# SOCKEYE SALMON TRANSPORTATION STUDIES AT PRIEST RAPIDS DAM, COLUMBIA RIVER, 1989

By

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**Preliminary Report** 

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#### INTRODUCTION

In 1987 and 1988, the National Marine Fisheries Service (NMFS) marked sockeye salmon smolts (<u>Oncorhynchus nerka</u>) for a Grant County Public Utility District study to evaluate salmon transportation by truck and barge from Priest Rapids Dam to below Bonneville Dam. Smolts were collected from gatewells at Priest Rapids Dam and marked into three distinct release groups during both years. Two of the groups were transported for release below Bonneville Dam--one group directly by truck and the other by truck to McNary Dam and then by barge to below Bonneville Dam. The third group was released as an in-river control directly below Priest Rapids Dam. Details of the marking and release operations including numbers marked by release group were reported previously in Carlson et al. (1988, 1989). During 1989, the NMFS continued to monitor adult recoveries from this study. This report provides a preliminary update of these observations.

#### **METHODS**

Marked adult sockeye salmon were monitored from ocean fishing catches, Columbia River and tributary catches, Wenatchee and Okanogan River system spawning ground surveys, and trapping facilities in fish ladders at Bonneville and Priest Rapids Dams. The trapping facilities at both dams were operated throughout the adult migration. Details of Bonneville Dam trap operation were reported in Durkin et al. (1969).

All tabular mark-recovery information was checked for errors and entered into a centralized computer database at NMFS facilities at Pasco, Washington. Additionally, each coded wire tag (CWT) received from outside sources was verified for reading accuracy prior to entry into the database. Snouts recieved from spawning ground surveys were dissected for CWT removal and reading at the Lower Granite Dam NMFS facility.

#### **RESULTS AND DISCUSSION**

Observed recoveries of adult sockeye salmon marked as juveniles with CWTs in 1987-88 are listed by recovery area in Appendix Tables 1.0 through 6.2. Returns for both study years are incomplete. In 1989, 741 adults were recovered from all sources combined. Statistical procedures will not be applied to these data until returns are complete.

Adult recovery rates were highest for the trucked and trucked/barged groups and lowest for the control groups at all primary recovery sites (Table 1). For the respective groups, the recovery rates at Bonneville Dam were 0.77, 0.39, and 0.07%. At Priest Rapids Dam, they were 0.76, 0.50, and 0.23%, and on the spawning grounds 0.32, 0.25, and 0.09%. Return rates for the trucked group were similar to the high returns recorded for the same group for the 1985 study year, whereas the return rates for the control group were much lower (Carlson et al. 1988).

Carlson et al. (1988) also noted for the 1985 study year that return rates of trucked fish increased for marked groups of juveniles released as the outmigration season progressed, while return rates of control fish decreased. The same general trend is apparent for the 1987 study year. The reason for this phenomenon is unknown. However, the spawning ground surveys conducted in 1989 showed that the earlier releases in the 1987 study year were composed primarily of Wenatchee River fish whereas the later releases were composed primarily of Okanogan River fish (Table 2). As smolts, Wenatchee River fish arrive at Priest Rapids Dam earlier and are smaller than their Okanogan River counterparts. One could speculate that early in the season, the less physiologically developed Wenatchee River fish that were transported arrived at the ocean too early for all individuals to successfully adapt to seawater. On the other hand, later in the outmigration season, predation may take a heavier toll on control fish (Reiman et al. 1986), while this would have less affect on transported fish.

|                 |                  |                  | <u>er and percent rec</u> |                  |
|-----------------|------------------|------------------|---------------------------|------------------|
|                 |                  | Bonneville       | Priest Rapids             | Spawning         |
| Release site    | Release dates    | Dam              | Dam                       | grounds          |
| Priest Rapids   | 22 Apr-6 May     | 3 (0.07)         | 24 (0.56)                 | 5 (0.12)         |
| Dam (control)   | 7-14 May         | 3 (0.06)         | 11 (0.20)                 | 7 (0.13)         |
|                 | 15-23 May        | 7 (0.13)         | 8 (0.15)                  | 4 (0.08)         |
|                 | 24-25 May        | 1 (0.02)         | 2 (0.04)                  | 2 (0.04)         |
|                 | 27 May-2 Jun     | 2 (0.09)         | <u>12 (0.28)</u>          | 4 (0.09)         |
|                 | Totals (average) | 16 (0.07)        | 57 (0.23)                 | 22 (0.09)        |
| Bonneville Dam  | 24 Apr-7 May     | 18 (0.35)        | 14 (0.28)                 | 4 (0.08)         |
| (truck & barge) | 8-21 May         | 14 (0.26)        | 14 (0.26)                 | 7 (0.13)         |
|                 | 21-25 May        | 24 (0.46)        | 28 (0.54)                 | 19 (0.36)        |
|                 | 25-27 May        | 22 (0.42)        | 41 (0.78)                 | 14 (0.28)        |
|                 | 27 May-2 Jun     | <u>17 (0.48)</u> | 26 (0.74)                 | <u>16 (0.45)</u> |
|                 | Totals (average) | 95 (0.39)        | 123 (0.50)                | 60 (0.25)        |
| Bonneville Dam  | 27 Apr-5 May     | 44 (0.88)        | 25 (0.50)                 | 8 (0.16)         |
| (truck only)    | 6-17 May         | 30 (0.63)        | 24 (0.51)                 | 5 (0.11)         |
| -               | 18-24 May        | 55 (1.05)        | 56 (1.07)                 | 28 (0.54)        |
|                 | 24-26 May        | 35 (0.67)        | 62 (1.20)                 | 28 (0.54)        |
|                 | 27 May-4 Jun     | 21 (0.53)        | <u>17 (0.43)</u>          | 8 (0.20)         |
|                 | Totals (average) | 185 (0.77)       | 184 (0.76)                | 77 (0.32)        |

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Table 1.--The observed return and rate () for transport and control lots of sockeye salmon marked and released as juveniles in 1987 that were recovered as adults at Bonneville Dam, Priest Rapids Dam, and the spawning grounds in 1988-89.

