



## **Chilliwack River Recreational Fishery Assessment** **September 15 - November 15, 2005**

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### **Regulations**

The fishing boundary for the Chilliwack River is from Slesse Creek down to the boundary signs near its confluence with the Fraser River. The recreational fishery is closed at night, from one hour after sunset to one hour before sunrise.

During the study period, recreational catch limits was as follows:

- **Coho:** 4 hatchery fish (adipose fin clipped) per day
- **Chinook:** 4 per day, only 1 can be over 62 cm
- **Chum:** 1 per day
- **Pink:** 4 per day (below Vedder Crossing)

A complete listing of regulations can be viewed at the Fisheries and Oceans Canada Pacific Region Recreational Fishery webpage: [http://www.pac.dfo-mpo.gc.ca/recfish/default\\_e.htm](http://www.pac.dfo-mpo.gc.ca/recfish/default_e.htm)

All Fisheries and Oceans fishery notices can be viewed at:

<http://ops.info.pac.dfo.ca/fishman/fnotice/fnotice.htm>

### **Study Area**

The Chilliwack River sport fishery assessment study area is bounded by its confluence with the Fraser River (downstream boundary) and Slesse Creek (upstream boundary). The survey area was separated into two regions. Region 1 being from the mouth of the Chilliwack River, upstream to the Vedder-Crossing bridge. Region 2 being from the Vedder-Crossing Bridge, upstream to the confluence with Slesse Creek.

## Survey Methods

The Chilliwack River recreational fishery survey began on September 15, 2005. Surveyors worked all weekends and holidays with rotating days off during the week. Surveyors worked one of two shifts (morning or afternoon) that spanned the entire daylight period. Shifts were randomly assigned to each survey day.

Surveyors conducted angler interviews at their survey sites to obtain the following information: where the angler was fishing, length of angling trip, how much longer they intended to fish, target species, gear used, total catch retained (AFC (adipose fin clipped) and non-AFC), total catch released (AFC, non-AFC, and unknown). If permitted by the angler, the surveyor inspected the catch to determine whether the angler's species identification was correct. If preferred by the angler, all heads from fish with adipose fins missing were retained by surveyors due to the possibility of CWT (coded-wire-tag) presence. If there was any doubt that an adipose might have been clipped for a particular fish, for example if the adipose fin was partially regenerated or malformed, the head was retained by the surveyor. The angler was always given the option of turning the head into a local depot themselves. Interviews were used to determine harvest-per-unit effort (HPUE), release-per-unit effort (RPUE), and to summarize the angler characteristics listed above.

Daily effort is calculated using a combination of interview data, hourly rod counts conducted at the access survey site, and overflight rod counts of the survey area (conducted twice per week: one weekend and one weekday overflight). Using total effort, HPUE and RPUE is expanded to determine catch and release numbers by species for the entire study area. Such analyses are documented in several DFO publications (Schubert 1992; Schubert 1995).

