1	1	0	--
1997	2	0	0	1	0	--	0	1	0	--
1998	4	0	1	1	1	--	0	1	0	--
1999	0	0	0	0	0	--	0	0	0	--
2000	2	0	1	1	0	--	0	0	0	--
2001	10	0	3	1	0	--	0	6	0	--
2002	4	1	0	1	0	--	0	1	1	--
2003	6	0	0	2	0	--	0	2	1	--
2004	3	1	0	0	0	--	0	1	1	--

a/ Scale analysis incomplete. Not possible to assign origin or age.

Table 28. Bi-monthly counts of upstream migrant coho salmon at Powerdale Dam, by run year.

Origin,	August		September		October		November		December		
Run Year	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31	Total
Unmarked,											
1992	0	0	1	11	5	4	1	0	0	0	22
1993	0	0	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	1	0	0	0	0	0	1
1995	0	0	3	1	4	3	0	0	0	0	11
1996	0	0	0	1	4	1	0	0	0	0	6
1997	0	0	0	3	2	1	0	0	0	0	6
1998	0	0	0	1	3	0	0	1	0	0	5
1999	0	0	0	1	4	1	3	0	1	0	10
2000	0	0	2	1	0	4	1	0	0	0	9
2001	0	0	0	3	5	5	7	0	0	0	20
2002	0	0	1	3	3	2	2	4	2	10	27
2003	0	0	0	13	10	12	2	1	3	0	41
2004	0	0	6	39	32	32	9	5	3	0	126
Marked Hatchery,											
1992	0	1	6	37	12	12	11	0	0	0	79
1993	0	0	0	3	10	10	0	3	2	0	28
1994	0	0	3	15	11	23	0	0	0	0	52
1995	0	1	0	12	15	11	0	0	0	0	39
1996	0	0	0	3	12	5	0	0	0	0	20
1997	0	0	0	1	2	3	0	0	0	0	6
1998	0	0	0	10	10	9	8	7	0	0	44
1999	0	0	0	7	6	3	0	0	3	0	19
2000	0	0	5	14	4	8	2	0	0	0	33
2001	0	0	2	18	208	475	173	101	0	0	977
2002	0	0	0	3	7	16	22	18	0	0	66
2003	0	0	4	24	36	74	2	10	3	0	153
2004	0	1	9	31	68	225	105	22	5	0	466

Table continues

Table 28 (cont.). Bi-monthly counts of upstream migrant coho salmon at Powerdale Dam, by run year.

Origin,	August		September		October		November		December		
Run Year	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31	Total
Unknown,											
1992	0	0	0	1	0	1	0	0	0	0	2
1993	0	1	1	1	0	0	0	0	1	0	5
1994	0	0	1	0	0	2	0	0	0	0	3
1995	0	0	0	0	1	0	0	0	0	0	1
1996	0	0	0	0	1	0	0	0	0	0	1
1997	0	0	1	0	0	0	0	0	0	0	1
1998	0	0	0	0	1	2	3	4	0	0	10
1999	0	0	0	0	1	0	0	1	0	0	2
2000	0	0	0	0	0	0	0	0	0	0	0
2001	0	0	0	1	7	6	6	3	0	0	23
2002	0	0	0	0	1	1	1	1	0	0	4
2003	0	0	1	7	3	2	0	0	0	0	13
2004	0	0	0	2	5	12	7	1	0	0	27

a/ Scale analysis incomplete. Not possible to assign origin.

Table 29. Coho salmon escapements to the Powerdale Dam trap by origin, run year, and age category. Fish of unknown origin were allocated to origin categories based on scale analysis and the ratio of fish of known origin.

Origin, Run year	Total Escapement	Freshwater.Total Age 1.2	1.3	2.2	2.3	2.4
Wild,						
1992	23	--	--	0	23	0
1993	0	--	--	0	0	0
1994	1	--	--	0	1	0
1995	11	--	--	0	10	1
1996	6	--	--	0	6	0
1997	6	--	--	0	6	0
1998	12	--	--	0	12	0
1999	11	--	--	0	11	0
2000	9	--	--	1	8	0
2001	24	--	--	4	20	0
2002	30	--	--	3	27	0
2003	43	--	--	12	31	0
2004	133	--	--	5	128	0
Stray Hatchery,						
1992	80	0	0	13	67	--
1993	33	0	0	0	33	--
1994	55	0	0	3	52	--
1995	40	0	0	4	36	--
1996	10	0	0	1	20	--
1997	7	0	0	0	7	--
1998	47	0	0	1	46	--
1999	20	0	0	1	19	--
2000	33	1	8	13	20	--
2001	996	0	0	7	989	--
2002	67	0	1	8	58	--
2003	164	1	0	22	141	--
2004	486	0	0	18	468	--

a/ Scale analysis incomplete. Not possible to assign origin or age.

Table 30. Pelton trap summer steelhead capture, by month, by run year. Cumulative run year total (shown in parentheses).
* Run year not complete.

	Month											
Run Year	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May
03 – 04	0 (0)	0 (0)	0 (0)	3 (3)	530 (533)	397 (950)	1054 (2004)	685 (2689)	704 (3393)	225 (3618)	57 (3675)	1 (3676)
02 – 03	0 (0)	2 (2)	1 (3)	41 (44)	822 (866)	983 (1805)	1423 (3228)	1181 (4409)	1270 (5679)	486 (6165)	106 (6271)	7 (6278)
01 – 02	0 (0)	1 (1)	2 (3)	135 (138)	1975 (2113)	2084 (4197)	1444 (5641)	1475 (7116)	848 (7964)	481 (8445)	435 (8890)	8 (8898)
00 – 01	0 (0)	1 (1)	1 (2)	58 (60)	479 (539)	395 (934)	247 (1181)	529 (1710)	436 (2146)	499 (2645)	136 (2781)	29 (2810)
99 – 00	0 (0)	0 (0)	0 (0)	66 (66)	337 (403)	371 (774)	533 (1307)	245 (1552)	225 (1777)	95 (1872)	19 (1891)	10 (1901)
98 – 99	0 (0)	0 (0)	6 (6)	70 (76)	894 (970)	742 (1712)	233 (1945)	289 (2234)	215 (2449)	96 (2574)	29 (2574)	0 (2574)
5-Year Average	0 (0)	1 (1)	2 (3)	74 (77)	901 (978)	915 (1884)	776 (2660)	776 (2660)	599 (4003)	331 (4340)	145 (4481)	11 (4492)

Cumulative disposition for captured steelhead for the current year. Includes recaptures:

Given Away	=	2760
Broodstock	=	497
Released into river	=	104
Dead or killed	=	315

Table 31. Number of wild, stray, and Round Butte Hatchery origin summer steelhead and the percentage of the total run returning to the Pelton Trap, by run year. Includes 3-salts from Round Butte Hatchery.

	Wild Origin		Stray Hatchery		Round Butte Hatchery	
Run Year	Number	%	Number	%	Number	%
81-82	245	11.3	156	7.4	1,760	81.3
82-83	344	16.7	167	8.8	1,547	74.6
83-84	814	17.3	1,452	33.0	2,439	49.7
84-85	603	12.9	795	17.0	3,278	71.1
85-86	686	14.4	943	19.7	3,153	65.9
86-87	467	10.7	1,538	33.4	2,640	57.6
87-88	160	6.6	796	32.1	1,484	61.3
88-89	123	7.4	300	17.7	1,247	74.9
89-90	136	9.1	524	35.2	829	55.7
90-91	82	7.4	428	35.8	606	56.8
91-92	101	4.4	849	36.7	1,365	58.9
92-93	59	3.6	427	26.0	1,157	70.4
93-94	65	12.0	288	53.0	190	35.0
94-95	27	2.0	642	53.0	753	45.0
95-96	32	1.6	976	48.6	1,000	49.8
96-97	126	2.2	2,001	34.9	3,605	62.9
97-98	194	3.8	2,459	48.3	2,440	47.9
98-99	155	6.0	1,284	49.9	1,135	44.1
99-00	83	4.4	768	40.4	1,050	55.2
00-01	114	4.1	1,103	39.2	1,593	56.7
01-02	282	3.2	3,674	41.3	4,942	55.5
02-03	207	3.3	1,787	28.5	4,284	68.2
03-04	104	2.8	967	26.3	2,605	70.9

Table 32. Population estimates of summer steelhead escapement over Sherars Falls, Deschutes River by run year. (95% confidence interval).

Run Year	Wild	Hatchery Component		
		Total Hatchery	Round Butte	Strays
82-83	6,567 (4,453-10,104)	4,773 (3,998-5,698)	3,524 (2,883-4,307)	-- --
83-84	8,228 (6,439-10,493)	15,443 (13,620-17,513)	7,250 (6,157-8,533)	7,684 (6,324-9,337)
84-85	7,721 (5,572-11,031)	11,770 (9,997-13,855)	7,563 (6,347-9,174)	3,824 (2,630-5,781)
85-86	9,624 (7,171-14,066)	12,106 (10,745-13,747)	7,382 (6,806-7,985)	5,056 (3,930-6,758)
86-87	6,207 (5,025-7,669)	18,358 (16,579-20,324)	9,064 (7,989-10,281)	9,803 (8,259-11,627)
87-88	5,367 (3,774-7,940)	17,623 (14,804-20,979)	9,209 (7,571-12,250)	8,367 (6,483-10,786)
88-89	3,546 (2,756-4,741)	6,336 (5,647-7,163)	3,849 (3,389-4,410)	2,909 (2,257-3,898)
89-90	4,278 (3,296-5,775)	6,504 (5,832-7,283)	2,758 (2,374-3,217)	3,659 (2,991-4,150)
90-91	3,653 (2,572-5,372)	4,876 (4,230-5,618)	1,990 (1,636-2,480)	2,852 (2,328-3,493)
91-92	4,862 (3,270-7,556)	11,859 (10,581-13,373)	3,778 (3,242-4,427)	8,409 (7,053-10,023)
92-93	904 (628-1,294)	6,088 (5,463-6,828)	2,539 (2,245-2,897)	4,261 (3,425-5,430)
93-94	1,487 (911-2,394)	5,476 (4,558-6,577)	1,159 (850-1,677)	4,293 (3,453-5,334)
94-95	482 (208-929)	6,126 (5,000-7,502)	1,781 (1,360-2,326)	4,391 (3,161-6,473)
95-96	1,662 (963-2,795)	12,828 (11,437-14,374)	2,708 (2,329-3,147)	11,855 (9,963-14,102)
96-97	3,458 (2,478-4,923)	28,416 (27,369-30,731)	5,932 (5,364-6,650)	23,618 (20,860-26,740)
97-98	1,820 (1,295-2,552)	22,511 (20,048-25,275)	5,042 (4,265-6,011)	17,703 (15,094-20,759)
98-99	3,800 (2,573-5,454)	15,120 (13,567-16,850)	3,527 (2,988-4,164)	11,110 (9,631-12,797)
99-00	4,790 (3,719-6,161)	15,219 (13,705-16,881)	2,628 (2,426-2,805)	13,785 (11,844-19,777)
00-01	8,985 (7,036-11,468)	19,310 (17,341-21,501)	4,380 (3,785-5,068)	15,072 (12,871-17,646)
01-02	8,749 (6,887-11,105)	31,784 (29,973-33,706)	9,373 (8,689-10,110)	25,263 (23,030-27,714)
02-03	9,363 (7,761-11,311)	23,004 (21,593-24,507)	8,880 (8,225-9,587)	15,203 (13,588-17,004)
03-04	5,524 (4,052-7514)	11,511 (10,641-12,539)	5,265 (4,778-5,801)	6,542 (5,614-7,622)

Table 33. Estimated number of steelhead that migrated past Sherars Falls, by run year.

Run Year	Wild	Round Butte Hatchery	Stray Hatchery	Total Hatchery
1977-78	6,600	6,100	900	7,000
1978-79	2,800	3,200	300	3,500
1979-80	4,200	5,400	600	6,000
1980-81	4,100	5,500	500 a/	6,000
1981-82	6,900	3,800	1,200 a/	5,000
1982-83	6,567	3,524	1,249 a/	4,773
1983-84	8,228 b/	7,250	7,684 a/	15,443
1984-85	7,721 b/	7,563	3,824 a/	11,770
1985-86	9,624 b/	7,382	5,056 c/	12,106
1986-87	6,207 b/	9,064	9,803 c/	18,358
1987-88	5,367 b/	9,209	8,367	17,623
1988-89	3,546	3,849	2,909	6,336
1989-90	4,278	2,758	3,659	6,504
1990-91	3,653	1,990	2,852	4,786
1991-92	4,826	3,778	8,409	11,859
1992-93	904	2,539	4,261	6,008
1993-94	1,487	1,159	4,293	5,476
1994-95	482	1,781	4,391	6,126
1995-96	1,662	2,708	11,855	12,828
1996-97	3,458	5,932	23,618	28,416
1997-98	1,820	5,042	17,703	22,511
1998-99	3,800	3,527	11,110	15,120
1999-2000	4,790	2,628	13,785	15,219
2000-2001	8,985	4,380	15,072	19,310
2001-2002	8,749	9,373	25,263	31,784
2002-2003	9,363	8,880	15,203	23,004
2003-2004	5,524	5,265	6,542	11,551

a/ May include some AD CWT marked steelhead that originated from Warm Springs NFH although few of these ever returned to that facility.

b/ May include some unmarked hatchery steelhead outplanted as fry into the Warm spring River from Warm Springs NFH.

c/ May include adults from a release of 13,000 smolts from Round Butte Hatchery that were accidentally marked with the same fin clip as steelhead released from other Columbia basin hatcheries.

Table 34. Summer steelhead redd counts, Bakeoven Creek, by section, by year.

Date	Section	Redds	Alive				Dead		
			W	H	U		W	H	U
03/14/90	Cottonwood/Sugarloaf	2	0	0	0	0	0	0	0
	Sugarloaf/Powerline	1	0	0	0		0	0	0
	Powerling/mouth	21	0	1	0		2	0	0
	Total	24	0	1	0		2	0	0
03/08/91	Sugarloaf/Powerline	0	0	0	0		0	0	0
	Powerline/Mouth	8	5	0	4		0	0	0
	Total	8	5	0	4		0	0	0
03/24/92	Powerline/Mouth a/	9	0	0	0		0	0	0
	Total	9	0	0	0		0	0	0
04/08/93	Sugarloaf/Powerline	2	2	1	1		0	0	0
	Powerline/Mouth	19	0	2	9		0	0	0
		21	2	3	10		0	0	0
04/08/94	Powerline/Mouth a/	13	0	0	0		0	0	0
	Total	13	0	0	0		0	0	0
03/03/95	Sugarloaf/Powerline	7	0	0	0		0	0	0
	Powerline/Mouth	13	1	3	1		0	0	0
	Total	20	1	3	1		0	0	0
03-29-96	Sugarloaf/Powerline	14	0	0	0		0	0	0
	Powerline/Mouth	21	2	7	6		0	1	0
	Total	35	2	7	6		0	1	0
04-02-97	Sugarloaf/Powerline	18	2	1	3		0	0	0
	Powerline/Mouth	39	2	7	2		0	1	0
	Total	57	4	8	5		0	1	0
03-30-98	Sugarloaf/Powerline	11	2	1	2		0	0	0
	Powerline/Mouth	57	1	1	2		0	0	0
	Total	68	3	2	4		0	0	0

Table continues

Table 34. (cont.). Summer steelhead redd counts, Bakeoven Creek, by section, by year.

