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**SUMMARY OF PACIFIC SALMON CODED WIRE TAG AND THERMAL MARK
APPLICATION AND RECOVERY, PRINCE WILLIAM SOUND, 1997.**



by
Tim Joyce
&
Renate Riffe

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PREFACE

This report was prepared as part of cooperative agreements between the Alaska Department of Fish and Game, the Prince William Sound Aquaculture Association, and the Valdez Fisheries Development Association for State Fiscal Year 1998.

AUTHORS

Tim Joyce is the area resource development biologist in Prince William Sound. Renate Riffe is the assistant area resource development biologist in charge of the coded wire tag recovery project in Prince William Sound. Both biologists work for the Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development, PO Box 669, Cordova, Alaska 99754-0669.

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INTRODUCTION

Primary reporting duties for the Prince William Sound Pink Salmon Coded-Wire Tag Project and Otolith Project have been associated with generation of technical reports for the *Exxon Valdez* Oil Spill Trustee Council. While these reports provide much technical information, they do not evaluate day-to-day project operations and may not present all information desired by cooperating private non-profit aquaculture associations, i.e. the Prince William Sound Aquaculture Corporation (PWSAC) and Valdez Fishery Development Association (VFDA). In order to better address the information needs of the aquaculture associations, the Alaska Department of Fish and Game (ADF&G) agreed to submit a separate annual report which summarized tagging and tag recovery activities, presented estimates of hatchery contributions by fishing period and week, and provided survival rates of pink salmon by tag code and hatchery contribution rates of sockeye and chum salmon.

Funding for sockeye salmon coded-wire tag (CWT) recovery was initiated in 1996 in a cooperative agreement with PWSAC and sockeye salmon tagging and recoveries will be summarized in this report. Hatchery sockeye salmon production is generated from two hatcheries, Main Bay and Gulkana, both operated by PWSAC. Most of the production from the Main Bay hatchery is harvested in the Eshamy District in Prince William Sound (PWS), but some is also harvested as remote release fish en route to Coghill and Eshamy lakes. Gulkana hatchery production is generated from fry stockings into lakes on the Copper River system and the resulting production contributes to the marine commercial gill net fishery, the river sport dip net fishery and the subsistence fishery.

CWT information from sockeye salmon returning to the Copper River system is used to estimate the timing of returns and contributions to the common property commercial fishery and more recently to the sport dip-net fishery. For the first time, some cost recovery occurred on the Crosswind Lake component of the Gulkana Hatchery production after it separated itself from the other Copper River stocks.

Chum and coho salmon are briefly covered in this report. Coho salmon were not scanned for CWT's in the common property or cost recovery fisheries. Some chum salmon were scanned in the common property fishery, not, however, in order to estimate hatchery contributions, but to detect stray fish from the Port Chalmers remote release. Chum and coho hatchery returns were estimated using historic catch information and should be considered educated guesses. No mark recapture method was used to derive these estimates.

Management of the chum and coho salmon harvest is not dependent on CWT information. Concerns about wild stock interception in the Wally H. Noerenberg (WHN) hatchery chum salmon fishery is limited to incidental harvest of Coghill lake sockeye salmon. Wild stock harvests are not considered significant in the hatchery coho salmon fisheries with nearly the entire coho salmon catch in the Coghill District and in the Port of Valdez considered to be of hatchery origin.

Management of pink salmon harvests in PWS has become more complex with increased hatchery production. Harvesting the surplus hatchery production without over-harvesting the wild stock component is the responsibility of the area management biologist. This harvest must occur while the quality of the fish is still high and therefore requires commercial harvests throughout the migration. The CWT and otolith programs were initiated so that inseason management decisions could be made. Data from tag and otolith recoveries in test and commercial common property fisheries are crucial to the separation of the hatchery and wild components in a mixed stock fishery and thus to the ability of managers to make informed decisions on fishing periods and times.

The CWT and otolith programs both consist of two components, tag or mark application and tag or mark recovery. Pink salmon have a two-year life cycle, and tag or mark application occurs in the year prior to the recovery. Tags are applied to emergent fry at a predetermined ratio and checked for retention prior to their release. Otolith thermal marks are applied when the fish are still in the embryonic stage. Those tags and marks applied in 1996 were recovered in 1997, while those applied in 1997 will be recovered in 1998.