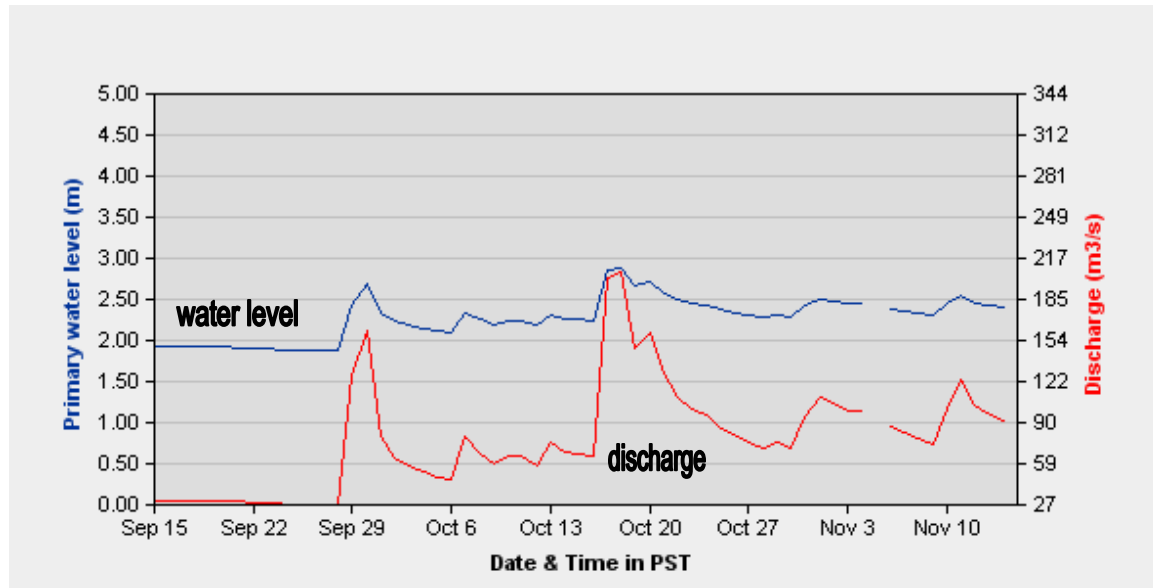
Three surveyors assessed the Chilliwack River recreational fishery. **Two surveyors** conducted a roving "bus-route" survey of the upper and lower sections of the river with no overlap in their respective ranges. These two surveyors conducted interviews of anglers in the process of fishing. The sites surveyed were pre-selected for a bi-weekly period based on angler distribution observed on previous roving surveys and overflights of the river. The surveyors start point and direction of travel (upstream or downstream) was randomized each survey day to ensure that the entire survey area was assessed and that each site was visited at different times of the survey day. A **third surveyor** was stationed at an access-point located at the Keith Wilson Bridge during September 15-30, Peach Road during October 13-28 and Lickman Road during October 28 – November 15. This surveyor conducted hourly rod counts and conducted complete interviews from anglers that had finished fishing for the day.

Data was stored and analyzed using DPA software. The data were verified in three steps. First, all field data sheets were examined for compliance with study procedures by the supervising technician and/or biologist. Second, during data entry, the data entry program performed 31 automatic error checks, including duplication detection, code validity, and range and consistency verification. Third, after data entry was complete, all data were imported into an excel file for verification with the field data sheets; all data were error checked once by the supervising technician. For analyses, data were blocked by day type (weekend and weekday) and region (region 1: below Vedder crossing; region 2: above Vedder crossing).

## Results

### Water Levels

In 2005, water levels (Environment Canada's Chilliwack River Hydrometric Station) from September 15 to November 15, remained fairly steady. The level remained just below 2m during September 15-29. It fluctuated between 2.1 m and 2.9m during September 30 – November 15. The water level peaked at 2.9m on Oct 17.



**Figure 1** - Primary water levels and discharge on the Chilliwack River (at Vedder Crossing Hydrometric Station), Environment Canada Preliminary Results from September 15 to November 15, 2005. Website: <http://scitech.pyr.ec.gc.ca/waterweb/fullgraph.asp> (accessed on November 22, 2005).

### Survey Effort

The study period, from September 15 to November 15, covered 20 weekend/holidays and 42 weekday days; 100% of the weekend/holiday days and 87% of the weekday days were sampled by survey shifts. A total of 5,594 interviews were obtained from anglers.

Nineteen overflights were conducted from September 15 to November 15 (9 weekday and 10 weekend).

## Catch Rate

### Catch-per-unit Effort

During September 15-30, 61% of the anglers were targeting coho, 22% had no preference and were targeting any species, 13% were targeting chinook, and 5% were targeting pinks. The species of salmon retained by anglers in September were chinook, coho, chum and pink.

During October 1-31, 59% of the anglers were targeting coho, 26.5% had no preference and were targeting any species, 14% were targeting chinook, 1% were targeting chum, and 0.5% were targeting pink. The species of salmon retained by anglers in October were chinook, coho, chum and pink.