| Release dates | Test group  | Wenatchee River<br>system | Okanogan River<br>system | Total |
|---------------|-------------|---------------------------|--------------------------|-------|
| 22 Apr- 7 May | Control     | 7                         | 0                        | 7     |
| 24 Apr- 7 May | Truck/barge | 4                         | 0                        | 4     |
| 27 Apr- 5 May | Truck       | 8                         | Ō                        | 8     |
| 7 May-14 May  | Control     | 6                         | 1                        | 7     |
| 8 May-21 May  | Truck/barge | 5                         | 2                        | 7     |
| 6 May-17 May  | Truck       | 5                         | 0                        | 5     |
| 15 May-23 May | Control     | 1                         | 3                        | 4     |
| 21 May-25 May | Truck/barge | 3                         | 16                       | 19    |
| 18 May-24 May | Barge       | 3                         | 25                       | 28    |
| 24 May-25 May | Control     | 0                         | 2                        | 2     |
| 25 May-27 May | Truck/barge | 0                         | 14                       | 14    |
| 24 May-26 May | Truck       | 0                         | • 28                     | 28    |
| 27 May- 2 Jun | Control     | 0                         | 5                        | 5     |
| 27 May- 2 Jun | Truck/barge | 1                         | 15                       | 16    |
| 27 May- 4 Jun | Truck       | $\overline{2}$            | 6                        | 8     |
|               | Totals      | 42                        | 117                      | 159   |

Table 2.--Numbers of adult sockeye salmon recovered from spawning ground surveys in 1989 in the Wenatchee and Okanogan River systems. Fish were marked as smolts at Priest Rapids Dam in 1987 for transportation research. Returns of 1-ocean age adults from the 1988 study-year are few. Only six total recoveries have been entered into the database so far--two from each of the three groups. Returns of these fish should increase considerably next year.

#### SUMMARY

- Returns of adult sockeye salmon marked as juveniles at Priest Rapids Dam for transport research purposes in 1987-88 are preliminary. So far, returns to recovery areas are highest for the trucked groups followed by the trucked/barged groups and lowest for the control groups.
- 2. Adult return rates for the trucked groups increased as the outmigration progressed, while adult return rates for control groups decreased. There is evidence from spawning ground recoveries that differences in stock performance may account for this observation.

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### APPENDIX Data Summaries

# Appendix Table 1.0.--Summary of recoveries of adult sockeye salmon released as juveniles below Priest Rapids Dam in 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8703A 8703B 8703C 8703D 8703E

1987 P.RAPIDS

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#### TRANS CONTROL

BELOW P.RAPIDS

SOCKEYE

Brands Used: LAW 1 LAW 2 LAW 3 LAW 4 LAZ 1 Wire Codes Used: 232032 232035 232088 232041 232044

| RECOVERY AREA   | 1987        | YEAR OF<br>1988 | RETURN<br>1989     | TOTAL         | Z RETURN                         |
|---|-------------|-----------------|--------------------|---------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP    | 0<br>8<br>9 | 6<br>8<br>8     | 16<br>0<br>0<br>57 | 16<br>0<br>57 | 0.065<br>0.060<br>0.000<br>0.233 |
| CCEAN FISHERIES   | 9           | 8               | 8                  | 8             | 0.000                            |
| RIVER SPORT<br>COLUMBIA R. BELOW SNAKE R.<br>Columbia R. Above Snake R.<br>Wenatchee R.<br>Snake R. | 8<br>8<br>8 | 8<br>8<br>8     | 6<br>1<br>0<br>3   | 9<br>1<br>0   | 0.030<br>0.034<br>0.060<br>0.060 |
| RIVER COMMERCIAL  | 3           | 0               | 9                  | 0             | 0.000                            |
| INDIAN FISHERY  | 3           | 8               | Ø                  | 0             | 6.320                            |
| HATCHERIES  | 3           | 0               | 9                  | 0             | a. 380                           |
| STREAM SURVEY<br>DTHER STREAMS  | 0           | 0               | 22                 | 22            | 0.090                            |
| TOTALS  | 0           | 8               | 96                 | 96            | 0.392                            |
| PERCENT OF RECOVERY   | % 3.0       | 0.0             | 108.0              |               |                                  |

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Appendix Table 1.1--Recoveries of adult sockeye salmon released as juveniles below Priest Rapids Dam from 22 April to 6 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8783A

1987 P.RAPIDS

TRANS CONTROL SOCKEYE

Brands Used: LAW 1 Wire Codes Used: 232032

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| RECOVERY AREA  |   | 1987             | YEAR OF<br>1988 | RETURN<br>1989    | TOTAL        | % RETURN                         |
|--|---|------------------|-----------------|-------------------|--------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP |   | 0<br>9<br>0<br>1 | 8<br>8<br>8     | 3<br>0<br>8<br>24 | 3<br>0<br>24 | 0.070<br>0.000<br>0.030<br>0.557 |
| OCEAN FISHERIES  |   | 8                | 8               | 3                 | 8            | 0.000                            |
| RIVER SPORT  |   | 3                | 8               | 8                 | 0            | 8.009                            |
| RIVER COMMERCIAL   |   | 9                | 8               | 8                 | 3            | 0.000                            |
| INDIAN FISHERY   |   | 8                | 9               | 9                 | 0            | 0.003                            |
| HATCHERIES   |   | 0                | 3               | 0                 | 3            | 8.000                            |
| STREAM SURVEY<br>DTHER STREAMS   |   | ß                | 3               | 5                 | 5            | 0.116                            |
| TOTALS   |   | 8                | 8               | 32                | 32           | <b>a.</b> 743                    |
| PERCENT DF RECOVERY  | 7 | 0.0              | 0.0             | 198.0             |              |                                  |

NUMBER RELEASED: 4306

BELOW P.RAPIDS

Appendix Table 1.2.--Recoveries of adult sockeye salmon released as juveniles below Priest Rapids Dam from 7-14 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8703B

1987 P.RAPIDS

TRANS CONTROL SOCKEYE BELOW P.RAPIDS

NUMBER RELEASED:

5420

Brands Used: LAW 2 Wire Codes Used: 232035

| RECOVERY AREA  |   | 1967        | YEAR CF<br>1988 | RETURN<br>1989    | TOTAL             | % RETURN .                       |
|--|---|-------------|-----------------|-------------------|-------------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>FRIEST RAPIDS TRAP |   | 8<br>8<br>8 | 8<br>8<br>8     | 3<br>9<br>9<br>11 | 3<br>8<br>9<br>11 | 0.055<br>0.000<br>0.280<br>0.233 |
| DCEAN FISHERIES  |   | Ø           | 0               | 3                 | 0                 | 0.000                            |
| RIVER SPORT  |   | 0           | 8               | ~<br>0            | 8                 | 0.800                            |
| RIVER COMMERCIAL   |   | 0           | 8               | 0                 | ò                 | 9.000                            |
| INDIAN FISHERY   |   | 3           | 9               | 8                 | 8                 | 3.866                            |
| HATCHERIES   |   | 8           | 8               | 0                 | 0                 | 9.800                            |
| STREAM SURVEY<br>DTHER STREAMS   |   | 8           | 8               | 7                 | 7                 | J.127                            |
| TOTALS   |   | 6           | 0               | 21                | 21                | ə.397                            |
| PERCENT OF RECOVERY  | 7 | 8.0         | 8.0             | 100.0             |                   |                                  |

Appendix Table 1.3.--Recoveries of adult sockeye salmon released as juveniles below Priest Rapids Dam from 15-23 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8703C

1987 P.RAPIDS

TRANS CONTROL

BELOW P.RAPIDS

NUMBER RELEASED:

5349

SOCKEYE

Brands Used: LAW 3 Wire Codes Used: 232038

| RECOVERY AREA  |    | 1987        | YEAR GF<br>1988  | RETURN<br>1989 | TOTAL            | % RETURN                         |
|--|----|-------------|------------------|----------------|------------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP |    | 0<br>0<br>0 | 0<br>8<br>8<br>8 | 7<br>0<br>8    | 7<br>9<br>9<br>8 | 0.131<br>0.000<br>0.030<br>0.158 |
| DCEAN FISHERIES  |    | 9           | 8                | 9              | 9                | 0.000                            |
| RIVER SPORT  |    | 8           | 8                | 2              | 9                | 8.036                            |
| RIVER COMMERCIAL   |    | 0           | 8                | 0              | 9                | 0.000                            |
| INDIAN FISHERY   |    | 0           | 9                | ð              | 8                | 9.899                            |
| HATCHERIES   |    | 8           | Э                | 8              | 9                | 6.020                            |
| STREAM SURVEY<br>DTHER STREAMS   |    | D           | 6                | 4              | 4                | 0.075                            |
| TOTALS   |    | 9           | 9                | 19             | 19               | 0.355                            |
| PERCENT OF RECOVERY  | X. | 8.0         | 0.0              | 100.0          |                  |                                  |

Appendix Table 1.4.--Recoveries of adult sockeye salmon released as juveniles below Priest Rapids Dam from 24-25 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8703D

1987 P.RAPIDS

TRANS CONTROL SOCKEYE BELOW P.RAFIDS

NUMBER RELEASED:

5050

Brands Used: LAW 4 Wire Codes Used: 232041

| RECOVERY AREA  |    | 1987        | YEAR OF<br>1988  | RETURN<br>1989 | <br>TOTAL   | X RETURN                         |
|--|----|-------------|------------------|----------------|-------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>FRIEST RAPIDS TRAP |    | 8<br>8<br>8 | 2<br>6<br>8<br>9 | 1<br>0<br>2    | 1<br>0<br>2 | 0.020<br>8.003<br>3.000<br>9.348 |
| OCEAN FISHERIES  |    | 0           | 9                | Ð              | 8           | 0.002                            |
| RIVER SPORT  |    | 8           | 0                | 8              | 0           | 0.008                            |
| RIVER COMMERCIAL   |    | 9           | 0                | 8              | 8           | 0.000                            |
| INDIAN FISHERY   |    | 0           | 8                | Ø              | 0           | .0.00                            |
| HATCHERIES   |    | 0           | 0                | 8              | 9           | 8.000                            |
| STREAM SURVEY<br>DTHER STREAMS   |    | 9           | 2                | 2              | 2           | 0.840                            |
| TOTALS   |    | 8           | 0                | 5              | 5           | <b>e.</b> 099                    |
| PERCENT OF RECOVERY  | 7. | 0.0         | 0.0              | 100.0          |             |                                  |

Appendix Table 1.5.-Recoveries of adult sockeye salmon released as juveniles below Priest Rapids Dam from 27 May to 2 June 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8703E

1987 P.RAPIDS

TRANS CONTROL

BELOW P.RAPIDS

NUMBER RELEASED:

4365

SOCKEYE

Brands Used: LAZ 1 Wire Codes Used: 232044

| RECOVERY AREA   | 1987             | YEAR OF<br>1988 | RETURN<br>1989   | TOTAL            | Z RETURN                         |
|---|------------------|-----------------|------------------|------------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP    | 8<br>2<br>0      | 8<br>8<br>8     | 2<br>0<br>12     | 2<br>0<br>12     | 0.046<br>0.000<br>3.000<br>0.275 |
| DCEAN FISHERIES   | Ø                | 9               | 8                | 9                | 0.020                            |
| RIVER SPORT<br>COLUMBIA R. BELOW SNAKE R.<br>Columbia R. Above snake R.<br>Wenatchee R.<br>Snake R. | 8<br>8<br>8<br>8 | 6<br>8<br>0     | 6<br>1<br>3<br>3 | 0<br>1<br>0<br>0 | 0.020<br>8.023<br>8.000<br>9.000 |
| RIVER COMMERCIAL  | 8                | 8               | 3                | 9                | 0.000                            |
| INDIAN FISHERY  | 9                | 8               | 8                | 8                | 0.000                            |
| HATCHERIES  | Ø                | 0               | 0                | 0                | 9.000                            |
| STREAM SURVEY<br>OTHER STREAMS  | 9                | 0               | 4                | 4                | 0.092                            |
| TOTALS  | 8                | 8               | 19               | 19               | 8.435                            |
| PERCENT OF RECOVERY   | . 0.0            | 0.9             | 100.0            |                  |                                  |

Appendix Table 2.0.--Summary of recoveries of adult sockeye salmon transported as juveniles by barge and released below Bonneville Dam in 1987.