The marine residency of hatchery produced sockeye salmon is variable, and tags applied in 1997 at the Main Bay and Gulkana facility will be recovered over several years. Tag recoveries from the summer of 1997 provide hatchery contribution estimates, but can only provide partial survival information for most brood years as some year classes have yet to return.

METHODS

Applying Tags

Four hatcheries produce pink salmon, two produce sockeye salmon, two produce chum salmon, and two produce coho salmon in PWS. Tagging procedures are similar at all hatcheries and are described in detail in the 1994 Coded Wire Tag Project Report to the *Exxon Valdez* Oil Spill Trustee Council (Restoration Project 94320B). Fish to be tagged are randomly selected from their release group, marked, and released with their cohorts. No pink or chum salmon fry were tagged in 1997 as otolith thermal marking is replacing the CWT program in pink and chum salmon hatchery releases. At Main Bay hatchery about one sockeye salmon in every 40 is tagged. Gulkana hatchery has been an exception where sockeye salmon tagging ratios have ranged from one in 7 to one in over 70. Efforts were initiated in 1996 to standardize the tagging ratio from this hatchery's production at one in 15.

In 1997, Main Bay hatchery released 34,322 tagged sockeye salmon on site. The Gulkana hatchery tags smolt as they migrate through weirs on Summit and Crosswind lakes. While fry are also implanted into Paxson lake, tags are not applied to the migrating smolt because of a large resident wild population. A total of 39,827 and 145,684 smolt were tagged at Summit and Crosswind lakes respectively with 39,602 and 141,085 valid tagged smolt released at the respective lakes. The difference in the number tagged and valid tags released can be attributed to mortality and loss of tag prior to release.

Applying Thermal Marks

Thermal marks are applied to the otolith bones during incubation by rapidly changing the incubating water temperature by approximately four degrees Celsius with at least 24 hours between changes. In the case of PWS pink salmon, the water is heated with oil fired boilers to achieve the proper temperature change. The WHN hatchery applies thermal marks to their early run chum salmon by manipulating different water supply sources to the hatchery to create the necessary temperature change. The base identifying marks are applied to embryos after development to the "eyed" stage and prior to hatch. Accessory marks are generally applied after the embryo has hatched, but prior to swim-up and migration.

Recovering Tags

Tags are recovered inseason from pink and sockeye salmon harvested during common property and cost recovery fisheries. As salmon are pumped from tenders onto conveyer belts in processing plants, ADF&G technicians count every salmon examined and

remove the head from every salmon with a missing adipose fin. An attempt was made to sample about 20 % of the total harvest of pink salmon and 5% of the total harvest of sockeye salmon in this manner to ensure that a sufficient number of tags are collected to produce accurate and precise estimates of hatchery contributions.

Tags are also recovered daily from hatchery brood stocks during the egg take procedure at each facility. All of the pink and sockeye salmon utilized by the hatchery for egg production, egg sales or surplus are examined for tags. These fish are counted and the head is removed from any fish with a missing adipose fin.

All of the sampled heads are sent to the CWT and Otolith Processing laboratory in Juneau, Alaska where the tag is removed and the code read and recorded.

Recovering Otoliths

At the conclusion of a common property or cost recovery fishery, otoliths are recovered by systematically sampling tender loads delivered to processors. The systematic samples are collected by removing the otolith pairs from one salmon passing along the processor belt every four minutes. The entire tender is sampled in this manner so that a sample is taken throughout the load. If possible, all tenders from several different processors containing salmon from one fishing district and one fishing period are sampled. A weighted sample of 96 otoliths, culled from all otoliths collected after an opening, is formed using a proportional allocation scheme; each sampled tender contributed otoliths to the sample of 96 in proportion to its load. Another sample of 96 otoliths formed in a similar manner is taken and stored for possible postseason use. The total catch for that period and district, used in calculation of the weights, is obtained from the ADF&G fish ticket system. The recovered sample of 96 otoliths is sent to the Cordova Fish and Game otolith laboratory for mounting and microscopic examination. After the origin of an otolith is determined, the information is transferred to an Access™ computer database prior to calculating the hatchery contribution to the fishery opening.

Otoliths are recovered in a similar manner from hatchery brood stocks and are identified as described above. A total daily count of the pink salmon spawned is used in place of the daily “catch”, and a sample of 400 otoliths per brood stock is taken.

All the otoliths that are mounted, read and used for catch contribution calculations are sent to the CWT and Otolith Processing laboratory in Juneau for a quality control second reading. Any reading errors found in the quality control process are corrected in the database and the contribution number is recalculated.