During November 1-15, 72% of the anglers were targeting coho, 27% had no preference and were targeting any species, 0.5% were targeting chinook, and 0.5% were targeting chum. The species of salmon retained by anglers in November were chinook, coho, and chum.

**Table 1** – Average harvest-per-unit-effort (HPUE) from September 15 to November 15, 2005 during the Chilliwack Recreational Fishery.

HPUE	Sep 15-30	Oct 1-15	Oct 16-31	Nov 1-15
Chinook Adult	0.0294	0.0326	0.0118	0.0019
Chinook Jack	0.0101	0.0078	0.0033	0.0008
Coho Adult	0.0191	0.0102	0.033	0.0343
Coho Jack	0.0001	—	0.0006	—
Pink	0.0405	0.0022	—	—
Chum	0.0043	0.0033	0.0164	0.0192

**Table 2** – Average release-per-unit-effort (RPUE) from September 15 to November 15, 2005 during the Chilliwack Recreational Fishery.

RPUE	Sep 15-30	Oct 1-15	Oct 16-31	Nov 1-15
Chinook Adult	0.0348	0.06	0.0406	0.0197
Chinook Jack	0.0113	0.0172	0.0055	0.0026
Coho Adult	0.0096	0.0087	0.0316	0.0303
Coho Jack	0.0012	0.0001	0.0004	—
Pink	0.3451	0.1197	0.0003	—
Chum	0.0121	0.0161	0.1714	0.3299

### Catch Inspection

In September, catch was inspected for 86% of the creel interviews. In 99.6% of these inspections, the anglers had correctly identified the species. In October, catch was inspected for 93.9% of the creel interviews. In 99.2% of these inspections, the anglers had correctly identified the species. In November, catch was inspected for 92.7% of the creel interviews. In 100% of these inspections, the anglers had correctly identified the species.

**Angler Effort (spatial)**

Angling effort in **September** was heavier in region one than in region two; based on overflight rod counts, 75.1% of the effort occurred in region one (downstream of Vedder Crossing) and 24.9% in region two (upstream of Vedder Crossing).

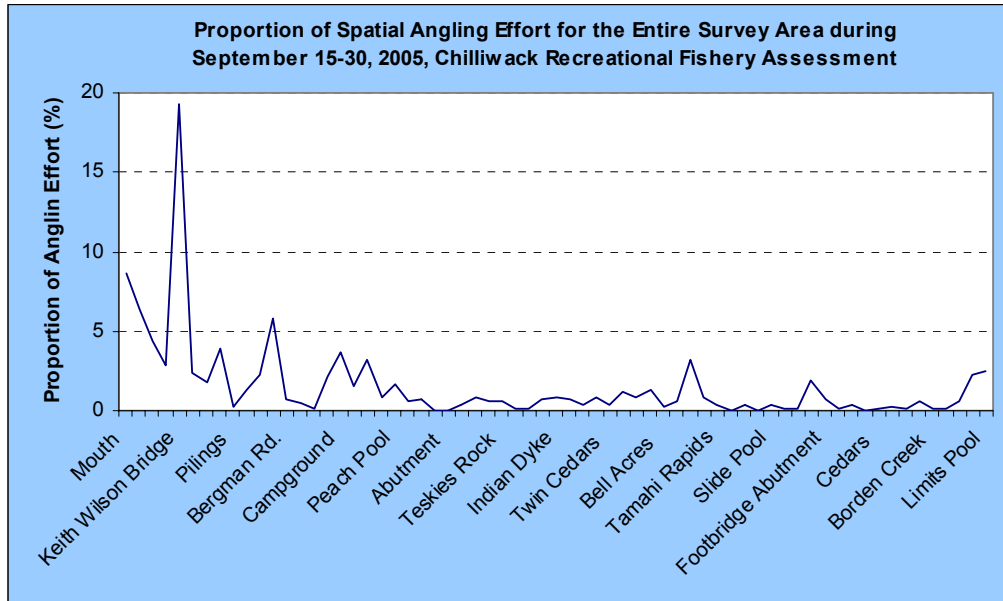


Figure 2 – Spatial angler effort profile for September 15 to 30 in the 2005 Chilliwack River Recreational Fishery.