Date	Section	Redds	Alive			Dead		
			W	H	U	W	H	U
03/19/99	Sugarloaf/Powerline	33	6	4	5	0	0	0
	Powerline/Mouth	56	7	2	2	0	0	0
	Total	89	13	6	7	0	0	0
03/21/00	Sugarloaf/Powerline	22	5	0	8	0	0	0
	Powerline/Mouth	61	9	17	3	0	0	0
	Total	83	14	17	11	0	0	0
03/22/01	Sugarloaf/Powerline	154	70	9	25	5	1	2
	Powerline/Mouth	326	88	19	86	4	0	0
	Total	480	158	28	111	9	1	2
03/20/02	Sugarloaf/Powerline	23	10	2	15	0	0	2
	Powerline/Mouth	191	42	8	151	3	0	2
	Total	214	52	10	166	3	0	4
03/20/03	Sugarloaf/Powerline	18	12	2	5	0	0	1
	Powerline/Mouth	99	5	2	21	0	0	0
	Total	117	19	4	26	0	0	1
04/01/04	Sugarloaf/Powerline	29	7	2	9	0	0	0
	Powerline/Mouth	58	1	2	18	0	1	2
	Total	87	8	4	27	0	1	2

a/ Walked upstream. All others walked downstream

Table 35. Summer steelhead redd counts, Buckhollow Creek, by section, by year.

Date	Section	Redds	Alive			Dead		
			W	H	U	W	H	U
03/16/90	Macken/Bronx	0	0	0	0	0	0	0
	Bronx/Mays	5	0	0	0	0	0	0
	Mays/Powerline*	7	1	0	0	0	0	0
	Powerline/Mouth	73	10	2	71	3	0	0
	Total	85	11	2	71	3	0	0
03/15/91	Powerline/Mouth*	72	3	1	58	1	1	0
03/24/92	Powerline/Mouth * **	34	9	1	7	0	0	0
04/07/93	Bronx/Mays	3	0	0	0	0	0	0
	Mays/Powerline*	5	0	0	4	0	1	0
	Powerline/Mouth**	40	1	1	17	0	0	0
	Total	48	1	1	21	0	1	0
03/30/94	Mays/Powerline*	1	0	0	0	0	0	0
	Powerline/Mouth	7	1	1	4	0	0	0
	Total	8	1	1	4	0	0	0
03/29/95	Bronx/Mays	0	0	0	0	0	0	0
	Mays/Powerline	5	0	0	0	0	0	0
	Powerline/Mouth	64	9	10	20	2	1	0
	Total	69	9	10	20	2	1	0
04/05/96	Spears/Bronx	5	0	0	1	0	0	0
	Bronx/Mays	3	2	1	1	0	0	0
	Mays/Powerline	9	0	2	5	0	0	0
	Powerline/Mouth	48	5	8	10	0	0	0
	Total	65	7	11	17	0	0	0
04/04/97	Hauser/Bronx*	4	0	0	0	0	0	0
	Bronx/Mays	7	1	1	1	0	0	0
	Mays/Powerline	63	3	0	3	2	0	0
	Powerline/Mouth	62	3	22	12	0	0	0
	Total	136	7	23	16	2	0	0

Table continues

Table 35 (cont.). Summer steelhead redd counts, Buckhollow Creek, by section, by year.

			Alive			Dead		
Date	Section	Redds	W	H	U	W	H	U
03/26/98	Hauser/Bronx*	0	0	0	0	0	0	0
	Bronx/Mays	10	0	0	0	0	0	0
	Mays/Powerline	36	1	1	2	0	0	0
	Powerline/Mouth	133	0	25	17	0	0	2
	Total	179	1	26	19	0	0	2
03/26/99	Hauser/Bronx*	2	0	0	0	0	0	0
	Bronx/Finnegan	1	0	0	0	0	0	0
	Finnegan/Mays	5	0	0	0	0	0	0
	Mays/Powerline	37	5	1	2	0	0	0
	Powerline/Mouth	107	10	13	11	0	0	0
	Total	152	15	14	13	0	0	0
03/27/00	Hauser/Bronx*	5	0	5	0	0	0	0
	Bronx/Finnegan	2	0	0	2	0	0	0
	Finnegan/Mays	5	0	0	4	0	0	0
	Mays/Powerline	64	7	0	8	0	0	1
03/21/00	Powerline/Mouth	34	1	3	3	0	0	0
	Total	110	8	8	17	0	0	1
	Hauser/Bronx			Not surveyed				
03-26-01	Bronx/Finnegan	1	2	0	0	0	0	0
03-26-01	Finnegan/Mays	39	15	2	4	0	0	0
03-23-01	Mays/Powerline	164	57	6	15	1	0	1
04-12-01	Powerline/Mouth	241	17	6	20	16	9	8
	Total	445	91	14	39	17	9	9
	Hauser/Bronx			Not surveyed				
03-25-02	Bronx/Finnegan	3	0	0	0	0	0	0
03-25-02	Finnegan/Mays	1	0	0	0	0	0	0
03-25-02	Mays/Powerline	78	15	1	8	0	0	0
04-05-02	Powerline/Webb fence	139	23	15	27	4	4	6
	Webb fence/mouth			Not surveyed				
	Total	221	38	16	35	4	4	6

Table 35 (cont.). Summer steelhead redd counts, Buckhollow Creek, by section, by year.

Date	Section	Redds	Alive			Dead		
			W	H	U	W	H	U
	Hauser/Bronx		Not surveyed					
03-24-03	Bronx/Finnegan	5	1	2	0	0	0	0
03-24-03	Finnegan/Mays	22	3	0	3	0	0	0
03-24-03	Mays/Powerline	63	19	7	10	0	0	0
04-04-03	Powerline/Webb fence	89	6	3	5	3	1	0
04-04-03	Webb fence/mouth	43	11	2	27	0	2	2
	Total	222	40	14	45	3	3	2
	Hauser/Bronx		Not surveyed					
03-30-04	Bronx/Finnegan	11	0	0	0	0	0	0
03-30-04	Finnegan/Mays	15	0	0	0	0	0	0
03-30-04	Mays/Powerline	44	11	0	6	2	0	2
03-30-04	Powerline/Webb fence	69	8	12	20	0	4	0
03-30-04	Webb fence/mouth	75	8	13	21	1	4	1
	Total	211	27	25	47	3	8	3

* Walked upstream. All others walked downstream.
**All fish and redds in lower 3 miles.

Table 36. Summer steelhead spawning surveys conducted in the Trout Creek watershed, by location, run year 2003-04. Survey dates between 1 March and 5 May, 2004.

Stream	River Miles	Miles	Date	Wild	Hatchery	Unknown	Redds
Antelope Creek	0 - 2.5	2.5	18-Mar	0	0	0	13
Antleope Creek	2.5 - 4.2	1.7	18-Mar	1	0	0	3
Antleope Creek	4.2 - 5.4	1.2	18-Mar	0	0	0	3
Augar Creek	0 - 1.5	1.5	8-Apr	0	0	0	11
Beaver Creek	0-0.1	0.1	14-Apr	0	0	0	0
Big Log Creek	.05-2.0	1.5	20-Apr	0	0	0	3
Big Log Creek	0 - 3.4	3.4	20-Apr	0	0	0	4
Board Hollow	0 - 0.75	0.75	12-May	0	0	0	9
Cartwight Creek	0 - 1.75	1.75	5-May	0	0	0	0
Dutchman Creek	0 - 1.75	0.75	28-Apr	0	0	0	4
Foley Creek	0 - 1.1	1.1	20-Apr	0	0	0	7
Foley Creek	1.1 - 2.5	1.4	20-Apr	0	0	0	2
Opal Creek	0 - 0.5	0.5	8-Apr	0	0	0	6
Opal Creek	1.1 - 2.5	1.4	8-Apr	0	0	0	0
Potlid Creek	0 - 0.5	0.5	25-Apr	0	0	0	5
Potlid Creek	0.5 – 2.6	2.1	Not done				
Sagebrush	0 - 1.5	1.5	13-Mar	3	0	1	8
Ten mile Creek	0 - 1.25	1.25	1-Mar	0	0	1	3
Trout Creek	0 - 1.4	1.4	15-Mar	0	0	0	1
Trout Creek	1.4 – 2.3	0.9	19-Mar	0	0	0	2
Trout Creek	2.3 – 6.3	4	20-Mar	0	0	0	5
Trout Creek	6.3 – 9.3	3	29-Mar	0	0	0	10
Trout Creek	9.3 – 12.4	3.1	29-Mar	0	0	0	21
Trout Creek	12.4 - 16.8	4.4	29-Mar	0	0	0	15
Trout Creek	16.8 - 20.1	3	1-Apr	0	0	0	6
Trout Creek	23.8 –24.7	0.9	14-Apr	3	0	1	10
Trout Creek	33.8-34.3	0.5	21-Apr	0	0	0	8
Trout Creek	36.3 - 38.3	2	14-Apr	0	0	0	10
Trout Creek	38.3-39.3	1	14-Apr	0	0	0	4
Trout Creek	39.3-39.8	0.5	14-Apr	0	0	0	4
Trout Creek	39.8-40.5	0.75	14-Apr	0	0	0	8
Trout Creek	40.5 - 42.8	2	4-May	0	0	0	10
Trout Creek	42.8 - 45.9	3.4	4-May	0	0	0	27
Trout Creek	45.9 - 46.3	1.4	5-May	0	0	0	6
Trout Creek	46.3 - 47.5	1.2	5-May	0	0	0	8

Ward Creek	0 - 6.2	6.2	22-Mar	1	0	0	41
TOTALS		64.1		8	0	3	277

Table 37. Summer steelhead redd surveys in the Trout Creek drainage, by year. Data should not be compared before and after 1993 due to differences in methodology and location.

Year	Miles Surveyed	# of Fish	# of Redds	Fish/Mile	Redds/Mile
1988	9.4	17	23	1.8	2.5
1989	10.5	24	23	2.8	2.2
1990	14.4	22	42	1.5	2.9
1991	16.9	3	16	0.2	1.1
1992	16.4	6	6	0.4	0.4
1993	28.2	4	15	0.1	0.5
1994	16.25	0	0	0.0	0.0
1995	18.25	0	8	0.0	0.4
1996	21.75	4	5	0.2	0.2
1997	23.6	21	50	0.9	2.1
1998	28	13	44	0.5	1.6
1999	28.65	12	59	0.4	2.1
2000 a/	54.1	39	461	0.7	8.5
2001	36.6	56	595	1.5	16.3
2002	65.2	95	866	1.5	13.3
2003	65.4	48	789	0.7	12.1
2004	64.1	11	277	0.2	4.3

a/ Starting in 2000, redd counts were conducted generally later in the season and timed to capture peak count. Succeeding years utilized the same methodology.

Table 38. Pelton trap summer steelhead capture, by month, by run year. Cumulative run year total (shown in parentheses).
* Run year not complete.

	Month											
Run Year	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May
04 - 05	0 (0)	3 (3)	5 (8)	103 (111)	670 (781)	257 (1,038)	565 (1,603)	*	*	*	*	*
03 – 04	0 (0)	0 (0)	0 (0)	3 (3)	530 (533)	397 (950)	1054 (2,004)	685 (2,689)	704 (3,393)	225 (3,618)	57 (3,675)	1 (3,676)
02 – 03	0 (0)	2 (2)	1 (3)	41 (44)	822 (866)	983 (1805)	1423 (3228)	1181 (4409)	1270 (5679)	486 (6165)	106 (6271)	7 (6278)
01 – 02	0 (0)	1 (1)	2 (3)	135 (138)	1975 (2113)	2084 (4197)	1444 (5641)	1475 (7116)	848 (7964)	481 (8445)	435 (8890)	8 (8898)
00 – 01	0 (0)	1 (1)	1 (2)	58 (60)	479 (539)	395 (934)	247 (1181)	529 (1710)	436 (2146)	499 (2645)	136 (2781)	29 (2810)
99 – 00	0 (0)	0 (0)	0 (0)	66 (66)	337 (403)	371 (774)	533 (1307)	245 (1552)	225 (1777)	95 (1872)	19 (1891)	10 (1901)
98 – 99	0 (0)	0 (0)	6 (6)	70 (76)	894 (970)	742 (1712)	233 (1945)	289 (2234)	215 (2449)	96 (2574)	29 (2574)	0 (2574)
5-Year Average	0 (0)	1 (1)	2 (3)	74 (77)	901 (978)	915 (1884)	776 (2660)	776 (2660)	599 (4003)	331 (4340)	145 (4481)	11 (4492)

*Run year not complete

Table 39. Number of wild summer steelhead captured at the Sherars Falls Trap, by two-week period, by year.

	June	July		August		September		October		
Year	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	Total
1977	4	30	125	158	29	66	163	63	35	673
1978	12	23	83	59	32	37	81	74	36	437
1979	14	16	26	25	23	44	134	67	37	386
1980	0	4	41	17	20	88	124	135	32	461
1981	0	8	43	42	54	155	171	159	54	686
1982	1	2	8	13	26	31	84	45	42	362
1983	-	-	-	6	33	97	84	161	36	417
1984	-	-	1	19	24	47	76	29	12	238
1985	-	-	10	11	27	66	104	138	8	364
1986	-	-	16	17	9	64	108	167	31	412
1987	-	-	-	25	27	51	83	137	49	372
1988	1	5	7	11	21	31	188	83	27	374
1989	0	3	11	7	11	24	103	139	157	455
1990	1	1	13	12	6	38	58	65	100	294
1991	2	0	13	13	21	53	109	36	46	293
1992	3	2	9	1	20	27	67	38	29	196
1993	1	1	3	4	6	26	65	60	24	190
1994	-	0	3	7	3	6	12	7	17	55
1995	0	0	6	5	12	18	31	73	39	184
1996	-	-	5	6	12	54	70	145	7	299
1997	-	-	9	2	7	37	78	22	11	166
1998	0	1	5	1	10	75	209	81	9	391
1999	-	-	-	5	41	73	307	161	108	695
2000	1	5	16	23	39	73	396	326	52	931
2001	1	9	13	33	29	131	346	228	167	957
2002	0	10	19	19	28	54	313	274	150	867
2003	1	2	7	11	11	65	151	151	165	590
2004	0	1	5	7	1	146	81	38	293	572

Table 40. Catch rate (fish/hour) of wild summer steelhead at the Sherars Falls Trap, by two week period, by year.