Estimating Hatchery Contributions with CWT's

Pink salmon common property and cost recovery fishery samples were stratified by harvest, district, period, and processor.

The contribution of release group t , C_{St} , to the sampled common property and cost recovery harvests, escapements and brood stocks, was estimated as:

$$\hat{C}_{St} = \sum_{i=1}^L x_{it} \left(\frac{N_i \hat{a}}{s_i p_t} \right),$$

where

- x_{it} = number of group t tags recovered in the i th stratum,
- N_i = total number of fish in the i th stratum,
- s_i = number of fish sampled from the i th stratum,
- p_t = proportion of group t tagged,
- a = historical adjustment factor associated with WHN facility (1989 through 1997); and,
- L = number of recovery strata associated with common property, cost recovery, brood stock, and special harvests in which tag code t was found.

The WHN adjustment factor, for a given year, is estimated as the ratio of sampled pink salmon in the brood stock to the expanded number of fish based on tags found in the sample and is expressed as:

$$\hat{a} = \frac{s}{\sum_i^T \frac{x_i}{p_i}},$$

where,

- T = number of tag codes released from the WHN hatchery in previous year.
- p_i = tagging rate at release for the i th tag code (defined as number of tagged fish released with the i th code divided by the total number of fish in release group i),
- x_i = number of tags of the i th code found in s and,
- s = number of brood stock fish examined in the WHN brood stock.

The adjustment factor used in 1997 was calculated as the mean of all WHN hatchery adjustment factors for the period 1989-1997. An adjustment factor based only on data from WHN hatchery was used for all hatcheries since it was believed this was the only facility at which significant number of pink salmon from either wild runs or other hatcheries do not occur in the brood ponds. Pink salmon straying from other hatcheries or wild runs would lead to an erroneously inflated adjustment factor, and therefore overestimates of hatchery contributions. The purpose of an adjustment factor is to remedy violations of the assumptions that 1) mortality of tagged and untagged pink salmon within a release group is the same and 2) marked pink salmon do not lose tags.

An adjustment factor of 1.98 was used for the Main Bay hatchery sockeye salmon returns. This adjustment factor was calculated from historical brood stock data collected at the Main bay facility. The calculation assumes that the adjustment factor is equal for fish of different ages, and for fish tagged in different years. A review of the methodology used to account for shed tags and differential mortality is underway.

Adjustment factors for sockeye salmon from Gulkana hatchery were based on 1997 samples. The adjustment factor calculated for Crosswind lake was 2.69 which is very close to the 1996 adjustment factor of 2.65. The expected number of fish, or number of tags recovered multiplied by respective tagging rates, was about 37% of the actual number of fish examined for tags. The adjustment factor for Summit Lake was 2.56. The tag-based expected number of fish sampled at Summit Lake was about 39% of the actual number of fish examined for tags. The disparity between actual and expected number of fish sampled implied that fish tagged at Crosswind and Summit Lakes experienced some combination of high tag loss rates, and differential mortalities. By contrast, no adjustment factors were deemed necessary for Summit Lake sockeye in 1995 and 1996. The number of heads recovered without tags in 1997 remained stable at about 17% for Crosswind Lake and 14% for Summit Lake for most of the season. The calculations for Crosswind lake were made more complicated than those for Summit lake because of a subsampling procedure used on the Crosswind lake tagged adults. Assuming the subsampling was random little impact would be expected on the adjustment factor. A review of the method of calculation of the Gulkana adjustment factors will be made prior to the 1998 season.

The contribution of release group t to unsampled strata, C_{Ut} , was estimated from contribution rates associated with strata which were sampled from the same district-week openings as the unsampled strata and is expressed as:

$$\hat{C}_{Ut} = \sum_{i=1}^U \left[N_i * \left(\frac{\sum_{j=1}^s \hat{C}_{Sj}}{\sum_{j=1}^s N_j} \right) \right],$$

where

- U = number of unsampled strata,
- N_i = number of fish caught in i th unsampled stratum
- S = number of strata sampled in the period in which the unsampled stratum resides,
- C_{Stj} = contribution of release coded with tag t to the sampled stratum j , and
- N_j = number of fish in j th sampled stratum.