Angling effort in **October** was evenly spread out through the study area; based on overflight rod counts, 41.6% of the effort occurred in region one (downstream of Vedder Crossing) and 58.4% in region two (upstream of Vedder Crossing).

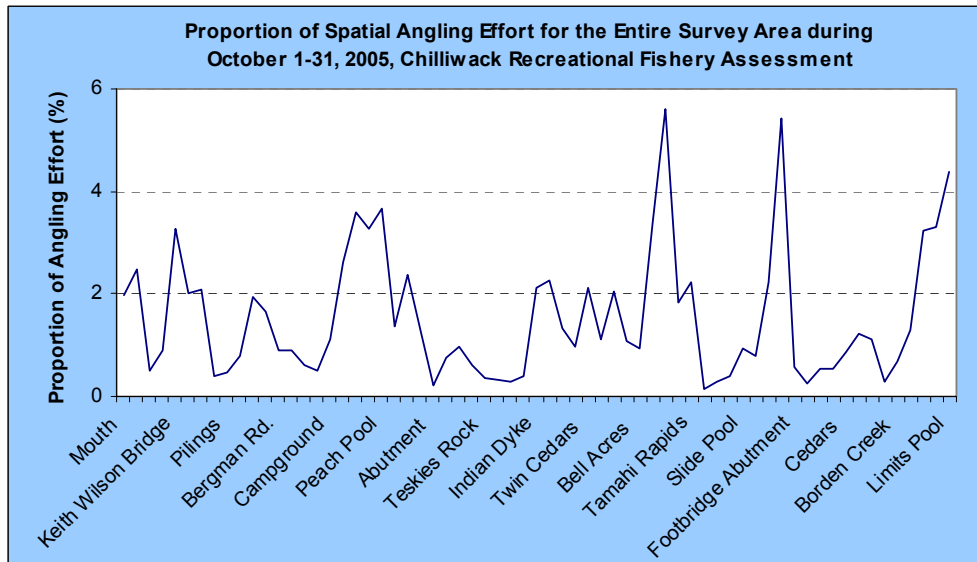


Figure 3– Spatial angler effort profile for October 1-31 in the 2005 Chilliwack River Recreational Fishery.

Angling effort in **November** was heavier in region two than in region one; based on overflight rod counts, 29.6% of the effort occurred in region one (downstream of Vedder Crossing) and 70.4% in region two (upstream of Vedder Crossing).