	June	July		August		September		October		
Year	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	Average
1977	0.16	0.44	1.90	1.89	0.57	1.60	2.05	3.56	1.85	1.56
1978	0.21	0.26	1.00	0.47	0.22	0.36	0.99	0.68	0.58	0.55
1979	0.21	0.15	0.26	0.24	0.39	0.29	1.36	0.75	0.44	0.49
1980	-	0.06	0.39	0.20	0.26	1.00	1.20	1.14	0.45	0.62
1981	-	0.10	0.51	0.56	0.58	1.68	2.69	1.60	0.85	1.07
1982	0.03	0.06	0.19	0.24	0.31	0.42	1.22	0.54	0.64	0.41
1983	-	-	-	0.13	0.38	1.39	1.21	2.51	0.67	1.05
1984	-	-	0.10	0.26	0.35	0.88	1.64	0.67	0.23	0.59
1985	-	-	0.16	0.13	0.32	0.81	1.64	1.77	0.38	0.74
1986	-	-	0.14	0.21	0.11	0.68	1.43	1.67	0.34	0.65
1987	-	-	-	0.45	0.40	0.71	1.08	2.11	1.08	0.97
1988	0.02	0.07	0.09	0.13	0.25	0.45	1.90	1.68	0.49	0.62
1989	0.00	0.05	0.14	0.10	0.12	0.28	1.23	2.01	1.78	0.65
1990	0.01	0.01	0.14	0.16	0.09	0.53	0.64	0.80	1.07	0.40
1991	0.03	0.00	0.06	0.19	0.28	0.73	1.17	0.44	0.55	0.43
1992	0.04	0.03	0.11	0.01	0.28	0.36	0.78	0.36	0.37	0.28
1993	0.01	0.01	0.04	0.05	0.06	0.34	0.76	0.90	0.40	0.28
1994	-	0.00	0.04	0.09	0.04	0.10	0.15	0.09	0.22	0.10
1995	0.00	0.00	0.06	0.06	0.14	0.25	0.34	0.98	0.50	0.27
1996	-	-	0.06	0.08	0.16	0.61	1.21	1.63	0.10	0.55
1997	-	-	0.10	0.03	0.10	0.44	0.95	0.30	0.18	0.32
1998	0.00	0.02	0.08	0.02	0.13	1.02	1.84	0.85	0.13	0.64
1999	-	-	-	0.12	0.50	0.87	2.63	2.66	1.08	1.43
2000	0.10	0.13	0.23	0.29	0.46	1.12	5.46	4.70	0.65	1.63
2001	0.04	0.12	0.20	0.48	0.35	1.81	4.49	3.48	2.63	1.61
2002	0.00	0.19	0.31	0.19	0.36	0.94	3.35	3.72	2.09	1.46
2003	0.02	0.05	0.11	0.14	0.19	0.73	1.85	2.18	1.82	0.94
2004	0.00	0.02	0.06	0.07	0.01	0.18	1.19	0.97	0.48	0.33

Table 41. Number of hatchery summer steelhead captured at the Sherars Falls Trap, by period, by year.

	June	July		August		September		October		
Year	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	Total
1977	3	11	66	146	38	137	245	67	31	744
1978	11	19	97	101	69	102	190	140	43	772
1979	1	22	98	87	63	211	430	195	44	1,142
1980	3	12	80	60	45	273	313	257	59	1,102
1981	7	19	35	43	75	232	210	139	27	778
1982	2	3	8	8	52	56	103	60	28	320
1983	-	-	-	11	84	253	270	268	48	934
1984	-	-	1	44	59	131	76	24	14	422
1985	-	-	10	18	73	174	237	223	32	767
1986	-	-	42	57	49	314	430	450	82	1,424
1987	-	-	-	35	26	133	285	248	58	785
1988	6	12	19	18	37	138	527	154	79	992
1989	2	3	14	5	22	137	379	414	311	1,287
1990	0	14	21	19	15	99	191	204	238	801
1991	1	4	20	34	50	151	592	251	175	1,278
1992	6	12	32	31	55	161	398	316	109	1,120
1993	0	9	4	16	18	103	393	313	135	991
1994	-	0	6	4	10	44	115	119	100	398
1995	2	1	8	13	45	134	576	697	290	1,766
1996	-	-	14	16	45	379	669	1136	52	2,311
1997	-	-	13	10	43	359	606	140	47	1,218
1998	-	1	5	12	21	237	997	331	41	1,645
1999	-	-	-	6	72	206	1041	426	188	1,939
2000	0	0	13	20	50	221	859	400	72	1,635
2001	2	14	18	61	76	642	1828	883	380	3,904
2002	0	16	20	50	92	344	1609	851	354	3,336
2003	1	8	20	33	35	354	646	389	269	1,755
2004	3	3	7	11	24	59	500	231	78	916

Table 42. Catch rate (fish/hour) of hatchery summer steelhead at the Sherars Falls Trap, by two-week period, by year.

	June	July		August		September		October		
Year	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-31	Average
1977	0.12	0.14	1.55	1.77	0.79	3.27	3.27	3.16	1.64	1.75
1978	0.19	0.38	1.15	0.79	0.49	0.99	2.33	1.31	0.72	0.93
1979	0.01	0.23	0.88	0.85	1.24	2.89	4.40	2.19	0.56	1.47
1980	0.04	0.21	0.84	0.70	0.61	3.25	3.07	2.59	0.82	1.35
1981	0.17	0.22	0.42	0.56	0.81	2.48	3.05	1.14	0.42	1.03
1982	0.05	0.09	0.19	0.14	0.46	0.75	0.93	0.73	0.43	0.42
1983	-	-	-	0.24	0.98	3.61	3.90	4.17	0.89	2.30
1984	-	-	0.10	0.60	0.85	2.46	1.64	0.56	0.27	0.93
1985	-	-	0.16	0.21	0.88	2.15	3.73	2.86	1.52	1.64
1986	-	-	0.36	0.69	0.57	3.34	5.70	4.56	0.90	2.30
1987	-	-	-	0.63	0.38	1.84	3.71	3.82	1.27	1.94
1988	0.14	0.17	0.25	0.22	0.44	1.99	5.32	3.11	1.44	1.45
1989	0.03	0.05	0.19	0.07	0.25	1.62	4.52	6.00	3.52	1.84
1990	0.00	0.08	0.23	0.26	0.21	1.38	2.11	2.51	2.55	1.09
1991	0.02	0.05	0.25	0.51	0.66	2.07	6.37	3.04	2.11	1.86
1992	0.08	0.16	0.40	0.42	0.77	2.14	5.54	2.98	1.41	1.59
1993	0.00	0.12	0.05	0.22	0.18	1.36	4.56	4.71	2.22	1.45
1994	-	0.00	0.08	0.05	0.14	0.71	1.44	1.54	1.31	0.74
1995	0.03	0.02	0.09	0.17	0.52	1.87	6.31	9.38	3.69	2.62
1996	-	-	0.16	0.22	0.60	4.23	11.57	12.78	0.75	4.26
1997	-	-	0.15	0.15	0.61	4.28	7.41	1.91	0.76	2.32
1998	-	0.02	0.08	0.20	0.28	3.22	8.78	3.48	0.58	2.69
1999	-	-	-	0.14	0.87	2.47	6.24	7.03	1.87	3.99
2000	0.00	0.00	0.18	0.25	0.59	3.38	11.85	5.76	0.91	2.86
2001	0.08	0.19	0.28	0.88	0.91	8.89	23.71	13.48	5.98	6.55
2002	0.00	0.30	0.33	0.49	1.19	6.00	17.23	11.56	4.92	5.32
2003	0.02	0.19	0.31	0.42	0.62	4.00	7.93	5.62	2.97	2.80
2004	0.05	0.04	0.10	0.12	0.22	0.78	4.08	2.77	0.98	1.02

Table 43. Number and percent of total for hatchery origin summer steelhead captured at the Sherars Falls trap, 2004 trap year.

Mark	Mark Code	Hatchery of Origin		Number Captured	Percent of Total
ADRV	035	Round Butte 1-salt		191	43
ADLM	038	Round Butte 2-salt		249	57
			Sub-total	440	100
AD	003	Stray hatchery		409	75
ADLV	034	Stray hatchery		61	11
ADLP	036	Stray hatchery		12	2
ADLVRV	345	Stray hatchery		6	1
ADRP	037	Stray hatchery		8	1
LVRVRPLP	4567	Stray hatchery		1	<1
DD	022	Stray hatchery		46	9
			Sub-total	543	100
			Grand Total	983	

Table 44. Number and percent of Round Butte Hatchery origin and stray hatchery origin summer steelhead as determined by fin mark captured at the Sherars Falls trap, by year.

	Round Butte Hatchery		Stray Hatchery Origin	
Trap Year	Number	% Total Catch	Number	% Total Catch
1988	665	67.2	324	32.8
1989	521	40.5	776	59.5
1990	352	44.0	448	56.0
1991	417	32.6	861	67.4
1992	506	45.2	614	54.8
1993	196	19.8	795	80.2
1994	118	29.7	280	70.3
1995	458	25.9	1,308	74.1
1996	649	28.1	1,662	71.9
1997	280	23.0	936	77.0
1998	423	25.8	1,220	74.3
1999	465	24.0	1,474	76.0
2000	483	29.6	1,147	70.4
2001	1,262	32.3	2,642 a/	67.7
2002	1,354	40.6	1,982 a/	59.4
2003	812	46.6	940 a/	53.4
2004	440	44.8	543	55.2

a/ Includes deformed dorsal, adipose present hatchery origin steelhead

Table 45. Deschutes River expanded summer steelhead harvest data from the mouth, west bank, July 1 – October 31, by year. Does not include voluntarily released fish.

			Bank		Boat		Total	
Year	Anglers	Hours	Wild	Hatchery	Wild	Hatchery	Wild	Hatchery
1977	10,571	54,724	933	225	1,643	478	2,576	703
1978a/				Season Closed				
1979b/				No Sample				
1980	6,984	42,819	1,322	435	1,946	600	3,268	1,035
1981	7,435	56,537	704	215	3,300	686	4,004	901
1982	6,937	47,622	691	142	2,751	629	3,442	771
1983	8,752	60,353	932	308	4,716	1,315	5,648	1,623
1984c/				No Sample				
1985c/				No Sample				
1986c/				No Sample				
1987	11,856	87,799	922	314	7,416	1,536	8,338	1,850
1988c/				No Sample				
1989	10,407	73,841	407	305	3,600	1,833	4,007	2,138
1990	6,568	44,300	205	200	1,185	939	1,386	1,139
1991	8,855	61,362	667	465	3,121	1,568	3,788	2,033
1992	6,837	44,265	153	281	1,352	1,097	1,505	1,378
1993	6,604	45,505	264	243	1,520	1,044	1,788	1,287
1994	5,980	36,488	103	209	758	1,166	861	1,375
1995	6,447	40,080	180	381	1,126	1,639	1,306	2,020
1996	6,813	46,080	208	558	1,785	3,099	1,993	3,657
1997	7,491	51,283	289	399	1,926	1,980	2,215	2,379
1998	4,877	27,909	77	115	867	470	944	585
1999	6,905	44,262	373	232	2,360	1,359	2,733	1,591
2000	7,318	53,208	259	186	3,157	1,485	3,146	1,671
2001	8,097	62,240	484	361	4,213	2,532	4,697	2,893
2002	7,926	56,327	340	310	3,219	2,546	3,559	2,856
2003	4,561	38,301	158	121	1,799	833	1,957	954
2004	5,198	41,164	203	226	2,205	1,067	2,408	1,293

a/ Steelhead retention season closed August 20, 1978.
b/ Wild steelhead release regulation began in 1979
c/ No sample.

Table 46. Deschutes River expanded summer steelhead harvest data from Macks Canyon Road July 1 to October 31, by year. Does not include hatchery fish voluntarily released.

			Bank		Boat		Total	
Year	Anglers	Hours	Wild	Hatchery	Wild	Hatchery	Wild	Hatchery
1977	7,774	41,110	853	379	524	205	1,377	584
1978a/	3,976	24,277	296	301	71	71	367	404
1979b/	4,755	26,596	877	545	467	292	1,344	837
1980	5,130	36,714	778	462	826	331	1,604	793
1981	5,876	40,405	1,567	395	1,114	207	2,681	602
1982	5,042	37,367	665	236	1,184	332	1,849	568
1983	5,405	36,170	788	383	1,504	466	2,292	849
1984				No Sample				
1985				No Sample				
1986				No Sample				
1987	7,508	50,419	1,210	266	1,697	352	2,898	618
1988								
1989	4,893	34,705	530	228	489	127	1,019	355
1990	3,073	22,679	261	113	317	103	578	216
1991				No Sample				
1992	3,058	21,914	157	134	347	116	504	250
1993	2,722	22,083	186	112	168	78	354	190
1994	2,326	16,984	138	121	193	149	331	270
1995	2,877	19,965	268	212	319	397	587	609
1996	3,806	28,333	230	690	451	773	681	1,463
1997	4,856	35,326	316	376	493	408	809	784
1998	2,444	15,549	206	137	314	57	520	194
1999	5,242	35,995	649	310	527	190	1,176	500
2000	5,315	39,239	541	229	828	229	1,369	458
2001	7,912	30,795	1,034	638	794	332	1,828	970
2002	7,794	30,755	699	377	1088	521	1,787	898
2003	5,637	22,458	460	147	852	151	1,312	298
2004	3,695	21,189	394	185	195	165	589	350

a/ Steelhead retention season closed August 20, 1978.
b/ Wild release regulation in effect since 1979.

Table 47. Deschutes River summer steelhead sport catch data, by year. Does not include hatchery steelhead voluntarily released.