Master File Date : 12 December 1939 RELEASE SROUPS INCLUDED: 8705A 8705B 8705C 8705D 8705E

1987 P.RAPIDS TRANS TEST/BARGE BELOW BONNEVILLE

SOCKEYE

Brands Used: RAY 1 RAY 2 RAY 3 RAY 4 RAH 1 Wire Codes Used: 232033 232036 232039 232042 232045

| RECOVERY AREA  | 1987        | YEAR OF<br>1988  | RETURN<br>1989      | TOTAL               | % RETURN ·                       |
|--|-------------|------------------|---------------------|---------------------|----------------------------------|
| RIVER SYSTEM TRAFS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>FRIEST RAPIDS TRAP | 8<br>0<br>9 | 2<br>2<br>8<br>4 | 93<br>0<br>1<br>119 | 95<br>0<br>1<br>123 | 0,383<br>0,030<br>0,034<br>0,502 |
| OCEAN FISHERIES  | 3           | Ø                | 8                   | 8                   | B. 088                           |
| RIVER SPORT  | 3           | 8                | 9                   | 9                   | 8.000                            |
| RIVER COMMERCIAL   | 0           | 0                | Ø                   | 3                   | 0.000                            |
| INDIAN FISHERY   | 0           | 0                | 0                   | 8                   | ,9.280                           |
| HATCHERIES   | 9           | B                | 8                   | 8                   | 3.030                            |
| STREAM SURVEY<br>DTHER STREAMS   | 6           | 4.               | 56                  | 63                  | 3.245                            |
| TOTALS   | 0           | 10               | 269                 | 279                 | 1.139                            |
| PERCENT OF RECOVERY  | % 0.0       | 3.6              | 96.4                |                     |                                  |

#### Appendix Table 2.1.--Recoveries of adult sockeye salmon transported as juveniles by barge and released below Bonneville Dam from 24 April to 7 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8705A

> 1987 P.RAPIDS TRANS TEST/BARGE BELOW BONNEVILLE SOCKEYE

> > NUMBER RELEASED:

5893

Brands Used: RAY 1 Wire Codes Used: 232033

| RECOVERY AREA  |   | 1987        | YEAR OF<br>1988 | RETURN<br>1989 | TOTAL         | % RETURN                         |
|--|---|-------------|-----------------|----------------|---------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP |   | 8<br>0<br>8 | 2<br>0<br>1     | 18<br>0<br>13  | 18<br>6<br>14 | 0.353<br>0.000<br>0.000<br>0.275 |
| OCEAN FISHERIES  |   | 2           | 9               | 9              | 9             | 0.000                            |
| RIVER SPORT  |   | 2           | 0               | 8              | 8             | 3.003                            |
| RIVER CONMERCIAL   |   | 0           | 0               | 9              | 8             | 0.000                            |
| INDIAN FISHERY   |   | 8           | 0               | 0              | 8             | 8.238                            |
| HATCHERIES   |   | 0           | 2               | 8              | 0             | 0.020                            |
| STREAM SURVEY<br>Other Streams   |   | 9           | 3               | 4              | 4             | 0.079                            |
| TOTALS   |   | 0           | 1               | 35             | 36            | <b>a.</b> 707                    |
| PERCENT OF RECOVERY  | 2 | 0.0         | 2.9             | 97.2           |               |                                  |

Appendix Table 2.2.--Recoveries of adult sockeye salmon transported as juveniles by barge and released below Bonneville Dam from 8-21 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8705B

1987 P.RAPIDS

TRANS TEST/BARGE

BELOW BONNEVILLE

NUMBER RELEASED:

5434

SOCKEYE

Brands Used: RAY 2 Wire Codes Used: 232036

| RECOVERY AREA  |    | 1987             | YEAR OF<br>1988 | RETURN<br>1989     | TOTAL              | % RETURN .                       |
|--|----|------------------|-----------------|--------------------|--------------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER SRANITE TRAP<br>FRIEST RAPIDS TRAP |    | 0<br>0<br>0<br>0 | 8<br>8<br>1     | 14<br>0<br>0<br>13 | 14<br>0<br>2<br>14 | 0.258<br>0.000<br>0.000<br>0.258 |
| OCEAN FISHERIES  |    | 0                | 0               | 0                  | 3                  | 0.000                            |
| RIVER SPORT  |    | 8                | 9               | 8                  | 0                  | 6.000                            |
| RIVER COMMERCIAL   |    | 8                | 0               | 0                  | 3                  | 8.068                            |
| INDIAN FISHERY   |    | 2                | 0               | 9                  | 8                  | 8.068                            |
| HATCHERIES   |    | 9                | 3               | 3                  | 0                  | 0.000                            |
| STREAM SURVEY<br>OTHER STREAMS   |    | ß                | 1               | 6                  | 7                  | 0.129                            |
| TOTALS   |    | 8                | 2               | 33                 | 35                 | 8.644                            |
| FERCENT OF RECOVERY  | 7. | 9.0              | 5.7             | 94.3               |                    |                                  |

Appendix Table 2.3.--Recoveries of adult sockeye salmon transported as juveniles by barge and released below Bonneville Dam from 21-25 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8705C

1987 P.RAPIDS

TRANS TEST/BARGE

Brands Used: RAY 3 Wire Codes Used: 232039

YEAR OF RETURN 1987 TOTAL RECOVERY AREA 1988 1989 % RETURN RIVER SYSTEM TRAPS 23 @ 24 0 BONNEVILLE TRAP 0 1 0.450 NCNARY TRAP LOWER SRANITE TRAP PRIEST RAPIDS TRAP 0 0.030 ğ 29 0.000 9 0 9 2 ē 28 0 OCEAN FISHERIES 8 9 8 0.030 RIVER SPORT 0 9 0 0 0.000 0 0 RIVER COMMERCIAL 9 9 0.000 0 g 0 INDIAN FISHERY 8 0.000 HATCHERIES 0 9 2 0 0.000 STREAM SURVEY 0 18 19 0.364 OTHER STREAMS 1 71 TOTALS 9 2 69 1.361 PERCENT OF RECOVERY % 0.0 2.8 97.2

NUMBER RELEASED: 5216

BELOW BONNEVILLE

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Appendix Table 2.4.--Recoveries of adult sockeye salmon transported as juveniles by barge and released below Bonneville Dam from 25-27 May 1987.