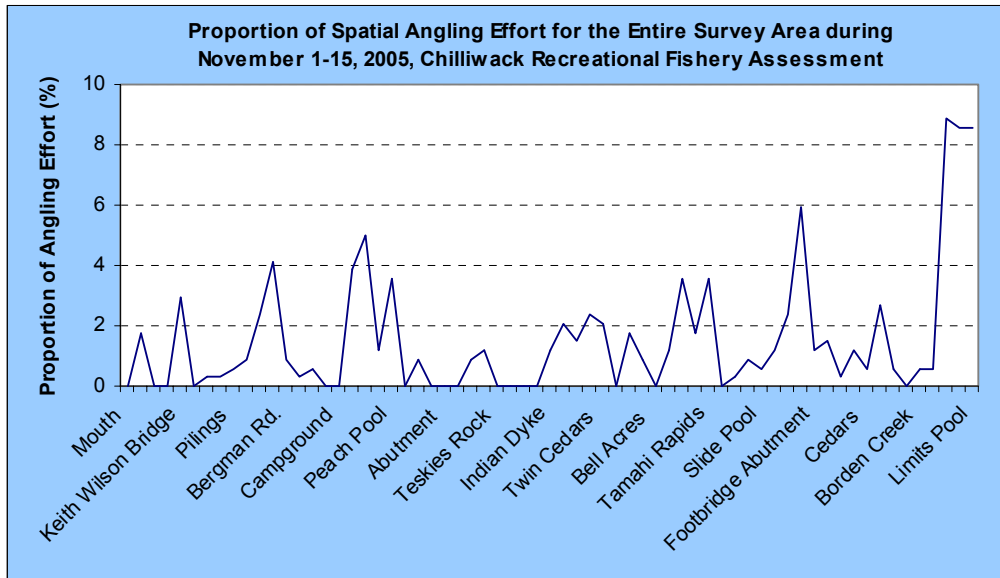


Figure 4 – Spatial angler effort profile for November 1-15 in the 2005 Chilliwack River Recreational Fishery.

**Angler Effort (temporal)**

Anglers fished throughout the daylight hours. Effort for weekdays peaked between 9 and 1pm, and declined throughout the remainder of the day. Effort for weekdays was relatively constant from 6am to 1pm and declined slowly during the remainder of the daylight period, (Figure 5 and 6).

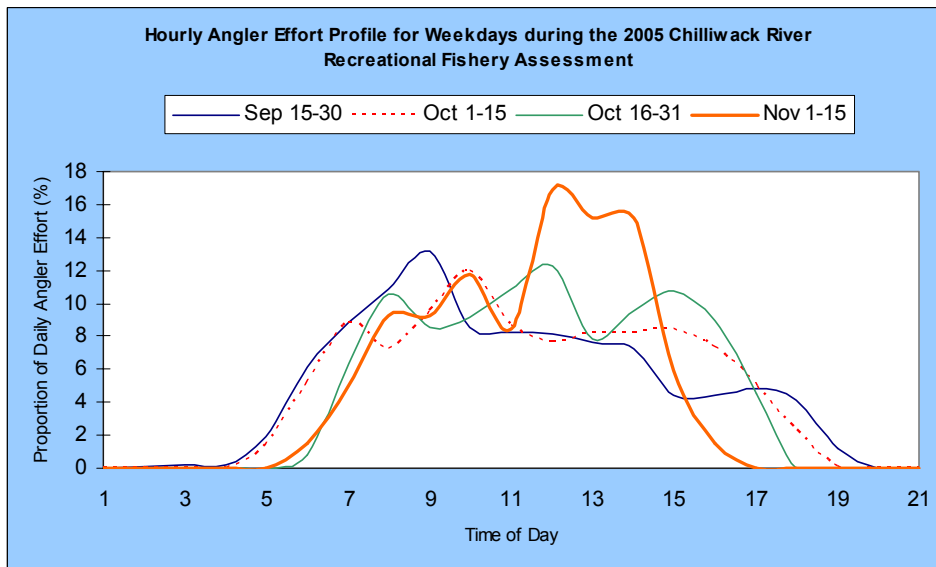
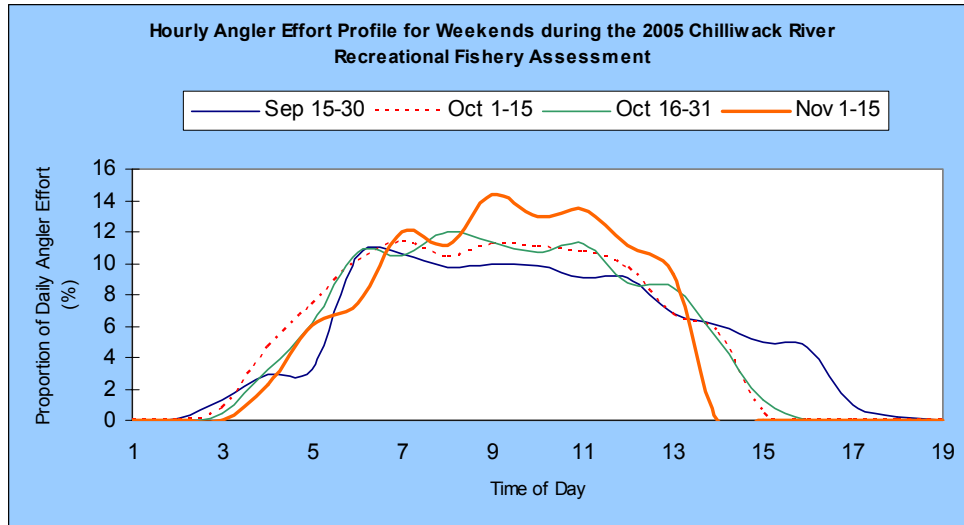