	Fish per 100 Angler Hours				
	Mouth		Macks Canyon		Total
Year	Wild	Hatchery	Wild	Hatchery	W : H
1977	4.71	1.28	3.35	1.42	N/A
1978	No Sample		1.51	1.66	N/A
1979	No Sample		5.05	3.15	N/A
1980	7.63	2.42	4.37	2.16	N/A
1981	7.08	1.59	6.64	1.49	N/A
					N/A
1982	7.23	1.62	4.95	1.52	N/A
1983*	9.36	2.69	6.34	2.35	N/A
1984	No Sample		No Sample		N/A
1985	No Sample		No Sample		N/A
1986	No Sample		No Sample		1.94 : 1
1987	9.50	2.28	5.75	1.23	4.08 : 1
1988*	Incomplete Sample		No Sample		3.30 : 1
1989	6.01	3.69	2.94	1.02	1.93 : 1
1990	3.13	2.60	2.55	0.95	1.31 : 1
1991	6.17	3.31	No Sample		1.68 : 1
1992	3.40	3.11	2.30	1.32	1.02 : 1
1993	3.93	2.83	1.60	0.86	1.45 : 1
1994	2.36	2.96	1.95	0.94	0.96 : 1
1995	3.30	3.96	2.62	2.27	0.91 : 1
1996	4.33	8.00	2.40	5.16	0.52 : 1
1997	4.29	4.61	2.29	2.22	0.96 : 1
1998	3.38	2.10	2.02	0.37	1.88 : 1
1999	6.17	3.60	3.43	1.52	1.85 : 1
2000	5.91	3.14	3.49	1.17	2.12 : 1
2001	7.55	4.65	5.93	3.15	1.69 : 1
2002	6.32	5.07	5.81	2.92	1.15 : 1
2003	5.11	2.49	3.43	0.78	2.61 : 1
2004	5.85	3.14	2.78	1.65	1.82 : 1

* Not all statistically expanded creel.
Weekday and weekend data expansions combined

Table 48. Deschutes River expanded summer steelhead sport harvest data for Sherars Falls, by year (June 16 – October 31). Sport harvest of wild steelhead prohibited after 1978.

Year	Anglers	Hours	Wild	Hatchery
1980	4,120	21,171	446	364
1981	4,869	22,837	473	254
1982	5,247	26,061	538	312
1983	3,906	19,411	434	805
1984	3,522	17,503	528	454
1985	4,423	20,262	515	559
1986	4,447	20,240	274	471
1987	4,607	20,528	402	226
1988	3,726	19,514	196	240
1989	4,152	17,737	135	177
1990	3,165	12,059	79	185
1991	890	3,833	59	216
1992	0	0	0	0
1993	0	0	0	0
1994	0	0	0	0
1995	0	0	0	0
1996	0	0	0	0
1997	0	0	0	0
1998	2,110	11,738	3	110
1999	1,592	11,139	127	56
2000	2,956	14,154	237	224
2001	2,531	11,883	206	255
2002	5,079	15,640	227	346
2003	2,439	10,943	111	88
2004	2,759	12,288	78	114

Table 49. Deschutes River expanded summer steelhead tribal harvest data for Sherars Falls, by year (June 16 – October 31). Harvest estimates are the dip net and hook and line fisheries combined.

Year	Anglers/ Fishers	Hours	Tribal*	
			Wild	Hatchery
1980	944	7,357	981	1,309
1981	605	5,025	688	772
1982	516	4,628	549	1,066
1983	954	5,131	903	3,286
1984	576	5,553	1,600	2,730
1985	710	6,126	1,463	2,728
1986	523	5,848	1,225	3,729
1987	724	4,736	972	1,800
1988	744	5,978	339	939
1989	973	6,347	529	1,294
1990	602	4,232	301	1,300
1991	175	930	75	565
1992	36	332	10	65
1993	64	246	15	79
1994	82	400	12	130
1995	114	417	1	85
1996	80	355	1	155
1997	238	1,001	27	428
1998	304	1,123	135	760
1999	275	1,451	0	419
2000	303	1,225	42	616
2001	261	1,106	65	700
2002	345	1,984	17	585
2003	411	1,809	22	287
2004	478	1,919	69	546

Table 50. Expanded harvest data from Columbia River anglers sampled at Heritage Landing (Deschutes River), July 1 – October 31, by year. Chinook seasons vary among years. Wild steelhead releases all years.

			Chinook					
			Wild		Hatchery		Steelhead	
Year	Anglers	Hours	Adult	Jack	Adult	Jack	Wild	Hatchery
1987	4,765	23,059	234	30	11	0	157	123
1988								
1989	8,594	42,054	601	24	23	0	238	486
1990	4,627	25,736	389	121	21	0	92	451
1991	4,983	32,854	398	37	31	0	529	807
1992	5,059	28,405	226	11	7	0	378	1,217
1993	6,923	42,948	532	17	11	0	434	1,250
1994	4,296	24,955	53	15	4	2	198	699
1995	6,189	40,035	366	54	19	0	280	1,300
1996	4,871	31,258	220	2	11	2	228	752
1997	5,388	34,014	371	13	9	0	216	727
1998	5,560	32,725	509	6	42	6	161	374
1999	6,590	31,640	191	2	0	0	440	604
2000	6,229	32,490	182	33	12	0	686	744
2001	8,946	45,609	478	33	81	2	1,530	1,393
2002	6600	32,472	337	15	6	0	746	684
2003	5,456	27,117	614	4	46	0	429	286
2004	4,608	20,477	396	2	37	1	236	186

Table 51. Migration timing of summer steelhead captured at the Powerdale Dam trap by origin and run year. Bi-monthly counts are reported from March through December.

Origin, Run Year	March		April		May		June		July		August		September		October		November		December		Jan-May	Total
	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31		
Wild,																						
1992-93	0	1	12	6	7	21	31	68	49	49	37	18	17	55	25	24	38	12	2	1	4	477
1993-94	0	1	10	5	8	21	13	21	25	26	14	10	8	5	11	8	1	1	10	0	30	228
1994-95	0	1	3	4	9	7	22	25	32	33	11	1	4	8	2	7	5	0	0	0	9	183
1995-96	0	0	0	0	2	1	4	6	37	19	16	2	5	5	2	8	0	8	0	0	7	122
1996-97	0	0	0	1	3	3	12	17	31	32	14	6	6	5	17	10	7	0	0	1	5	170
1997-98	0	0	0	0	1	1	1	4	6	6	14	2	4	7	9	2	8	0	0	0	0	65
1998-99	0	0	0	1	3	2	5	13	15	17	7	5	5	7	7	4	3	13	1	0	10	118
1999-00	0	0	1	0	1	5	7	6	19	28	11	5	0	8	8	2	35	8	6	0	24	175
2000-01	0	0	1	3	2	12	13	39	20	22	14	9	10	23	3	26	1	0	0	0	4	202
2001-02	1	0	8	19	10	43	37	27	51	35	23	16	11	11	15	48	52	28	7	6	34	447
2002-03	0	2	2	2	10	18	34	38	74	61	27	18	16	23	42	15	28	65	0	13	158	650
2003-04	1	3	5	4	4	15	31	9	24	21	9	21	17	23	10	32	2	8	2	5	9	245
Subbasin Hatchery,																						
1992-93	0	8	48	82	131	190	136	279	253	220	136	28	26	55	24	10	15	4	1	4	19	1,669
1993-94	0	1	13	38	83	120	75	151	188	166	113	33	23	8	16	10	0	1	11	0	19	1,069
1994-95	0	4	13	79	124	164	269	299	324	166	26	10	13	17	17	12	12	4	0	0	20	1,573
1995-96	0	0	4	0	5	12	30	31	211	101	52	13	15	5	9	4	1	10	0	2	6	511
1996-97	0	2	39	29	123	153	305	188	259	120	26	15	3	3	9	7	4	0	0	1	7	1,293
1997-98	0	0	0	11	36	59	23	66	109	68	112	21	17	25	9	3	2	0	0	0	3	564
1998-99	0	1	2	21	20	25	88	60	111	103	16	12	19	15	5	7	2	10	0	0	7	524
1999-00	0	0	3	9	2	31	20	64	75	121	65	20	3	3	7	2	10	1	3	0	21	460
2000-01	2	11	43	68	77	179	155	228	170	111	41	22	19	8	0	9	2	0	0	0	5	1,151
2001-02	3	22	48	238	192	323	226	205	162	102	48	16	4	7	14	32	29	54	3	7	29	1,735
2002-03	0	5	21	42	114	142	272	296	298	154	48	27	15	5	27	7	5	16	0	8	68	1,565
2003-04	1	10	54	95	113	170	224	169	137	83	25	17	15	28	29	14	2	2	1	2	33	1,225
Hood River																						
2000-01	0	0	0	0	0	0	0	0	0	0	1	1	3	1	0	1	0	0	0	0	0	7
2001-02	0	0	0	3	2	10	16	17	30	25	31	9	8	29	35	72	80	26	0	3	29	396
2002-03	0	0	0	3	10	11	36	64	109	90	46	52	43	41	75	20	51	113	2	27	111	904
2003-04	2	0	1	1	10	14	49	38	79	49	22	17	25	52	67	62	5	16	11	9	111	638

Table 51 (cont). Migration timing of summer steelhead captured at the Powerdale Dam trap by origin and run year. Bi-monthly counts are reported from March through December.

Origin,	March		April		May		June		July		August		September		October		November		December		Jan-May	
Run Year	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-31	01-15	16-30	01-15	16-31	01-15	16-30	01-15	16-31		Total
Stray Hatchery,																						
1992-93	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	5
1993-94	0	0	0	1	0	0	2	2	3	0	1	2	0	0	1	0	1	0	1	0	1	13
1994-95	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	4
1995-96	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	5
1996-97	0	0	0	0	0	0	2	1	2	0	0	2	0	0	1	4	0	0	0	0	2	15
1997-98	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	0	1	0	0	0	6
1998-99	0	0	0	0	0	0	0	0	0	1	0	0	2	5	1	0	0	0	0	0	1	11
1999-00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
2000-01	0	0	0	1	1	0	0	0	0	0	0	0	0	5	0	2	0	0	0	0	0	49
2001-02	0	0	0	0	0	0	3	3	1	3	2	0	1	1	1	16	11	0	0	0	2	24
2002-03	0	0	0	0	0	0	1	0	1	4	0	0	1	2	2	1	3	7	0	6	6	26
2003-04	0	0	1	0	2	3	3	0	0	1	1	0	0	0	1	1	0	0	0	0	0	13
Unknown,																						
1992-93	1	2	1	0	3	4	1	3	8	4	4	1	4	17	2	4	7	0	0	1	3	70
1993-94	0	0	0	0	1	0	0	8	16	3	3	4	1	1		0	0	0	0	2	7	46
1994-95	0	0	1	5	6	11	17	16	16	10	1	0	11	0	1	1	2	0	0	0	1	99
1995-96	0	0	0	0	0	0	1	4	15	6	13	0	0	1	1	1	0	5	0	0	1	47
1996-97	0	0	1	0	2	6	14	5	14	17	5	1	3	2	0	3	0	0	0	0	1	75
1997-98	0	0	1	0	4	4	2	5	7	4	9	1	2	1	1	0	2	0	1	0	0	44
1998-99	0	0	0	4	5	3	3	3	4	6	2	0	0	1	1	2	2	3	1	1	3	45
1999-00	0	0	0	0	0	1	2	2	12	8	2	0	0	1	2	0	3	1	1	0	3	36
2000-01	0	0	0	2	3	2	1	9	3	3	0	3	1	3	1	1	2	0	0	0	4	41
2001-02	0	0	3	9	7	15	13	10	7	4	2	0	1	0	0	4	0	0	0	0	11	79
2002-03	0	0	1	1	3	4	12	15	12	6	5	9	1	1	7	6	4	19	0	4	44	154
2003-04	1	1	5	3	9	13	29	10	18	9	4	3	5	3	4	10	1	2	0	2	10	142

Table 51 (cont). Migration timing of summer steelhead captured at the Powerdale Dam trap by origin and run year. Bimonthly counts are reported from January through May.

Origin,		January		February		March		April		May		
Run Year	Mar-Dec	1-15	16-31	01-15	16-29	01-15	16-31	01-15	16-30	01-15	16-31	Total
Wild,												
1992-93	473	0	1	0	0	1	1	0	0	1	0	477
1993-94	198	16	2	0	1	2	1	2	6	0	0	228
1994-95	174	0	0	5	1	1	1	1	0	0	0	183
1995-96	115	0	0	0	0	1	0	1	5	1	0	122
1996-97	165	0	0	0	4	0	1	0	0	0	0	170
1997-98	65	0	0	0	0	0	0	0	0	0	0	65
1998-99	108	7	0	0	0	1	1	0	1	0	0	118
1999-00	151	2	0	4	1	1	2	8	5	0	1	175
2000-01	198	0	0	0	0	0	2	2	0	0	0	202
2001-02	447	7	3	2	1	2	3	12	4	0	0	481
2002-03	492	8	23	26	45	35	11	9	1	0	0	650
2003-04	236	0	0	0	2	1	1	5	0	0	0	245
Subbasin Hatchery,												
1992-93	1,650	0	0	0	0	0	3	11	4	1	0	1,669
1993-94	1,050	4	1	0	0	0	2	5	7	0	0	1,069
1994-95	1,553	0	4	2	3	6	2	0	3	0	0	1,573
1995-96	505	0	0	0	0	4	0	1	1	0	0	511
1996-97	1,286	0	0	0	3	0	1	2	1	0	0	1,293
1997-98	561	0	0	0	0	1	0	1	0	0	0	564
1998-99	517	5	0	1	0	0	0	0	1	0	0	524
1999-00	439	1	0	2	2	7	2	5	2	0	0	460
2000-01	1,145	1	0	0	0	1	0	2	1	0	0	1,151
2001-02	1,735	7	1	1	2	5	15	40	10	0	0	1,803
2002-03	1,497	0	7	8	11	14	15	13	0	0	0	1,565
2003-04	1,192	0	0	2	1	3	9	15	2	1	0	1,225
Hood River												
2000-01	7	0	0	0	0	0	0	0	0	0	0	7
2001-02	397	14	0	1	3	0	4	5	2	0	0	396
2002-03	793	5	36	10	30	22	6	1	1	0	0	904
2003-04	529	0	24	4	2	5	0	0	0	0	0	979
Stray Hatchery,												
1992-93	1	0	0		0	1	1	2	0	0	0	5
1993-94	12	0	0	0	0	0	0	1	0	0	0	13
1994-95	3	0	0	0	0	0	0	1	0	0	0	4
1995-96	5	0	0	0	0	0	0	0	0	0	0	5
1996-97	13	0	0	0	1	0	0	0	1	0	0	15
1997-98	6	0	0	0	0	0	0	0	0	0	0	6
1998-99	10	0	0	1	0	0	0	0	0	0	0	11
1999-00	2	0	0	0	0	0	0	0	0	0	0	2
2000-01	11	0	0	0	0	0	0	0	0	0	0	11
2001-02	47	1	0	1	0	0	0	0	0	0	0	49
2002-03	20	0	0	1	2	2	1	0	0	0	0	26
2003-04	13	0	0	0	0	0	0	0	0	0	0	13

Table 51 (cont). Migration timing of summer steelhead captured at the Powerdale Dam trap by origin and run year. Bimonthly counts are reported from January through May.