Master File Date : 12 December 1789 RELEASE GROUPS INCLUDED: 8705D

1987 P.RAPIDS

TRANS TEST/BARGE SOCKEYE

Brands Used: RAY 4 Wire Codes Used: 232042

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| RECOVERY AREA  |    | 1987        | YEAR OF<br>1988 | RETURN<br>1989     | TOTAL              | % RETURN                         |
|--|----|-------------|-----------------|--------------------|--------------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP |    | 0<br>8<br>0 | 0<br>0<br>2     | 22<br>0<br>3<br>39 | 22<br>0<br>8<br>41 | 8.420<br>8.000<br>8.000<br>8.733 |
| OCEAN FISHERIES  |    | 8           | 2               | . 0                | 8                  | 8.000                            |
| RIVER SPORT  |    | 8           | 0               | 0                  | 2                  | 3.000                            |
| RIVER COMMERCIAL   |    | 0           | 2               | 0                  | 3                  | D. 223                           |
| INDIAN FISHERY   |    | 0           | 0               | 0                  | 3                  | ø. 206                           |
| HATCHERIES   |    | 0           | 0               | 9                  | 6                  | 0.000                            |
| STREAM SURVEY<br>DTHER STREAMS   |    | Ø           | 1               | 13                 | 14                 | 0.267                            |
| TOTALS   |    | 8           | 3               | 74                 | 77                 | 1.470                            |
| PERCENT OF RECOVERY  | 7. | 0.0         | 3.9             | 96.1               |                    |                                  |

NUMBER RELEASED:

BELOW BONNEVILLE

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Appendix Table 2.5.--Recoveries of adult sockeye salmon transported as juveniles by barge and released below Bonneville Dam from 27 May to 2 June 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8705E

1987 P.RAPIDS

TRANS TEST/BARGE SOCKEYE

Brands Used: RAH 1 Wire Codes Used: 232045

| RECOVERY AREA  |    | 1987   | YEAR OF<br>1988  | RETURN<br>1989     | TOTAL              | % RETURN ·                       |
|--|----|--------|------------------|--------------------|--------------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP |    | 6      | 1<br>9<br>9<br>8 | 16<br>9<br>1<br>26 | 17<br>8<br>1<br>25 | 0.482<br>0.000<br>0.023<br>0.738 |
| OCEAN FISHERIES  |    | 0      | 3                | 9                  | 0                  | 0.000                            |
| RIVER SPORT  |    | 3      | 0                | 9                  | 9                  | 2.008                            |
| RIVER COMMERCIAL   |    | 8      | 0                | 8                  | 3                  | 2.208                            |
| INDIAN FISHERY   |    | 8      | 8                | 8                  | 3                  | .8.000                           |
| HATCHERIES   |    | 0      | Ø                | 2                  | 3                  | 8.000                            |
| STREAM SURVEY<br>OTHER STREAMS   |    | р<br>С | 1                | 15                 | 16                 | 0.454                            |
| TOTALS   |    | 0      | 2                | 58                 | 50                 | 1.703                            |
| PERCENT OF RECOVERY  | 7. | 0.0    | 3.3              | 96.7               |                    |                                  |

18

NUMBER RELEASED:

BELOW BONNEVILLE

Appendix Table 3.0.--Summary of recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam in 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8704A 8704B 8704C 8704D 3704E

1987 P.RAPIDS TRANS TEST/TRUCK

CORBETT STATION

SOCKEYE

Brands Used: RAK 1 RAK 2 RAK 3 RAK 4 RAS 1 Wire Codes Used: 232034 232037 232040 232043 232046

| RECOVERY AREA   | 1987             | YEAR OF<br>1988  | RETURN<br>1989   | TOTAL                | Z RETURN -                                |
|---|------------------|------------------|------------------|----------------------|---|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP    | 0<br>8<br>0      | 1<br>0<br>0<br>5 | 184<br>0<br>178  | 185<br>2<br>0<br>134 | 0.765<br>8.000<br>3.000<br>3.761          |
| OCEAN FISHERIES   | 0                | 0                | 0                | 2                    | 9.898                                     |
| RIVER SPORT<br>Columbia R. Below Snake R.<br>Columbia R. Above Snake R.<br>Wenatchee R.<br>Snake R. | 8<br>8<br>9<br>9 | 8<br>8<br>8      | 0<br>1<br>0<br>0 | 0<br>1<br>2<br>2     | 0.000<br>0.004<br>0.006<br>0.000<br>0.000 |
| RIVER COMMERCIAL  | B                | 9                | 9                | 9                    | 8.000                                     |
| INDIAN FISHERY<br>Summer Indian Net   | 9                | 0                | 2                | 2                    | 0.208                                     |
| HATCHERIES  | 2                | 8                | 6                | 3                    | 8.026                                     |
| STREAM SURVEY<br>BIG WHITE SALMON R.<br>OTHER STREAMS   | 0                | 0<br>0           | 1<br>77          | 77                   | <b>0.</b> 004<br><b>0.</b> 319            |
| OTHER   | B                | 8                | 1                | 1                    | 0.004                                     |
| TOTALS  | ð                | 7                | 444              | 451                  | 1.856                                     |
| PERCENT OF RECOVERY %   | 9.8              | 1.6              | 98.4             |                      |   |

#### Appendix Table 3.1.--Recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam from 27 April to 5 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8704A