Figure 5 - Hourly angler effort profiles for Weekdays during the 2005 Chilliwack River Recreational Fishery.



**Figure 6** - Hourly angler effort profiles for Weekends during the 2005 Chilliwack River Recreational Fishery.

## References

Schubert, N.D. 1992. Angler Effort and Catch in the 1985-1988 Lower Fraser River Sport Fishery. Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2170.

Schubert, N.D. 1995. Angler Effort and Catch in Four Fraser River Sport Fisheries, 1991. Canadian Manuscript Report of Fisheries and Aquatic Sciences No. 2267.

## Acknowledgements

Technical and data management oversight and data analyses support was provided by S. Kalyn. Technical support was provided by G. Brown, D. Cline, and J. Williams. Data entry was provided by M. Hawkins. Biological support provided by S. Grant.

**Table 3** - Chilliwack River recreational fishery assessment final results from September 15–30, 2005. Data were stratified into weekend and weekday day types and region (region 1: below Vedder Crossing; region 2: above Vedder Crossing).

**CHILLIWACK RIVER RECREATIONAL FISHERY ASSESSMENT**  
**FINAL RESULTS**  
*(STUDY PERIOD: Sept 15-30, 2005)*

<b>SOURCE DATA</b>	<b>Weekend/Holiday</b>	<b>Weekday</b>
Open Days in Study Period	4	12
Number of Survey Shifts	4	8
Number of Interviews	554	639
Interview Hours	2,201	2,193
Number of Instantaneous Effort Counts	2	3
Mean Rod Count (Instantaneous Effort)	152	416
Proportion of Effort in the Instantaneous Effort Count Time Block	0.092	0.082
Estimated Daily Effort (Hours)	1,652	5,073
Estimated Total Effort (Hours)	18,074	22,261

<b>CATCH ESTIMATES</b>	<b>Weekend/Holiday</b>		<b>Weekday</b>	
	<b>Harvest</b>	<b>Release</b>	<b>Harvest</b>	<b>Release</b>
<b>CHINOOK ADULT</b>	<b>577</b>	<b>647</b>	<b>607</b>	<b>756</b>
Marked (Adipose missing)	0	—	7	—
Unmarked (Adipose present)	577	—	600	—
<b>CHINOOK JACK</b>	<b>190</b>	<b>237</b>	<b>217</b>	<b>217</b>
Marked (Adipose missing)	12	—	15	—
Unmarked (Adipose present)	178	—	202	—
<b>COHO ADULT</b>	<b>352</b>	<b>139</b>	<b>419</b>	<b>247</b>
Marked (Adipose missing)	352	—	419	—
Unmarked (Adipose present)	0	—	0	—
<b>COHO JACK</b>	<b>6</b>	<b>17</b>	<b>0</b>	<b>30</b>
Marked (Adipose missing)	6	—	0	—
Unmarked (Adipose present)	0	—	0	—
<b>SOCKEYE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PINK</b>	<b>705</b>	<b>5,832</b>	<b>929</b>	<b>8,087</b>
<b>CHUM</b>	<b>75</b>	<b>144</b>	<b>97</b>	<b>344</b>



**Table 4** - Chilliwack River recreational fishery assessment final results from October 1-15, 2005. Data were stratified into weekend and weekday day types and region (region 1: below Vedder Crossing; region 2: above Vedder Crossing).