Origin,		January		February		March		April		May		
Run Year	Mar-Dec	1-15	16-31	01-15	16-29	01-15	16-31	01-15	16-30	01-15	16-31	Total
Unknown												
1992-93	67	0	1	1	0	0	0	1	0	0	0	70
1993-94	39	1	1	0	0	1	0	2	2	0	0	46
1994-95	98	0	0	0	0	0	0	1	0	0	0	99
1995-96	46	0	0	0	0	0	0	0	1	0	0	47
1996-97	74	0	0	0	0	0	1	0	0	0	0	75
1997-98	44	0	0	0	0	0	0	0	0	0	0	44
1998-99	42	3	0	0	0	0	0	0	0	0	0	45
1999-00	33	0	0	0	0		0	3	0	0	0	36
2000-01	38	0	0	1	0	0	3	0	0	0	0	41
2001-02	94	1	0	0	2	0	0	0	0	0	0	105
2002-03	110	0	6	3	13	12	7	3	0	0	0	154
2003-04	132	0	0	0	0	1	2	3	4	0	0	142

Table 52. Summer steelhead escapements to the Powerdale Dam trap by origin, run year, and age category. Fish of unknown origin were allocated to origin categories based on scale analysis and the ratio of fish of known origin.

Origin, Run Year	Total Escapement	Freshwater/Ocean Age												Repeat Spawners
		1/1	1/2	1/3	5/2	2/1	2/2	2/3	2/4	3/1	3/2	3/3	2/4	
Wild														
1992-93	491	0	5	0	0	26	309	48	0	6	78	0	1	18
1993-94	245	0	1	2	0	11	109	53	3	5	44	7	0	10
1994-95	219	0	0	0	0	5	81	33	0	2	71	12	0	15
1995-96	132	0	0	0	0	15	82	18	0	2	11	1	0	3
1996-97	184	0	2	0	0	6	129	14	0	2	23	2	0	4
1997-98	79	0	1	0	0	8	42	7	0	1	13	0	0	7
1998-99	131	2	2	0	0	15	75	13	0	0	15	0	0	11
1999-00	186	0	1	0	0	25	108	18	0	6	15	1	0	9
2000-01	218	0	4	2	0	23	101	6	0	6	59	2	1	14
2001-02	495	4	8	4	1	27	312	38	0	12	196	12	5	17
2002-03	707	2	24	3	1	53	319	49	0	17	181	14	4	40
2003-04	267	0	3	1	0	41	112	13	0	12	58	4	0	23
Subbasin Hatchery														
1992-93	1,725	48	1,512	150	1	0	0	1	--	--	--	--	--	13
1993-94	1,098	35	818	235	3	0	0	0	--	--	--	--	--	7
1994-95	1,636	12	1,352	259	0	0	1	0	--	--	--	--	--	12
1995-96	548	59	420	61	0	0	1	0	--	--	--	--	--	7
1996-97	1,351	8	1,251	78	0	0	6	0	--	--	--	--	--	8
1997-98	594	10	542	37	0	0	0	0	--	--	--	--	--	4
1998-99	556	26	374	140	0	0	0	0	--	--	--	--	--	17
1999-00 a/	485	33	360	76	1	3	0	0	--	--	--	--	--	12
2000-01 a/	1,176	34	1,077	49	0	0	2	0	--	--	--	--	--	14
2001-02	1,880	77	1,442	183	0	9	135	5	--	--	--	--	--	24
2002-03	1,655	116	1,408	75	0	5	21	1	--	--	--	--	--	29
2003-04	1,329	65	1,123	104	0	1	5	0	--	--	--	--	--	31
Hood River														
2000-01	7	7	0	--	--	--	--	--	--	--	--	--	--	0
2001-02	409	112	278	--	--	19	--	--	--	--	--	--	--	21
2002-03	909	31	628	--	--	1	--	--	--	--	--	--	--	9
2003-04	654	190	368	--	--	2	--	--	--	--	--	--	--	14

Table continues

Table 52 (cont). Summer steelhead escapements to the Powerdale Dam trap by origin, run year, and age category. Fish of unknown origin were allocated to origin categories based on scale analysis and the ratio of fish of known origin.

Origin, Run Year	Total Escapement	Freshwater/Ocean Age												Repeat Spawners
		1/1	1/2	1/3	1/4	2/1	2/2	2/3	2/4	3/1	3/2	3/3	4/2	
Unknown,														0
1992-93	5	3	2	0	--	0	0	1	--	--	--	--	--	0
1993-94	13	1	10	2	--	0	0	0	--	--	--	--	--	0
1994-95	4	0	1	3	--	0	0	0	--	--	--	--	--	1
1995-96	5	2	0	2	--	0	0	0	--	--	--	--	--	0
1996-97	18	1	16	1	--	0	0	0	--	--	--	--	--	0
1997-98	6	2	4	0	--	0	0	0	--	--	--	--	--	0
1998-99	11	1	8	2	--	0	0	0	--	--	--	--	--	0
1999-00	2	0	2	0	--	0	0	0	--	--	--	--	--	0
2000-01	11	0	9	1	--	0	1	0	--	--	--	--	--	0
2001-02	49	0	1	16	--	2	18	0	--	--	--	--	--	6
2002-03	27	3	9	0	1	0	1	4	--	--	--	--	--	8
2003-04	13	2	6	3	0	0	1	0	--	--	--	--	--	1

Table 53. Number of wild summer steelhead collected for brood, spawned, and those that were prespawning mortalities, by sex, by brood year.

Brood	FEMALES			MALES		
Year	Taken	Spawned	Died	Taken	Spawned	Died
1998	9	7	2	3	2	1
1999	21	14	7	13	11	2
2000	21	13	0	12	10	0
2001	16	13	3	11	11	0
2002	34	16	10	30	26	4
2003	43	15	21	34	19	10
2004	23	13	5	18	7	4

Table 54. Summary of summer steelhead spawning, Hood River by brood year. Number of smolts represents number transferred to acclimation rather than release.

Year	Number Females	Number Males	Family Groups	Number Spawnings	Total Green Eggs	Number Smolts a/	Egg to Smolt %
1998	7	2	10	5	30,218	19,532	64.6%
1999	16	11	22	8	39,727	33,899	85.3%
2000	13	10	26	9	49,789	37,688	75.7%
2001	13	10	27	8	55,145	45,767	83.0%
2002	16	22	32	7	56,936	47,621	83.6%
2003	15	19	29	9	61,828	40,429	65.4%
2004	13	7	36	8	81,214	62,405	76.8%

a/ Egg to smolt survival calculated on transfer number not liberated from acclimation. Number of smolts shown is number delivered to acclimation, not number liberated from acclimation.

Table 55. Bi-monthly counts of upstream migrant adult winter steelhead at Powerdale Dam, Hood River, by run year.

Origin,	December		January		February		March		April		May		June		
Run Year	01-15	16-31	01-15	16-29	01-15	16-31	01-15	16-30	01-15	16-30	01-15	16-31	01-15	16-30	Total
Wild,															
1991-92	0	0	0	24	28	32	75	98	153	149	88	29	2	0	678
1992-93	0	4	0	2	3	0	28	61	99	78	86	30	3	2	396
1993-94	0	0	4	7	0	6	23	25	77	128	76	21	11	0	378
1994-95	0	0	0	0	9	0	6	2	55	15	52	44	10	1	194
1995-96	0	0	0	0	0	0	17	4	93	40	69	36	11	0	270
1996-97	0	2	1	0	3	13	5	22	52	72	68	33	3	0	274
1997-98	1	0	1	1	6	0	7	12	23	107	36	8	5	1	208
1998-99	0	0	13	0	4	2	8	32	47	121	22	33	7	2	291
1999-00	8	1	0	2	15	16	69	111	320	225	115	26	1	0	909
2000-01	0	0	0	0	1	7	50	143	314	381	86	19	0	1	1,002
2001-02	3	0	9	3	13	63	71	198	282	267	104	21	7	0	1,041
2002-03	0	1	3	3	9	14	68	228	250	88	43	10	0	0	717
2003-04	0	7	0	2	8	41	69	115	154	126	49	5	1	0	578
Subbasin Hatchery, a/															
1991-92	0	5	11	94	54	42	30	5	2	2	0	0	0	0	245
1992-93	2	13	0	31	44	0	39	31	17	13	3	0	0	0	194
1993-94	0	0	25	31	8	36	32	6	3	2	0	0	0	0	143
1994-95	0	0	0	6	28	18	11	4	22	3	7	1	0	0	100
1995-96	2	0	0	0	0	0	19	8	93	47	66	21	3	0	259
1996-97	0	0	0	1	2	38	20	54	128	171	141	54	8	0	671
1997-98	6	0	1	0	6	5	26	55	85	146	27	5	1	0	363
1998-99	18	0	1	10	0	4	0	6	65	75	88	12	23	1	2	304
1999-00	8	0	2	1	12	13	35	45	83	53	228	10	0	0	290
2000-01	0	0	2	0	2	10	71	224	308	217	51	11	1	0	895
2001-02b/	3	0	27	22	40	70	102	178	243	172	42	3	2	0	904
2002-03	1	0	1	8	14	13	47	163	133	64	19	6	0	0	469
2003-04	2	20	0	14	22	52	103	206	186	183	101	26	5	1	922

Table continues

Table 55 (cont). Bi-monthly counts of upstream migrant adult winter steelhead at Powerdale Dam, Hood River, by run year.

Origin,	December		January		February		March		April		May		June		
Run Year	01-15	16-31	01-15	16-29	01-15	16-31	01-15	16-30	01-15	16-30	01-15	16-31	01-15	16-30	Total
Stray Hatchery,															
1991-92	0	0	0	2	2	1	5	4	7	1	0	0	0	0	22
1992-93	0	0	0	1	2	0	2	9	7	1	0	0	0	0	22
1993-94	0	0	1	0	0	0	1	1	11	6	0	0	0	0	20
1994-95	0	0	0	0	0	1	1	1	0	0	0	0	0	0	3
1995-96	0	0	0	0	0	0	3	1	2	0	0	0	0	0	6
1996-97	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
1997-98	0	0	0	0	1	0	0	1	0	0	1	0	0	0	3
1998-99	0	0	1	0	0	0	0	2	1	2	0	0	0	0	6
1999-00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
2000-01	0	0	0	0	0	3	3	15	7	8	2	0	0	0	38
2001-02	0	1	8	3	7	12	11	17	25	10	2	1	0	0	97
2002-03	0	0	0	3	2	4	6	18	23	9	1	0	0	0	66
2003-04	0	2	0	0	1	1	7	10	7	7	2	0	0	0	37
Unknown															
1991-92	1	4	4	22	9	7	6	5	3	9	4	2	0	0	71
1992-93	0	0	0	7	7	0	6	5	4	2	3	0	0	0	39
1993-94	0	1	6	3	0	1	6	8	5	5	3	2	0	0	39
1994-95	0	0	0	0	5	3	0	0	4	1	2	2	2	0	20
1995-96	0	0	0	0	0	0	2	1	9	5	5	3	0	0	25
1996-97	0	0	0	0	0	5	1	6	8	8	7	4	1	0	40
1997-98	0	0	0	0	0	4	9	5	11	11	5	1	0	0	46
1998-99	1	0	1	1	0	0	1	2	7	7	1	2	0	0	23
1999-00	1	0	0	0	0	3	0	2	5	5	6	0	0	0	27
2000-01	0	0	0	0	0	0	4	6	15	9	1	0	0	0	35
2001-02	0	0	2	0	6	4	6	11	19	13	2	0	0	0	63
2002-03	0	0	1	1	0	5	10	10	20	14	3	3	0	0	67
2003-04	0	1	0	2	2	9	13	20	25	18	2	4	1	0	97

a/ Subbasin hatchery includes Big Creek stock 1991-92 through 1994-95, mixed Big Creek x Hood River stock 1992-93 through 1995 and Hood River stock 1993-94 through present run.

b/ Includes steelhead with winter fin marks classified as summer steelhead.

Table 56. Winter steelhead escapements to the Powerdale Dam trap by origin, stock, run year, and age category. Fish of unknown origin were allocated to origin categories based on scale analysis and the ratio of fish of known origin.

Origin, Stock, Run Year	Total Escapement	Freshwater/Ocean Age 1/1	1/2	1/3	1/4	2/1	2/2	2/3	2/4	3/1	3/2	3/3	3/4	4/2	Repeat Spawners
Wild,															
Hood River,															
1991-92	698	--	3	4	0	9	424	76	0	1	111	17	0	1	52
1992-93	412	--	2	6	0	36	174	123	1	1	20	17	0	0	32
1993-94	405	--	2	6	0	9	274	79	0	1	17	4	0	0	13
1994-95	206	--	1	1	0	28	107	34	1	3	9	3	1	0	18
1995-96	278	--	12	1	1	18	183	29	0	1	22	6	0	0	7
1996-97	280	--	1	1	0	12	199	34	0	1	24	7	0	1	7
1997-98	227	--	1	0	0	13	134	42	0	3	20	4	0	0	11
1998-99	300	--	8	0	0	55	156	38	0	2	23	10	0	0	8
1999-00	927	--	4	1	0	6	795	45	1	1	41	2	0	0	31
2000-01	1,017	--	3	1	0	21	587	128	1	16	111	13	0	1	134
2001-02	1,061	--	12	5	0	23	609	139	0	9	204	24	0	0	36
2002-03	711	--	12	5	0	12	411	171	0	3	69	31	0	0	39
2003-04	599	--	18	4	0	7	359	88	1	0	73	21	0	0	28
Subbasin hatchery,															
Big Creek,															
1991-92	296	--	279	5	--	--	5	1	--	--	--	--	--	--	5
1992-93	201	--	63	138	--	--	0	0	--	--	--	--	--	--	8
1993-94	137	--	0	65	--	--	66	0	--	--	--	--	--	--	4
1994-95	10	--	0	0	--	--	0	7	--	--	--	--	--	--	3
Mixed, a/															
1992-93	6	6	0	0	--	--	0	--	--	--	--	--	--	--	--
1993-94	14	0	14	0	--	--	0	--	--	--	--	--	--	--	--
1994-95	8	0	0	2	--	--	6	--	--	--	--	--	--	--	--

Table continues

Table 56 (cont). Winter steelhead escapements to the Powerdale Dam trap by origin, stock, run year, and age category. Fish of unknown origin were allocated to origin categories based on scale analysis and the ratio of fish of known origin.