1987 P.RAPIDS

TRANS TEST/TRUCK SOCKEYE

Brands Used: RAK 1 Wire Codes Used: 232034

YEAR OF RETURN RECOVERY AREA 1987 TOTAL 1988 1989 Z RETURN · RIVER SYSTEM TRAPS .44 0 BONNEVILLE TRAP 0 0 44 0.878 9 MCNARY TRAP 0 Ĵ 0.000 LOWER GRANITE TRAP PRIEST RAPIDS TRAP 0 25 000 Ð 0.000 9 Ō. 25 0.499 **DCEAN FISHERIES** Ø 8 0 Ø 3.008 ٤. 6.003 RIVER SPORT 0 0 Ũ. 9 RIVER COMMERCIAL 0 0 0 9 0.090 INDIAN FISHERY 0 3 0 0 0.000 HATCHERIES 8 Ø 0.680 0 3 STREAM SURVEY BIS WHITE SALMON R. DTHER STREAMS 00 0 0.020 1 18 ā 0 0.163 78 TOTALS 0 9 78 1.556 100.0 PERCENT OF RECOVERY ¥. 0.0 3.0

NUMBER RELEASED:

CORBETT STATION

Appendix Table 3.2.--Recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam from 6-17 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8704B

1987 P.RAPIDS

TRANS TEST/TRUCK SOCKEYE

Brands Used: RAK 2 Wire Codes Used: 232037

NUMBER RELEASED: 4743

CORBETT STATION

| RECOVERY AREA  |   | 1987             | YEAR OF<br>1988 | RETURN<br>1969 | TOTAL         | % RETURN ·                       |
|--|---|------------------|-----------------|----------------|---------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>FONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP |   | 0<br>3<br>8<br>8 | 8<br>8<br>8     | 30<br>0<br>24  | 30<br>0<br>24 | 0.633<br>0.000<br>0.000<br>0.536 |
| OCEAN FISHERIES  |   | 9                | 9               | 0              | 3             | 3.300                            |
| RIVER SPORT  |   | 0                | 0               | 2              | 3             | 8.829                            |
| RIVER COMMERCIAL   |   | 6                | 8               | Ø              | 0             | 0.000                            |
| INDIAN FISHERY   |   | 0                | Ø               | 9              | 3             | .C. 000                          |
| HATCHERIES   |   | 8                | 9               | 0              | 9             | 0.020                            |
| STREAM SURVEY<br>Other streams   |   | 8                | 0               | 5              | 5             | 0.105                            |
| TOTALS   |   | 0                | 3               | 57             | 59            | 1.244                            |
| PEFCENT OF RECOVERY  | Z | 0.0              | 3.8             | 189.0          |               |                                  |

Appendix Table 3.3.--Recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam from 18-24 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8704C

1987 P.RAPIDS

TRANS TEST/TRUCK SOCKEYE

Brands Used: RAK 3 Wire Codes Used: 232040

| RECOVERY AREA  |    | 1987        | YEAR OF<br>1988 | RETURN<br>1989     | TOTAL         | Z RETURN .                       |
|--|----|-------------|-----------------|--------------------|---------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP |    | 0<br>0<br>0 | 0<br>8<br>5     | 55<br>3<br>0<br>51 | 55<br>0<br>56 | 1.054<br>0.000<br>0.000<br>1.073 |
| OCEAN FISHERIES  |    | 8           | 8               | . 0                | 9             | 9.000                            |
| RIVER SPORT  |    | 0           | 8               | 0                  | 3             | 6.000                            |
| RIVER COMMERCIAL   |    | 8           | 6               | 0                  | 0             | 0.000                            |
| INDIAN FISHERY   |    | 0           | 9               | 8                  | 8             | . 0. 309                         |
| HATCHERIES   |    | 8           | 2               | 8                  | 0             | 0.000                            |
| STREAM SURVEY<br>DTHER STREAMS   |    | 0           | e.              | 28                 | 28            | <b>0.5</b> 36                    |
| OTHER  |    | 0           | 0               | 1                  | 1             | 0.319                            |
| TOTALS   |    | 9           | 5               | 135                | 140           | 2.682                            |
| PERCENT OF RECOVERY  | 7. | 9.0         | 3.5             | 95.4               |               |                                  |

NUMBER RELEASED:

CORBETT STATION

Appendix Table 3.4.--Recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam from 24-26 May 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8704D

1987 P.RAPIDS

TRANS TEST/TRUCK

CORBETT STATION

NUMBER RELEASED:

5287

SOCKEYE

Brands Used: RAK 4 Wire Codes Used: 232043

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| RECOVERY AREA   | 1987             | YEAR OF<br>1988 | RETURN<br>1989     | TOTAL              | % RETURN ·                       |
|---|------------------|-----------------|--------------------|--------------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>FRIEST RAPIDS TRAP    | 9<br>8<br>9      | 8<br>8<br>8     | 35<br>9<br>8<br>62 | 35<br>9<br>9<br>62 | 0.672<br>0.800<br>0.800<br>1.191 |
| OCEAN FISHERIES   | 0                | 8               | B                  | 0                  | 0.000                            |
| RIVER SPORT<br>COLUMBIA R. BELOW SNAKE R.<br>COLUMBIA R. ABOVE SNAKE R.<br>WENATCHEE R.<br>SNAKE R. | 2<br>8<br>8<br>8 | 8<br>8<br>8     | 6<br>1<br>0<br>0   | 8<br>1<br>8<br>8   | 0.000<br>0.017<br>8.000<br>0.000 |
| RIVER COMMERCIAL  | 8                | 8               | 8                  | 0                  | 0.000                            |
| INDIAN FISHERY<br>SUMMER INDIAN NET   | 0                | 8               | 1                  | 1                  | 0.019<br>0.000                   |
| HATCHERIES  | 0                | 0               | 3                  | Ø                  | 9.000                            |
| STREAM SURVEY<br>DTHER STREAMS  | 0                | 9               | 28                 | 28                 | 0.538                            |
| TOTALS  | 0                | 8               | 127                | 127                | 2.439                            |
| PERCENT OF RECOVERY %   | 0.0              | 0.0             | 100.0              |                    |                                  |