**CHILLIWACK RIVER RECREATIONAL FISHERY ASSESSMENT**  
**FINAL RESULTS**  
*(STUDY PERIOD: Oct 1-15, 2005)*

SOURCE DATA	Weekend/Holiday	Weekday
Open Days in Study Period	6	9
Number of Survey Shifts	6	6
Number of Interviews	1409	792
Interview Hours	4,561	3,305
Number of Instantaneous Effort Counts	3	2
Mean Rod Count (Instantaneous Effort)	1014	476
Proportion of Effort in the Instantaneous Effort Count Time Block	0.111	0.082
Estimated Daily Effort (Hours)	9,135	5,805
Estimated Total Effort (Hours)	54,672	51,882

CATCH ESTIMATES	Weekend/Holiday		Weekday	
	Harvest	Release	Harvest	Release
<b>CHINOOK ADULT</b>	<b>1,564</b>	<b>3,181</b>	<b>1,908</b>	<b>3,211</b>
Marked (Adipose missing)	62	—	137	—
Unmarked (Adipose present)	1,502	—	1,771	—
<b>CHINOOK JACK</b>	<b>542</b>	<b>1,031</b>	<b>285</b>	<b>802</b>
Marked (Adipose missing)	9	—	0	—
Unmarked (Adipose present)	533	—	285	—
<b>COHO ADULT</b>	<b>622</b>	<b>498</b>	<b>461</b>	<b>425</b>
Marked (Adipose missing)	622	—	461	—
Unmarked (Adipose present)	0	—	0	—
<b>COHO JACK</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>9</b>
Marked (Adipose missing)	0	—	0	—
Unmarked (Adipose present)	0	—	0	—
<b>SOCKEYE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PINK</b>	<b>204</b>	<b>9,445</b>	<b>33</b>	<b>3,307</b>
<b>CHUM</b>	<b>169</b>	<b>853</b>	<b>181</b>	<b>867</b>

**Table 5** - Chilliwack River recreational fishery assessment final results from October 16-31, 2005. Data were stratified into weekend and weekday day types and region (region 1: below Vedder Crossing; region 2: above Vedder Crossing).

**CHILLIWACK RIVER RECREATIONAL FISHERY ASSESSMENT**  
**FINAL RESULTS**  
*(STUDY PERIOD: Oct 16-31, 2005)*

SOURCE DATA	Weekend/Holiday	Weekday
Open Days in Study Period	5	11
Number of Survey Shifts	5	7
Number of Interviews	887	711
Interview Hours	3,309	2,355
Number of Instantaneous Effort Counts	2	2
Mean Rod Count (Instantaneous Effort)	517	309
Proportion of Effort in the Instantaneous Effort Count Time Block	0.11	0.116
Estimated Daily Effort (Hours)	4,700	2,664
Estimated Total Effort (Hours)	23,266	29,729

CATCH ESTIMATES	Weekend/Holiday		Weekday	
	Harvest	Release	Harvest	Release
<b>CHINOOK ADULT</b>	<b>314</b>	<b>853</b>	<b>310</b>	<b>1,300</b>
Marked (Adipose missing)	6	—	19	—
Unmarked (Adipose present)	308	—	291	—
<b>CHINOOK JACK</b>	<b>60</b>	<b>118</b>	<b>115</b>	<b>173</b>
Marked (Adipose missing)	0	—	0	—
Unmarked (Adipose present)	60	—	115	—
<b>COHO ADULT</b>	<b>872</b>	<b>878</b>	<b>877</b>	<b>794</b>
Marked (Adipose missing)	872	—	866	—
Unmarked (Adipose present)	0	—	11	—
<b>COHO JACK</b>	<b>0</b>	<b>0</b>	<b>33</b>	<b>22</b>
Marked (Adipose missing)	0	—	11	—
Unmarked (Adipose present)	0	—	22	—
<b>SOCKEYE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PINK</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>0</b>
<b>CHUM</b>	<b>453</b>	<b>3,540</b>	<b>417</b>	<b>5,541</b>

**Table 6** - Chilliwack River recreational fishery assessment final results from November 1-15, 2005. Data were stratified into weekend and weekday day types and region (region 1: below Vedder Crossing; region 2: above Vedder Crossing).