Origin, Stock, Run Year	Total Escapement	Freshwater/Ocean Age 1/1	1/2	1/3	1/4	2/1	2/2	2/3	2/4	3/1	3/2	3/3	3/4	4/2	Repeat Spawners
Hood River, b/															
1993-94	1	1	0	0	0	0	0	0	--	--	--	--	--	--	0
1994-95	90	12	77	0	0	0	0	0	--	--	--	--	--	--	1
1995-96	274	10	246	17	0	0	0	0	--	--	--	--	--	--	0
1996-97	637	6	524	100	0	0	4	0	--	--	--	--	--	--	4
1997-98	390	4	242	128	0	0	3	1	--	--	--	--	--	--	12
1998-99	311	12	165	120	1	1	8	0	--	--	--	--	--	--	11
1999-00	299	6	218	51	1	0	8	5	1	--	--	--	--	--	15
2000-01	915	7	704	159	0	2	6	0	--	--	--	--	--	--	36
2001-02	936	3	715	196	0	3	7	0	--	--	--	--	--	--	12
2002-03	503	11	285	185	0	1	8	3	--	--	--	--	--	--	10
2003-04	998	3	857	119	1	1	5	0	--	--	--	--	--	--	12
Stray hatchery, Unknown,															
1991-92	22	0	8	13	0	--	0	--	--	--	--	--	--	--	1
1992-93	22	0	15	5	0	--	0	--	--	--	--	--	--	--	2
1993-94	24	1	2	21	1	--	1	--	--	--	--	--	--	--	1
1994-95	3	1	1	2	0	--	0	--	--	--	--	--	--	--	0
1995-96	6	0	5	0	0	--	0	--	--	--	--	--	--	--	1
1996-97	3	0	3	0	0	--	0	--	--	--	--	--	--	--	0
1997-98	3	1	2		0	--	1	--	--	--	--	--	--	--	0
1998-99	6	0	2	4	0	--	0	--	--	--	--	--	--	--	0
1999-00	1	0	0	0	1		0								0
2000-01	38	0	16	10	0	1	9	1	--	--	--	--	--	--	1
2001-02c/	103	0	39	51	0	0	36	6	--	--	--	--	--	--	8
2002-03	68	0	39	19	0	0	1	3	--	--	--	--	--	--	6
2003-04	37	0	12	13	1	0	2	1	--	--	--	--	--	--	8

a/ Returns from the 1991 brood are progeny of wild x Big Creek stock hatchery crosses.

b/ The 1993-94 run year is the first run year in which the native Hood River stock (1992 brood) would have had the potential for returning as adults to Powerdale Dam. These fish would have returned as age category 1/1 adults. None were sampled at the trapping facility.

c/ Includes steelhead with winter fin marks classified as summer steelhead.

Table 57. Summary of winter steelhead spawning, Hood River by brood year. Number of smolts represents number transferred to acclimation rather than release.

Year	Number Females	Number Males	Family Groups	Number Spawnings	Total Green Eggs	Number Smolts b/	Egg to Smolt %
1991 a/	3	1	3	2	11,858	4,600	38.8%
1992	18	21	57	6	53,308	48,985	91.9%
1993	16	18	78	6	62,150	38,034	61.2%
1994	26	28	70	8	95,043	42,898	45.1%
1995	18	19	47	8	63,793	51,022	80.0%
1996	25	29	60	10	85,497	60,318	70.6%
1997 c/	26	28	51	8	91,000	62,136	68.2%
1998	21	20	37	8	80,620	50,915	63.2%
1999 d/	28	33	55	9	96,525	66,056	68.4%
2000	20	20	21	8	83,510	56,586	61.8%
2001	24	35	38 e/	10	89,756 f/	50,948	56.8%
2002	21	25	43	8	83,992	51,569	61.4%
2003	22	22	34	8	87,339	--	--
2004	22	24	43	8	89,759	79,486	88.6%

a/ Angler captured brood stock.

b/ Egg to smolt survival calculated on transfer number not liberated from acclimation. Number of smolts shown is number delivered to acclimation, not number liberated from acclimation.

c/ 102,465 green eggs transferred to Umatilla Hatchery. INH positives and scale read hatchery eggs culled down to 91,000 eyed eggs.

d/ Total egg take was 112,302. Culled down to 96,525 and that number was used to calculate egg to smolt survival.

e/ Started with 50 family groups but culled 6 family groups (3 females) that were 100% non-fertile and 6 family groups from 2 females determined to be hatchery origin and 1 female determined to be a summer steelhead.

f/ Total egg take was 120,700. Culled down to 89,756 by culling 3 females (16, 611 eggs) that were 100% non-fertile, 2 females (8,294 eggs) determined to be hatchery origin winter steelhead and 1 female (6,039 eggs) determined to be a summer steelhead. A total of 27 females were originally spawned.

Table 58. Number of winter steelhead collected for brood, spawned, and those that were prespawning mortalities, by sex, by brood year. Number in parentheses ( ) is the number of wild winter steelhead in the total.

Brood	FEMALES						MALES					
Year	Taken		Spawned		Died		Taken		Spawned		Died	
1991	13	(7)	3	(1)	10	(7)	5	(5)	1	(1)	4	(4)
1992	52	(52)	18	(18)	0	(0)	51	(51)	21	(21)	0	(0)
1993	28	(28)	16	(16)	2	(2)	29	(29)	18	(18)	7	(7)
1994	45	(45)	26	(26)	3	(3)	34	(34)	28	(28)	1	(1)
1995	20	(20)	18	(18)	2	(2)	22	(22)	19	(19)	0	(0)
1996	43	(34)	24	(19)	2	(2)	46	(34)	29	(17)	5	(5)
1997	41	(26)	27	(17)	5	(4)	41	(22)	28	(15)	8	(5)
1998	45	(23)	21	(11)	13	(7)	34	(19)	20	(12)	10	(4)
1999	42	(21)	29	(14)	0	(0)	33	(20)	33	(20)	0	(0)
2000	53	(27)	20	(10)	1	(0)	30	(20)	20	(15)	0	(0)
2001	65	(65)	24	(24)	0a/	(0a/)	69	(69)	35	(35)	0	(0)
2002	39	(39)	21	(21)	7a/	(7a/)	35	(35)	25	(25)	1b/	(1b/)
2003	35	(33)	22	(21)	1	(1)	31	(30)	22	(22)	9	(8)
2004	42	(36)	22	(36)	0	(0)	41	(39)	24	(40)	0	(0)

a/ Three additional females were post spawn mortality.
b/ Three additional males were post spawn mortality.

Table 59. Winter steelhead redd counts in the Fifteenmile Creek sub basin, by stream, reach, and random section length, 2004.

Stream	Sub Reaches	Length (mi.)	Number of Redds				
			Pass 1	Pass 2	Pass 3	Total	Redds/mi.
Eightmile Creek	8 1-2	0	NS	NS	NS		
	8 2-4	0		Access Denied			
	8 3-4	1.24	26	6	2	34	27.4
	8 3-5	0.95	5	9	NS	14	14.7
	8 4-2	0.88	9	NS	7	16	18.2
	8 4-3	1.61	16	NS	5	21	13.0
	8 5-4	1.11	7	NS	2	9	8.1
Subtotal		7.63	63	15	16	94	12.3
Fivemile Creek	5 1-4	1.02	3	NS	NS	3	2.9
	5 2-1	0		Access Denied			
	5 3-2	0.7	0	9	NS	9	12.9
	5 4-2	1.03	0	2	NS	2	1.9
Subtotal		3.71	3	11	0	14	3.8
Fifteenmile Creek	15 1-5	0.86	1	4	NS	5	5.8
	15 2-1	0.87	2	3	NS	5	5.7
	15 3-2	0.99	2	6	NS	8	8.1
	15 4-2	0.97	5	1	NS	6	6.2
	15 5-4	1.01	4	2	NS	6	5.9
	15 6-3	0.95	2	4	NS	6	6.3
	15 7-2	1.01	4	4	NS	8	7.9
	15 7-3	1.46	5	2	27	34	23.3
	15 8-2	0.9	0	0	NS	0	0.0
	15 8-4	0.77	3	6	2	11	14.3
	15 9-1	1.06	0	0	NS	0	0.0
Subtotal		10.85	28	32	29	89	8.2
Ramsey Creek	R 1-2	1.06	5	4	1	10	9.4
	R 1-3	0.92	4	NS	1	5	5.4
	R 1-5	1	0	NS	NS	0	0.0
	R 2-4	1	0	NS	NS	0	0.0
Subtotal		3.98	9	4	2	15	3.8
Total		**23.5**	**103**	**62**	**47**	**212**	**9.0**

NS - No survey was conducted

Table 60. Deschutes River rainbow trout harvest data sampled at the mouth, west bank (Heritage Landing), July 1 – October 31, by year.

			Rainbow Trout			
Year	Anglers	Hours	Kept	Released	Total	Fish/Hour
1989	234	1,398	65	1,319	1,384	0.99
1990	95	1,079	21	470	491	0.46
1991	214	1,690	33	1,359	1,392	0.82
1992	188	1,578	13	1,453	1,466	0.93
1993	392	3,071	34	1,453	1,487	0.47
1994	355	2,207	13	1,055	1,068	0.48
1995	354	1,790	6	1,142	1,148	0.64
1996	272	1,343	6	603	609	0.45
1997	223	1,162	2	478	481	0.41
1998	250	973	3	634	637	0.65
1999	220	1,475	0	1,727	1,727	1.17
2000	291	1,671	19	1,573	1,592	0.95
2001	410	2,149	33	2,116	2,149	1.00
2002	323	967	14	1,146	1,160	1.20
2003	149	2,289	7	694	701	0.31
2004	150	950	0	982	982	1.03

Table 61. Deschutes River expanded rainbow trout user and harvest data from Macks Canyon Road sample, July 1 to October 31, by year.

			Rainbow Trout			
Year	Anglers	Hours	Kept	Released	Total	Fish/Hour
1989	2,198	10,601	515	6,909	7,424	0.70
1990	1,941	9,180	443	6,037	6,480	0.71
1991						
1992	1,246	7,188	153	3,160	3,313	0.46
1993	1,772	8,781	98	3,887	3,985	0.45
1994	2,268	10,456	151	6,538	6,690	0.64
1995	2,985	15,225	172	7,189	7,361	0.48
1996	2,431	12,591	106	5,800	5,906	0.46
1997	2,466	11,647	84	5,147	5,231	0.45
1998	1,790	7,395	55	4,555	4,610	0.62
1999	2,609	9,910	102	5,785	5,887	0.59
2000	2,936	12,523	71	7,879	7,950	0.64
2001	2,844	7,794	152	7,490	7,642	0.98
2002	2,870	8,375	135	8,098	8,233	0.98
2003	2,279	7,568	130	6,406	6,536	0.86
2004	1,476	8,022	26	3,920	3,946	0.49

Table 62. Deschutes River expanded rainbow trout angler use and harvest data, river mile 0–42, July 1 to October 31, by year.

			Rainbow Trout			
Year	Anglers	Hours	Kept	Released	Total	Fish/Hour
1989	2,432	11,999	580	8,228	8,808	0.73
1990	2,036	10,259	464	6,507	6,971	0.68
1991	INCOMPLETE SAMPLE					
1992	1,434	8,766	156	4,613	4,769	0.54
1993	2,164	11,852	132	5,340	5,472	0.46
1994	2,623	12,663	164	7,593	7,758	0.61
1995	3,339	17,015	178	8,331	8,509	0.50
1996	2,703	13,934	112	6,403	6,515	0.46
1997	2,689	12,809	86	5,625	5,712	0.45
1998	2,040	8,368	58	5,189	5,247	0.63
1999	2,829	11,385	102	7,512	7,614	0.67
2000	3,227	14,194	90	9,452	9,542	0.67
2001	3,254	9,943	185	9,606	9,791	0.98
2002	3,193	9,342	149	9,244	9,393	1.01
2003	2,428	9,857	137	7,100	7,237	0.73
2004	1,626	8,972	26	4,902	4,928	0.55

Table 63. Bull trout capture at the Powerdale Trap, 1963 through 1971. Data do not represent continuous trapping efforts.

Year	Period	Number
1963	April-May	3
	May-June	2
	June-July	1
1964	May-June	5
	Unknown	4
1965	June-July	1
	Unknown	2
1966	Unknown	1
1967	May-June	1
	June	2
	July	1
	September	1
	October-November	1
	Unknown	6
1968	May-June	6
	June-July	3
1969	May-June	5
1970		0
1971	May-June	1

Table 64. Date of capture, fork length (cm), and weight (kg) of bull trout sampled at Powerdale Dam trap, by year. Data represent continuous trapping.

Date	Tag Number(s)	Length (cm)	Weight (kg)	Remarks
05/08/92	None	40.0	--	
05/10/92	None	45.0	--	
05/19/92	5355	51.5	--	Recaptured 5/17/93.
05/26/92	5518	56.0	--	
05/26/92	5525	45.2	--	
06/06/92	5835	56.5	--	Observed below Clear Branch Dam 8-26-92 (6 bull trout for year).
05/17/93	5355 (recap)	55.5	--	First captured & tagged 5/19/92. Released into Laurance Lake.
06/01/93	2556	48.0	--	Recaptured 5/23/94. (2 bull trout for year)
05/13/94	2998	55.5	2.5	
05/22/94	2965	43.5	1.0	
05/23/94	2556 (recap)	53.0	1.6	First captured & tagged 6/1/93.
06/02/94	5040	37.5	0.8	
06/13/94	4379	37.0	0.6	Angler capture above trap, tagged & released.
06/14/94	4384	24.3	--	Captured in Powerdale forebay screw trap, tagged and released.
06/24/94	4400	33.5	0.5	
06/26/94	4401	41.0	0.8	Angler recaptured, Hood River near I-84 bridge on 5/2/95.
06/30/94	4407	41.0	0.9	Recaptured 7/28/95.
07/20/94	4431	37.5	0.5	Captured 4/24/95 Columbia R. near Drano Lk. by pikeminnow crew.
07/25/94	4442	35.5	0.5	(11 bull trout for year)
06/02/95	6893	51.5	1.8	
06/07/95	4505	46.0	1.1	Recaptured 06/01/96.
06/10/95	4506	48.0	1.4	

Table continues

Table 64 (cont.). Date of capture, fork length (cm), and weight (kg) of bull trout sampled at Powerdale Dam trap, by year. Data represent continuous trapping.

Date	Tag Number(s)	Length (cm)	Weight (kg)	Remarks
06/23/95	4521	51.0	1.5	Old tag scar present. Bloody eye.
07/03/95	4565	46.0	1.0	Recaptured 06/02/96.
07/08/95	4582	50.5	1.5	Observed at Coe Cr. diversion 9/14/95.
07/27/95	no tag	39.0	0.8	
07/28/95	4407 (recap)	51.5	1.5	First captured & tagged 6/30/94. Blind one eye.
08/06/95	6028	46.0	1.1	Blind left eye.0
08/24/95	6035	43.5	1.0	Deformed spine. Missing right maxillary.
10/04/95	6045	47.0	1.2	Ripe female. Cloudy eyes. (11 bull trout for year)
05/12/96	6088	50.0	1.5	Blind right eye.
05/14/96	6093	48.5	1.5	
06/01/96	4505 (recap)	50.0	1.5	First captured and tagged 6/07/95.
06/02/96	0214	49.5	1.5	
06/02/96	4565 (recap)	53.5	1.8	First captured and tagged 7/03/95. Tag 4565 replaced with 0219.
06/02/96	0220	50.0	1.5	
06/03/96	0230	53.0	1.8	
06/04/96	0231	55.0	2.2	
06/08/96	0238	49.0	1.5	
06/08/96	0241	50.0	1.5	Recaptured 07/08/97.
06/11/96	0246	57.0	2.2	Missing right maxillary.
06/11/96	0247	51.0	1.7	
06/12/96	8867	50.0	1.6	Blind right eye, fungus over left eye.
06/15/96	0248	55.5	2.2	Blind right eye.
06/26/96	0350	50.5	1.6	

Table continues

Table 64 (cont.). Date of capture, fork length (cm), and weight (kg) of bull trout sampled at Powerdale Dam trap, by year. Data represent continuous trapping.