# Appendix Table 3.5.--Recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam from 27 May to 4 June 1987.

Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8704E

#### 1987 P.RAPIDS

TRANS TEST/TRUCK

CORBETT STATION

NUMBER RELEASED:

3992

SOCKEYE

Brands Used: RAS 1 Wire Codes Used: 232046

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| RECOVERY AREA  |   | 1987        | YEAR DF<br>1988  | RETURN<br>1989     | TOTAL              | % RETURN                         |
|--|---|-------------|------------------|--------------------|--------------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>FRIEST RAPIDS TRAP |   | 0<br>6<br>0 | 1<br>9<br>0<br>1 | 20<br>0<br>0<br>16 | 21<br>0<br>3<br>17 | 0.526<br>0.030<br>0.000<br>0.425 |
| OCEAN FISHERIES  |   | 8           | 0                | 0                  | 9                  | 0.000                            |
| RIVER SPORT  |   | 0           | 8                | 0                  | 6                  | 8.200                            |
| RIVER COMMERCIAL   |   | 9           | 2                | 0                  | 9                  | 8.888                            |
| INDIAN FISHERY<br>SUMMER INDIAN NET  |   | B           | 0                | 1                  | 1                  | 0.025                            |
| HATCHERIES   |   | đ           | 8                | 0                  | 9                  | 8.000                            |
| STREAM SURVEY<br>Other Streams   |   | Ø           | 8                | 8                  | 8                  | 8,200                            |
| TOTALS   |   | 0           | 2                | 45                 | 47                 | 1.177                            |
| FERCENT OF RECOVERY  | % | 0.0         | 4.3              | 95.7               |                    |                                  |

Appendix Table 4.0.--Summary of recoveries of adult sockeye salmon released as juveniles below Priest Rapids Dam in 1988.

# Master File Date : 12 December 1989 RELEASE SROUPS INCLUDED: 8811A 8811B 8911C 8811D 8811E

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1988 P.RAPIDS TRANS CONTROL SOCKEYE

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Brands Used: LAJ 1 LAJ 2 LAJ 3 LAJ 4 LAT 1 Wire Codes Used: 232333 232333 232336 232339 232342

| RECOVERY AREA  |    | 1988 | YEAR OF RETURN<br>1989 | TOTAL       | % RETURN                         |
|--|----|------|------------------------|-------------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER GRANITE TRAP<br>PRIEST RAPIDS TRAP |    | 8    | 1<br>0<br>0<br>1       | 1<br>0<br>1 | 0.006<br>0.000<br>0.000<br>0.000 |
| OCEAN FISHERIES  |    | 0    | 0                      | 0           | 0.000                            |
| RIVER SPORT  |    | 0    | 8                      | 0           | 0.000                            |
| RIVER COMMERCIAL   |    | 8    | 9                      | 0           | 8.000                            |
| INDIAN FISHERY   |    | 3    | 3                      | 8           | 0.300                            |
| HATCHERIES   |    | 0    | 8                      | 0           | 0.080                            |
| STREAM SURVEY  |    | 0    | 0                      | 3           | 0.300                            |
| TOTALS   |    | 0    | 2                      | 2           | 0.211                            |
| FERCENT OF RECOVERY  | 7, | 0.0  | 190.0                  |             |                                  |
|  |    |      |                        |             |                                  |

NUMBER RELEASED:

BELOW P.RAPIDS

Appendix Table 4.1.--Recoveries of adult sockeye salmon released as juveniles below Priest Rapids Dam from 2-8 June 1988.

#### Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8811E

1988 P.RAPIDS

TRANS CONTROL Sockeye BELOW F.RAFIDS

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Brands Used: LAT 1 Wire Codes Used: 232342

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YEAR OF RETURN RECOVERY AREA 1988 TOTAL 1989 % RETURN RIVER SYSTEM TRAPS BONNEVILLE TRAP 3.131 3.883 Ø 100 1 MCNARY TRAP LOWER BRANITE TRAP FRIEST RAPIDS TRAP 0 Ð 0.230 3.131 д 3 g ī 1 9 8 3 9.939 OCEAN FISHERIES RIVER SPORT Î 3 0 8.300 8 9 9 3.899 RIVER COMMERCIAL 6 0 0 0.000 INDIAN FISHERY 8 0 9 0.300 HATCHERIES 0 3 0 0.200 STREAM SURVEY ŋ 2 0.252 2 TOTALS Ä 0.0 100.6 PERCENT OF RECOVERY

Appendix Table 5.0.--Summary of recoveries of adult sockeye salmon transported as juveniles by barge and released below Bonneville Dam in 1988.

#### Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 3812A 8812B 8812C

4

1988 P.RAPIDS

# TRANS BARGE Sockeye

4

BELOW BONNEVILLE

040 0 DAD 7

Prands Used: RAR 1 RAR 2 RAR 3 Wire Codes Used: 232331 232334 232337

| RECOVERY APEA  |          | 1988        | YEAR DF RETUR<br>1989 | IN TOTAL         | % RETURN                                  |
|--|----------|-------------|-----------------------|------------------|---|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER BRANITE TRAP<br>PRIEST RAPIDS TRAP |          | 0<br>0<br>8 | 2<br>8<br>8<br>8      | 2<br>0<br>8<br>8 | 0.819<br>0.800<br>0.800<br>0.800<br>0.800 |
| ODEAN FISHERIES  |          | 0           | 3                     | 0                | 8.008                                     |
| RIVER SPORT  |          | 0           | 0                     | 9                | 9.000                                     |
| RIVER COMMERCIAL   |          | 8           | 0                     | 9                | 2.830                                     |
| INDIAN FISHERV   |          | e           | 9                     | 8                | 9.000                                     |
| HATCHERIES   |          | 0           | 0                     | 9                | 8.000                                     |
| STREAN SURVEY  |          | 9           | 9                     | 8                | 6.600                                     |
| TGTALS   |          | 3           | 2                     | 2                | 8.819                                     |
| FERCENT OF RECOVERY  | <b>%</b> | 8.0         | 189.0                 |                  |   |

Appendix Table 5.1.-Recoveries of adult sockeye salmon transported as juveniles by barge and released below Bonneville Dam from 17-27 May 1988.