**CHILLIWACK RIVER RECREATIONAL FISHERY ASSESSMENT**  
**FINAL RESULTS**  
*(STUDY PERIOD: Nov 1-15 2005)*

SOURCE DATA	Weekend/Holiday	Weekday
Open Days in Study Period	5	10
Number of Survey Shifts	5	6
Number of Interviews	371	231
Interview Hours	1,258	722
Number of Instantaneous Effort Counts	2	3
Mean Rod Count (Instantaneous Effort)	153	75
Proportion of Effort in the Instantaneous Effort Count Time Block	0.126	0.137
Estimated Daily Effort (Hours)	1,214	547
Estimated Total Effort (Hours)	5,526	6,571

CATCH ESTIMATES	Weekend/Holiday		Weekday	
	Harvest	Release	Harvest	Release
<b>CHINOOK ADULT</b>	<b>4</b>	<b>75</b>	<b>18</b>	<b>164</b>
Marked (Adipose missing)	0	—	0	—
Unmarked (Adipose present)	4	—	18	—
<b>CHINOOK JACK</b>	<b>0</b>	<b>4</b>	<b>9</b>	<b>27</b>
Marked (Adipose missing)	0	—	0	—
Unmarked (Adipose present)	0	—	9	—
<b>COHO ADULT</b>	<b>215</b>	<b>185</b>	<b>200</b>	<b>182</b>
Marked (Adipose missing)	211	—	200	—
Unmarked (Adipose present)	4	—	0	—
<b>COHO JACK</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Marked (Adipose missing)	0	—	0	—
Unmarked (Adipose present)	0	—	0	—
<b>SOCKEYE</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>PINK</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CHUM</b>	<b>105</b>	<b>1,898</b>	<b>127</b>	<b>2,093</b>

**Table 7** - Chilliwack River recreational fishery assessment final results from September 15 – November 15, 2005.  
Total catch and release (weekend and weekday catch and release combined).

	<b>September</b> 15-30	<b>October</b> 1-31	<b>November</b> 1-15	<b>Total</b>
Number of Interviews	1,193	3,799	602	<b>5,594</b>
Interview Hours	4,394	13,530	1,980	<b>19,904</b>
Number of Overflights	5	9	5	<b>19</b>
Average Overflight Count	258	606	106	<b>323</b>
<b>ANGLER EFFORT</b>				
Estimated Effort (hours)	40,335	159,549	12,097	<b>211,981</b>
<b>ESTIMATED HARVEST</b>				
Chinook Adult	1,184	4,096	22	<b>5,302</b>
Chinook Jack	407	1,002	9	<b>1,418</b>
Coho Adult	771	2,832	415	<b>4,018</b>
Coho Jack	6	33	0	<b>39</b>
Sockeye	0	0	0	<b>0</b>
Pink	1,634	237	0	<b>1,871</b>
Chum	172	1,220	232	<b>1,624</b>
<b>ESTIMATED RELEASE</b>				
Chinook Adult	1,403	8,545	239	<b>10,187</b>
Chinook Jack	454	2,124	31	<b>2,609</b>
Coho Adult	386	2,595	367	<b>3,348</b>
Coho Jack	47	31	0	<b>78</b>
Sockeye	0	0	0	<b>0</b>
Pink	13,919	12,770	0	<b>26,689</b>
Chum	488	10,801	3,991	<b>15,280</b>

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