Date	Tag Number(s)	Length (cm)	Weight (kg)	Remarks
06/28/96	6045 (recap)	50.0	1.4	First captured and tagged 10/04/95. Both eyes cloudy in 1996. Tag 6045 replaced with 0393.
07/07/96	0529	49.5	1.3	Missing left maxillary.
10/05/96	02965 (recap)	55.0	1.6	First captured and tagged 05/22/94. Tag 02965 replaced with 0134. Ripe female on 10/05/96. (18 bull trout for year)
05/19/97	8801	61.5	3.0	Orange tag. Found dead 10/24/97 in Coe Branch below MFID diversion.
05/29/97	8989	47.5	1.2	Orange tag. Tagged with USFS transmitter 40.023.
06/25/97	8834	46.5	1.1	Orange tag. Tagged with USFS transmitter 40.033.
06/29/97	8882	44.5	1.1	Orange tag. Blind right eye, open wound.
07/07/97	34063	42.0	1.0	Green tag. Tagged with USFS transmitter 40.043.
07/08/97	11010 (recap)	53.0	1.7	Gray tag. First captured and tagged 06/08/96. Tag 0241 replaced with 11010. Radio tagged with USFS transmitter 40.053. (6 bull trout for year)
05/30/98	12501	58.5	2.2	White tag. Right maxillary missing. Caught RM 182 Columbia (Coberg Beach) 4-22-99 by squawfish crew 60.2 when recaptured and released. Tag number 12502 only on recapture.
06/05/98	12503	50.0	1.4	White tag. Blind right eye.
06/09/98	12505	37.5	0.6	White tag.
06/09/98	0134 (recap)	60.0	2.4	Orange tag recapture. Radio tagged 40-610. First capture on 06/22/94. Second capture as ripe female 10/05/96.
06/10/98	12507	45.5	1.2	White tag.
06/11/98	12509	38.5	0.7	White tag.
06/15/98	12511	38.5	0.7	White tag. Seen on screen at Coe Branch diversion 09/28/98 - going downstream possibly after spawning.

Table continues

Table 64 (cont.). Date of capture, fork length (cm), and weight (kg) of bull trout sampled at Powerdale Dam trap, by year. Data represent continuous trapping.

Date	Tag Number(s)	Length (cm)	Weight (kg)	Remarks
06/18/98	12512	39.0	0.8	White tag.
06/23/98	12514	47.0	1.3	White tag. Radio tagged 40.633.
06/29/98	12515	40.0	1.8	White tag.
07/03/98	12516	35.5	0.5	White tag.
07/08/98	12517	40.5	0.9	White tag. Died in holding for radio.
07/10/98	12519	39.0	0.8	White tag.
07/10/98	12520	47.0	1.3	White tag. Radio tagged 40.653.
07/10/98	12521	35.5	0.6	White tag.
07/11/98	12522	35.5	0.5	White tag.
07/22/98	12523	37.5	0.7	White tag.
08/15/98	12929	39.5	0.7	White tag. (18 bull trout for year)
05/28/99	12544	50.0	1.6	White tag. Recaptured on 05/28/00.
05/31/99	13734 (recap)	51.0	1.5	Grey tag. White tags 12507/12508 recapture. First tagged on 06/10/98. Missing left maxillary in 1999. White tags 12507/12508 removed in 1999. Recaptured 06/05/00.
06/07/99	12545	49.5	1.5	White tag.
06/09/99	12546	49.0	1.4	White tag. Eye scrape.
06/10/99	12547 (recap)	50.5	1.7	White tag 12519 recapture. First tagged on 07/10/98. White tag 12519 removed.
06/12/99	12548	43.0	1.0	White tag.
06/14/99	12579	53.5	2.0	White tag. Fat fish.
06/16/99	12550	49.0	1.5	White tag.
06/19/99	12526	51.0	1.7	White tag. Angler captured and killed, Drano Lake, 04-03-00.
06/19/99	12527	50.8	1.8	White tag.
06/19/99	12528	54.3	2.1	White tag. Avian predator marks behing dorsal fin.

Table continues

Table 64 (cont.). Date of capture, fork length (cm), and weight (kg) of bull trout sampled at Powerdale Dam trap, by year. Data represent continuous trapping.

Date	Tag Number(s)	Length (cm)	Weight (kg)	Remarks
06/24/99	12529	38.0	0.6	White tag.
06/24/99	12530	55.5	2.4	White tag.
06/25/99	12523 (recap)			Recapture of white tag 12523. First captured and tagged on 07/22/98. No length or weight in 1999. Tag 12523 left intact in fish and not replace.
06/30/99	12531	56.0	2.2	White tag. Recaptured on 06-24-00.
07/02/99	12532	51.5		White tag. No weight.
07/04/99	12533	50.5	1.5	White tag.
07/07/99	12534	52.5	1.9	White tag.
07/07/99	12535	51.0	1.6	White tag. Recaptured on 06/09/00.
07/08/99	12536	52.0	1.5	White tag.
07/08/99	12537	50.0	1.5	White tag.
07/11/99	12538	44.5	1.1	White tag.
07/12/99	12539	53.0	1.9	White tag.
07/14/99	12540	48.5	1.3	White tag.
07/14/99	12541	52.0	1.7	White tag.
07/28/99	12542	42.0	1.0	White tag. Recaptured on 05/24/00.
08/15/99	12543	39.5	0.6	White tag. Blind right eye.
08/18/99	12576	45.0	0.9	White tag. (28 bull trout for the year)
05/17/00	00001	59.0	2.5	White tag, new series.
05/19/00	00002	52.0	1.7	White tag.
05/22/00	00003 (recap)	54.0	2.0	White tag. Old tag 00501 left in place and white 00003 added. Orange tab 00501 is unknown and we cannot find previous application to a bull trout. ***
05/23/00	00004	50.5	1.7	White tag.
05/23/00	00005	51.5	1.5	White tag. Orange spot on left ventral fin.

Table continues

Table 64 (cont.). Date of capture, fork length (cm), and weight (kg) of bull trout sampled at Powerdale Dam trap, by year. Data represent continuous trapping.

Date	Tag Number(s)	Length (cm)	Weight (kg)	Remarks
05/24/00	00006 (recap)	52.0	1.8	White tag. Old white tag 12542 recovered on fish. First tagged on 07/28/99. Old tag replaced with 00006.
05/24/00	00008	54.0	2.0	White tag. White tag 00007 void.
05/25/00	00009	47.0	1.4	White tag.
05/28/00	00010	49.5	1.5	White tag.
05/28/00	00011 (recap)	54.0	2.1	White tag. Old white tag 12544 recovered on fish. First tagged on 05/28/99.
06/01/00	00012	57.5	2.6	White tag.
06/02/00	00013	52.0	1.7	White tag.
06/02/00	00014	55.5	2.3	White tag.
06/04/00	00015	52.0	1.7	White tag.
06/05/00	00016 (recap)	54.5	1.8	White tag. Old white tag 13734 recapture. First captured 05/31/99.
06/05/00	00017	53.0	2.0	White tag.
06/06/00	00018	46.0	1.0	White tag.
06/06/00	00019	47.0	1.3	White tag.
06/08/00	00020 (recap)	63.0	3.0	White tag. Old white tag 12502 recapture. First captured and tagged on 05-30-98. Missing right maxillary.
06/09/00	00021 (recap)	57.5	2.5	White tag. Old white tag 12535 recapture. First captured and tagged on 07/07/99.
06/15/00	00022 (recap)	52.5	1.6	White tag. Old white tag 12523 recapture. First captured and tagged on 07/22/98. Hook scar on 06/15/00.
06/18/00	00023	40.0	0.8	White tag.
06/24/00	16596 (recap)	59.5	2.4	Grey tag. Old white tag 12531 recapture. First captured 06-30-99.
06/26/00	00024	53.0	1.7	White tag.

Table continues

Table 64 (cont.). Date of capture, fork length (cm), and weight (kg) of bull trout sampled at Powerdale Dam trap, by year. Data represent continuous trapping.

Date	Tag Number(s)	Length (cm)	Weight (kg)	Remarks
07/01/00	00025	40.0	0.8	White tag.
07/13/00	00026	38.0	0.7	White tag.
09/06/00	00027	40.0	0.7	White tag (27 bull trout for year)
05/14/01	00028	46.0	1.3	White tag.
05/21/01	00029	49.5	1.4	White tag.
05/21/01	00030	48.5	1.3	White tag.
05/23/01	00031	47.5	1.3	White tag.
05/24/01	00032	43.0	1.0	White tag.
05/26/01	00022	55.0	1.7	Recapture white tag 00022. First captured and tagged 07/22/98 second capture 06/15/00
05/26/01	00033	45.0	1.1	White tag.
05/31/01	00034	45.0	1.0	White tag.
05/31/01	00025	53.0	1.6	Recapture white tag 00025. First captured and tagged 07/01/00.
06/01/01	00035	35.0	0.5	White tag.
06/09/01	00036	39.0	0.6	White tag.
06/18/01	00037	54.0	1.8	White tag. (12 bull trout for year)
04/26/02	00040	52.5	1.8	White tag.
05/13/02	00030	54.0	1.9	Recapture white tag 00030. First captured and tagged 05/21/01.
05/23/02	00041	50.5	1.5	White tag
05/24/02	00025	59.0	2.4	Recapture white tag from 05/31/01. First captured 07/01/00
07/23/02	00051	33.5	0.4	White tag. (5 bull trout for year)
08/24/02	00030	54.0	1.2	Recapture white tag 00030. Also recaptured on 05/13/02

Table continues

Table 64 (cont.). Date of capture, fork length (cm), and weight (kg) of bull trout sampled at Powerdale Dam trap, by year. Data represent continuous trapping.

Date	Tag Number(s)	Length (cm)	Weight (kg)	Remarks
05/25/03	00025	61.0	N/A	Recapture white tag from 05/31/01 and 05/24/02. First captured 07/01/00
05/29/03	00043	48.0	N/A	White tag.
06/09/03	00044	48.0	N/A	White tag.
06/27/03	00045	43.0	N/A	White tag. (4 bull trout for year)
4/29/04	38469	54.0	N/A	
5/15/04	38901	50.0	N/A	Left Max Missing, Hook Scar
5/16/04	38934	56.0	N/A	
5/17/04	38954	50.0	N/A	Hook scar on both maxillary's

Appendix A.

Oregon Department of Fish and Wildlife
Mid-Columbia Fish District

Creel Survey Report

Laurance Lake, OR

2004

Prepared By:

Jason Seals
Rod French

Funded By:

Middle Fork Irrigation District, Parkdale, Oregon

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INTRODUCTION

The Oregon Department of Fish and Wildlife (ODFW) conducted an angler survey at Laurance Lake Reservoir, Oregon, during the summer angling season in 2004. The survey had three primary objectives: 1) Determine the amount of angler use at the reservoir, 2) Estimate the success of anglers, and 3) Assess the impact of angling on bull trout.

Bull trout, coastal cutthroat trout, and rainbow trout, naturally exist in Laurance Lake and tributaries to the lake. It is unknown, however, what the population abundance may be for these native salmonids. A considerable amount of effort has been expended in recent years studying bull trout in the lake and its tributaries. However, little effort has focused on the impact of angling on these native fish in the lake. Buchanan et. al. 1997 described this bull trout population as having a 'high risk of extinction.' In 1998, bull trout were listed as threatened under the Endangered Species Act. Clear Branch Dam, which created Laurance Lake, was constructed in 1969 for agricultural irrigation storage and modified for hydroelectric production in the early 1980's (Pribyl et al. 1995). Clear Branch Dam impedes the upstream and likely impedes downstream passage of fish in the Clear Branch of the Middle Fork Hood River.

Relatively few standing water fishing opportunities exist in the Hood River Valley, therefore, Laurance Lake is a popular fishing destination in the Hood River Valley. The ODFW releases about 7,000 catchable hatchery rainbow trout into Laurance Lake to enhance a public fishing opportunity, with a primary management objective of providing fish for a high use fishery. Due to the concern of anglers harvesting bull trout, ODFW has enacted several measures in recent years in the Hood River Basin, specifically at Laurance Lake, to protect bull trout from angling. All hatchery fish released into the lake are fin marked to identify them as being of hatchery origin. Angling regulations for the lake, restrict angling to artificial flies and lures, and only allow fin-clipped hatchery trout to be kept. The lake was open to fishing from 24 April to 31 October 2004. Smallmouth bass were illegally introduced into Laurance Lake in the early 1990's, and are naturally reproducing in the lake.

STUDY AREA

Laurance Lake Reservoir is approximately 125 surface acres at an elevation of 2,980 ft and is formed by 8.5 mi^2 of drainage area off the north slopes of Mt. Hood, Oregon. Primary tributaries include Pinnacle Creek and the Clear Branch of the Middle Fork Hood River.

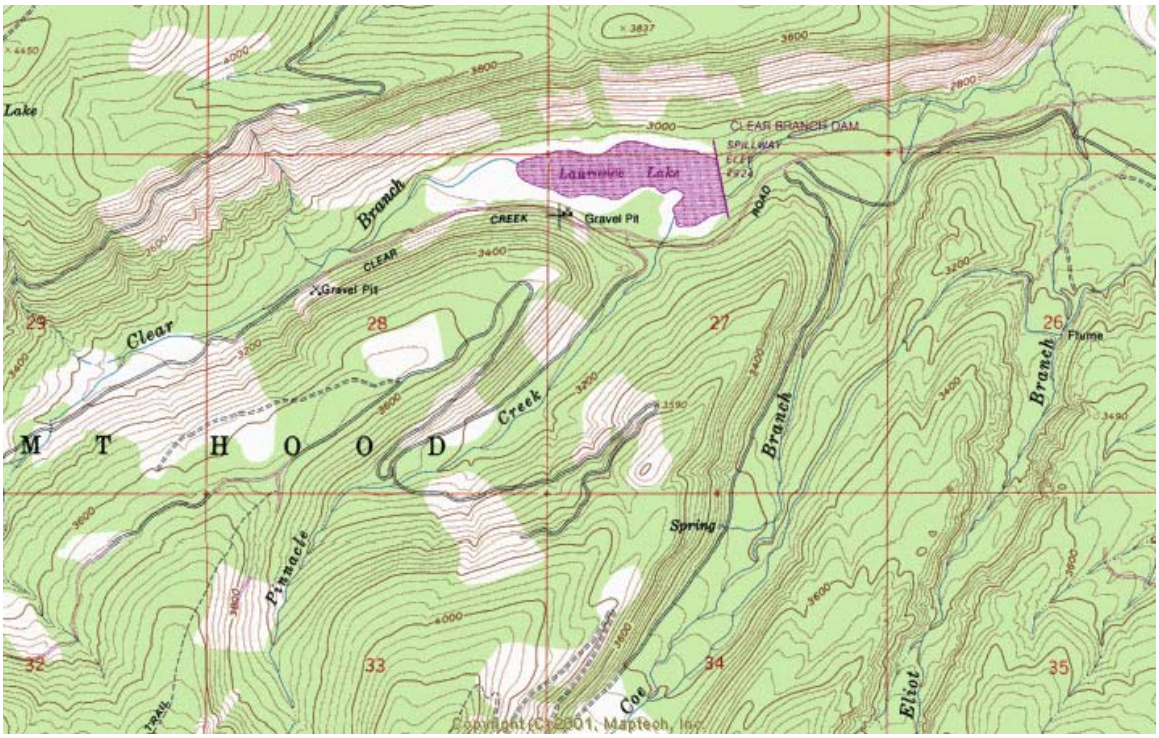


Figure 1. Map of Laurance Lake and vicinity.