#### Naster File Date : 12 December 1989 RELEASE EROUPS INCLUDED: 9812C

1988 P.RAPIDS

TRANS BARGE Sockeye BELOW BONNEVILLE

Brands Used: RAR 3 Wire Codes Used: 232337

4

| RECOVERY AREA  |   | 1988        | YEAR OF RETURN<br>1989 | TOTAL | % RETURN                         |
|--|---|-------------|------------------------|-------|----------------------------------|
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LOWER SRANITE TRAP<br>FRIEST RAPIDS TRAP |   | 9<br>2<br>9 | 2<br>3<br>8            | 2999  | 8.374<br>8.887<br>9.200<br>8.383 |
| OCEAN FIGHERIES  |   | 0           | 0                      | 0     | 0.000                            |
| RIVER SPORT  |   | 0           | 0                      | 8     | 0.000                            |
| RIVER CONMERCIAL   |   | 0           | C                      | 8     | 0.000                            |
| INDIAN FISHERY   |   | g           | 9                      | 8     | 8.028                            |
| HATCHERIES   |   | 0           | 0                      | 0     | 0.200                            |
| STREAN SURVEY  |   | 8           | 6                      | 0     | 8.886                            |
| TOTALS   |   | 3           | 2                      | 2     | 0.094                            |
| PERCENT OF RECOVERY  | X | 2.8         | 102.9                  |       |                                  |
|  |   |             |                        |       |                                  |

Appendix Table 6.0.--Summary of recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam in 1988.

### Master File Date : 12 December 1989 RELEASE SROUPS INCLUDED: 8813A 8813D 8813C 8813D 9813E

1988 P.RAPIDS TRANS TRUCK

BELOW BONNEVILLE

SOCKEYE

Brands Used: RAV 1 RAV 2 RAV 3 RAV 4 RAL 1 Wire Codes Used: 232332 232335 232338 232341 232344

| RECOVERY AREA  |    | 1785        | YEAR OF RETUR<br>1989 | N<br>Total       | % RETURN                                  |
|--|----|-------------|-----------------------|------------------|---|
| RIVER SYSTEM TRAPS<br>FONNEVILLE TRAP<br>NCNARY TRAP<br>LOWER GRANITE TRAP<br>FRIEST RAPIDS TRAP |    | 8<br>8<br>8 | 2<br>0<br>0<br>0      | 2<br>8<br>8<br>9 | 0.011<br>0.000<br>0.000<br>0.000<br>0.000 |
| OCEAN FISHERIES  |    | 9           | 2                     | 3                | 0.000                                     |
| RIVER SFORT  |    | 2           | 8                     | 8                | 8.036                                     |
| RIVER COMMERCIAL   |    | ទ           | 3                     | 0                | 0.000                                     |
| INDIAN FISHERY   |    | 6           | 8                     | 8                | 2.030                                     |
| HATCHERIES   |    | Ø           | 0                     | 3                | 0.000                                     |
| STREAM SURVEY  |    | 0           | 9                     | 0                | 8.000                                     |
| TSTALS   |    | 0           | 2                     | 2                | 0.011                                     |
| FERSENT OF RECOVERY  | X. | 2.9         | 199.3                 |                  |   |

Appendix Table 6.1.--Recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam from 28 April to 2 May 1988.

# Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8813A

1988 P.RAPIDS

TRANS TRUCK SOCKEYE

BELOW BONNEVILLE

Brands Used: RAV 1 Wire Codes Used: 232332

|  |   |             | e             |                  |                                  |
|--|---|-------------|---------------|------------------|----------------------------------|
| RECOVERY AREA  |   | 1998        | YEAR OF RETUR | N<br>Total       | % RETURN                         |
| RIVER SYSTEM TRAPS<br>BONNEVILLE TRAP<br>MCNARY TRAP<br>LO∂ER GRANITE TRAP<br>PRIEST RAPIDS TRAP |   | 6<br>6<br>8 | 1<br>2<br>0   | 1<br>0<br>8<br>9 | 0.017<br>0.000<br>0.000<br>0.000 |
| OCEAN FISHERIES  |   | a           | 2             | 9                | 6.830                            |
| RIVER SPORT  |   | 0           | 8             | 0                | 0.060                            |
| RIVER COMMERCIAL   |   | Ø           | 8             | 8                | 0.000                            |
| INDIAN FISHERY   |   | 0           | 8             | 0,               | 0.000                            |
| HATCHERIES   |   | 8           | 0             | 8                | 2.000                            |
| STREAM SURVEY  |   | 0           | 0             | 8                | 8.083                            |
| TOTALS   |   | 6           | i             | 1                | 0.019                            |
| PERCENT OF RECOVERY  | X | 0.0         | 100.6         |                  |                                  |

NUMBER RELEASED:

Appendix Table 6.2.-Recoveries of adult sockeye salmon transported as juveniles by truck and released below Bonneville Dam from 10-14 May 1988.

#### Master File Date : 12 December 1989 RELEASE GROUPS INCLUDED: 8813C

1988 P.RAFIDS

TRANS TRUCK

BELOW BONNEVILLE

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Brands Used: RAV 3 Wire Codes Used: 232338

YEAR OF RETURN RECOVERY AREA 1788 TOTAL 1789 % RETURN RIVER SYSTEM TRAPS BONNEVILLE TRAP 0 1 0.020 1 NCNARY TRAP LOWER GRANITE TRAP PRIEST RAPIDS TRAP 3 Ū Ø 8.038 0 0 0 0.000 0.000 8 3 3 DCEAN FISHERIES 0 9 0 9.000 RIVER SPORT 9 3 8.203 2 RIVER COMMERCIAL Э 3 8 0.000 INDIAN FISHERY 0 9 0 0.000 HATCHERIES 9 8 8 3.000 STREAM SURVEY 0 9 0 0.000 TOTALS 9 ţ 1 0.020 PERCENT OF RECOVERY 7, 3.0 100.0

NUMBER RELEASED: 5002