METHODS

The creel survey was conducted from 1 June through 30 September 2004. One surveyor was stationed at the lake, and typically spent five randomly selected days per week conducting the survey. The creel surveyor was typically stationed near the boat ramp, but did roam to interview bank anglers when needed. The surveyor attempted to interview anglers at the completion of their angling session. A standard set of interview questions were asked to individual anglers, or a representative within an angling party, about the number of hours spent fishing, species kept and released, geographical areas where anglers lived, and the types of gear anglers used.

We used an expandable collection procedure of stratifying the sampling period into two-week blocks, and further stratifying those periods into weekday and weekend classifications to estimate the number of anglers, angler hours, catch and harvest rates. An expansion rate for weekdays and weekends was obtained for each two-week period by dividing total days by the number of days sampled. The sample rate was targeted to not exceed an expansion rate of 3.0 for any stratification. We estimated the number of anglers, angler hours, catch by species, and harvest by species for each sampling period, by multiplying the actual sample by the expansion number. Due to the inaccuracy of anglers being able to differentiate between wild cutthroat trout and rainbow trout released, the two species were counted together.

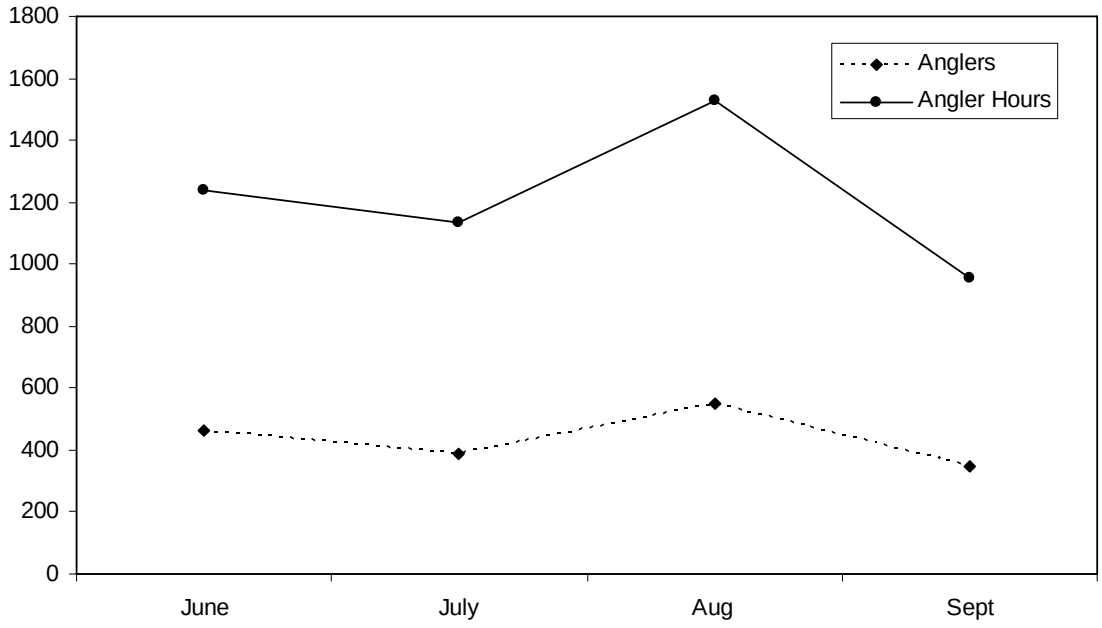
Smallmouth bass and a limited number of hatchery rainbow trout that were harvested were bio-sampled for length, and scales were removed to obtain age and growth information from smallmouth bass. Scales were analyzed for age estimates using a micro-projector. We used direct proportion to back-calculate age to length.

RESULTS

ANGLERS AND ANGLER HOURS

We surveyed a total of 449 angling parties and estimated a total of 1,748 anglers fished at Laurance Lake from June through September, 2004. The number of anglers and angler hours peaked in August and was lowest in September (Figure 1). Hours per angler averaged 2.8 on weekdays and 3.2 on weekends, and varied by angler depending on the geographic localities of where the anglers traveled from to fish at Laurance Lake. Anglers that live in Hood and Wasco counties spent of average of 2 hours per angler while anglers from outside of Hood and Wasco counties spent over 3.4 hours per angler (Table 1).

Figure 1. Estimated number of anglers and amount of time spent angling in Laurance Lake from June through September, 2004.



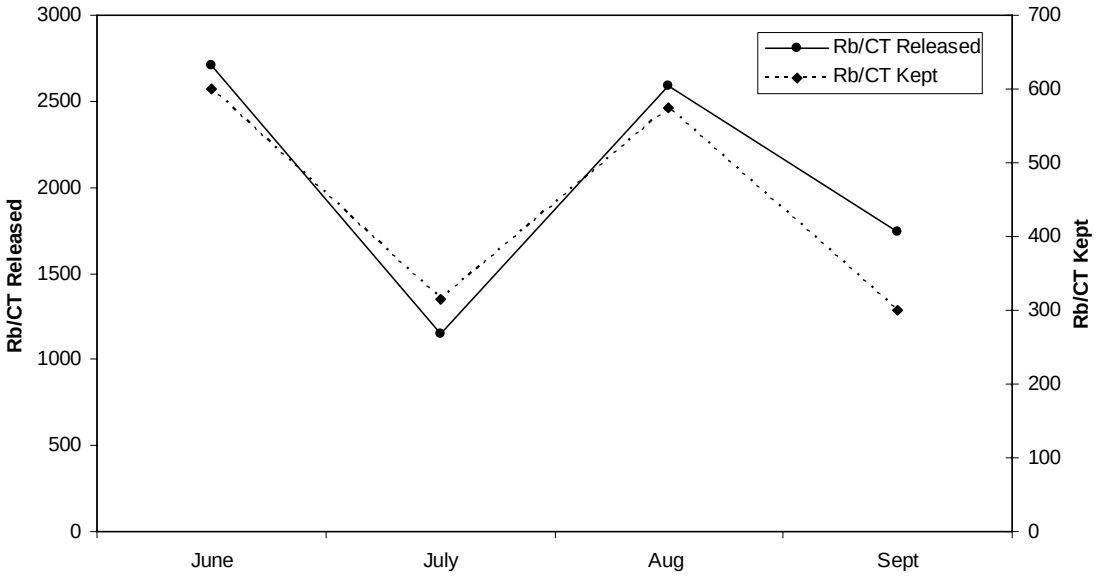
Angler Locality	Number of Anglers	Angler Hours	Hours Per Angler
Wasco and Hood River Counties	337	675	2.0
Other Oregon Counties	384	1310	3.4
Out of State	63	221	3.5

Table 1. Number of anglers, angler hours, and hours per angler from locations where anglers live and traveled from to fish at Laurance Lake from June through September, 2004.

FISH KEPT AND RELEASED

The number of rainbow trout kept and released was highest during June and August (Figure 2). We estimated a total of 9,971 rainbow and cutthroat trout captured during the sampling period and 1,790 (18%) were harvested.

Figure 2. The number of rainbow/cutthroat trout estimated released and kept by anglers at Laurance Lake, June to September, 2005.



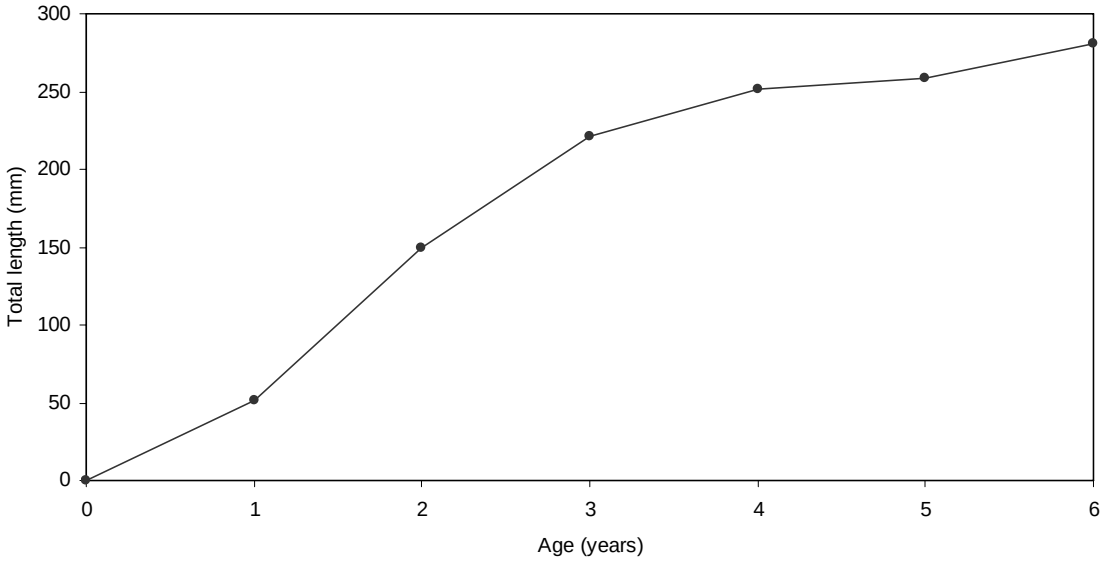
We estimated bull trout captured and released varied from 21 to 45 monthly and totaled 120 during the sampling period (Table 2). No bull trout were observed harvested.

	June	July	August	September
Rainbow/Cutthroat Released	2,704	1,146	2,593	1,738
Rainbow Kept	601	315	575	299
Bull Trout Released	27	27	45	21
Smallmouth Released	6	0	0	0
Smallmouth Kept	11	0	2	0

Table 2. Estimated number of rainbow/cutthroat trout kept and released, bull trout released, smallmouth bass released and kept in Laurance Lake from June through September, 2004.

Smallmouth bass were observed in low numbers in June and August while none were observed in July and September (Table 2). We estimated a total of 19 smallmouth captured during the sampling period and 13 (68%) were harvested. We sampled 5 fish that varied in length from 305 mm to 360 mm and in age from 6 to 8 years. Figure 3 shows the scale to length back-calculation for age 1 to 6.

Figure 3. Scale to length back-calculation of smallmouth bass age 1 to 6 in Laurance Lake, 2004.



GEAR USE

Anglers at Laurance Lake generally preferred to use flies, rather than lures. Table 3 shows that 56% of the angling parties used flies, 32% used lures, and 12% used both flies and lures. Angling parties that caught bull trout also reported using mostly flies. Of the angling parties that reported catching bull trout, 18 (62%) used flies, 9 (31%) used lures, and 2 (7%) used both flies and lures.

Gear Use	Number of Parties	Percent of total parties
Flies	248	56
Lure	145	32
Both	54	12

Table 3. Number of angling parties and percentage of the total parties that used flies, lures, or both flies and lures to angle for fish in Laurance Lake from June through September, 2004.

DISCUSSION

Laurance Lake appears to be a popular fishing destination for a variety of anglers from Hood River County and other areas throughout the state. The lake provides a substantial number angler recreational days for the angling public. We estimated that anglers harvested a total of 1,790 hatchery rainbow trout during the creel period, or approximately 26% of the fish that were stocked into the lake in 2004. Actual angler exploitation rate on hatchery fish cannot be determined, as it is unknown how many additional hatchery trout were harvested either before the initiation of the creel or after the creel concluded for the entire angling season. Based upon the limited length frequency data collected from kept hatchery fish, however, it appears that relatively few hatchery fish survive between years at the lake and enter the fishery the year following stocking. Fish are likely harvested, or do not survive the winter.

We estimated that anglers caught and released 8,181 wild origin rainbow and or cutthroat trout, which was approximately 4.68 fish released per angler during the creel period. While the number of wild origin rainbow and cutthroat may be quite large in the lake, this very high catch rate may likely be bolstered by the fact that many anglers also caught and released large numbers of hatchery origin fish and included them in the overall number of fish released. We also estimated that 120 bull trout were caught and released by anglers during the creel period. While bull trout are easier to distinguish than rainbow or cutthroat trout, it was the feeling of the creel surveyor that many anglers were unable to distinguish between the two species. The surveyor often felt if a captured fish was not hatchery fin-clipped, a limited numbers of anglers assumed those unclipped fish were bull trout when questioned. It is believed further questioning by the surveyor would help eliminate this problem.

Relatively few smallmouth bass were harvested during the creel period, as only 13 fish were kept and 6 fish were released. The relatively low angler exploitation rate on smallmouth bass was unexpected. Since smallmouth bass are a relatively recent introduction to Laurance Lake, little is know about their life history or abundance. While the small catch could be attributed to a small population, it could also be attributed to the fact that they are a recent introduction and anglers are not accustomed to angling for them in Laurance Lake. It is also possible that they occupy different habitats than salmonids, and are therefore not readily caught while angling for trout.

Angler effort and catch decreased substantially during the month of July, when compared to the previous or following month. While the exact cause of the decrease is unknown, the decrease in effort and catch also coincided with a large algal bloom that the creel surveyor recorded in the lake occurring during most of July. Large algal blooms commonly reduce visibility and catch rates in standing waters.

This effort and creel survey provided a brief glimpse of angler use and effort at Laurance Lake for a portion of the 2004 angling season. While results from the survey will provide useful information to fishery and resource managers, repeating the survey and refining the methodology to better understand the actual number of fish released would be

beneficial in order to receive a more complete understanding of the fishery at Laurance Lake.

ACKNOWLEDGEMENTS

We wish to thank the Middle Fork Irrigation District, especially Dave Compton and the district board, for supplying the funding for this work. Nicole Thompson, the creel surveyor, collected precise data and made many invaluable suggestions and contributions to the survey.

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