An estimate of the contribution by tag code t to all strata, sampled and unsampled, is given by

$$\hat{C}_t = \hat{C}_{st} + \hat{C}_{ut}$$

A variance approximation for \hat{C}_t , derived by Clark and Bernard (1987) and simplified by Geiger (1990) was used:

$$\hat{V}(\hat{C}_t) = \sum_{i=1}^L x_{it} \left[\frac{N_i \hat{a}}{s_i p_t} \right] \left[\frac{N_i \hat{a}}{s_i p_t} - 1 \right].$$

Summation of variance components over all tag codes provided an estimate of the variance of the total hatchery contribution. Variance components associated with unsampled strata are assumed negligible.

Estimation of the wild stock production from Coghill and Eshamy lakes was made by summing all of the sockeye salmon harvested and removing all the hatchery production calculated from CWT recoveries. All sockeye salmon caught in the Coghill District in excess of hatchery production were assumed to be Coghill wild stock. All sockeye salmon caught in the Eshamy District not attributed to hatchery production prior to July 5 were considered Coghill wild stock. The time period from July 5 to July 20 was considered a transition period in the Eshamy District between Coghill stock and Eshamy stock sockeye salmon. An arbitrary 25% of the sockeye salmon caught not attributed to hatchery production was considered Coghill wild stock. The remaining wild sockeye salmon harvested in the Eshamy District were divided into production groups of 25% Eshamy stock and 50% other wild stocks. Any wild sockeye salmon stock production after July 20 was considered to be 100% Eshamy stock. All the sockeye salmon harvested in the Southwest District not attributed to hatchery production by CWT recoveries were considered Eshamy wild stock production. Wild stock sockeye salmon harvested in other districts were considered as contributions from other stocks and not included in either the Coghill or Eshamy lake production.

Estimates of contributions of chum salmon produced by the WHN hatchery to the common property and cost recovery fisheries were made by subtracting a pre-hatchery average catch from the years 1971 through 1983 (121,621) from the total catch in the Coghill District. The chum

salmon catch in the Eshamy District was treated slightly differently and the estimation method is much more suspect. There is no historic chum salmon catch prior to July 31 in this district. Prior to Main Bay hatchery production, the Eshamy District opened for harvesting Eshamy lake sockeye salmon in late July and August and the chum salmon that were captured incidentally at that time were of late stock origin. It was only after the initiation of hatchery production of early chum salmon that fishing occurred in June and early July in the Eshamy District. As a result, no historic catch of early run wild chum salmon stocks exists. Only in 1994 does data exist from CWT recovery in the Eshamy District for chum salmon catch prior to July 31. An estimated 7,730 wild chum salmon were captured in 1994 based on CWT recovery that year. This number was subtracted from the Eshamy District chum salmon harvest prior to July 31 to arrive at the hatchery contribution rate for 1997.

The Solomon Gulch hatchery chum salmon production was estimated in a similar manner to that of the WHN hatchery. The average wild chum salmon catch from 1978 - 1984 (157,077) in the subdistricts encompassing the Valdez arm was subtracted from the total catch in that area in 1997 to arrive at the hatchery contribution. Most of the catch in the Eastern District came from those subdistricts, however, some chum salmon harvest occurred in other subdistricts, but those fish were considered all wild stock harvest.

Pre-hatchery historical catches of coho salmon in the Coghill District averaged 1000 fish while those in the subdistricts around the Valdez arm in the northern part of the Eastern District near the Solomon Gulch hatchery averaged 500 fish. The hatchery production of this species at these two sites is based on the total catch less the historical catch plus the estimated sport catch, cost recovery catch and brood stock.

Estimating Hatchery Contributions with Otoliths

Otolith-derived estimates of the contribution of hatchery h , C_{Sh} , to the sampled common property and cost recovery harvests, escapements and brood stocks, were calculated as follows:

$$\hat{C}_{Sh} = \sum_{i=1}^Q \frac{o_{hi}}{n_i} N_i$$

where,

- o_{hi} = Number of otoliths from hatchery h in sample n_i
- n_i = Number of otoliths sampled from stratum i (usually 96)
- N_i = Number of fish caught in stratum i
- Q = number of recovery strata associated with common property, cost recovery, brood stock, and special harvests in which otoliths from hatchery h were found.

An estimate of the contribution by hatchery h to unsampled strata (very few), \hat{C}_{Uh} , was made in a manner similar to that for the CWT program.

An estimate of the contribution by hatchery h to all strata, sampled and unsampled, is given by

$$\hat{C}_h = \hat{C}_{Sh} + \hat{C}_{Uh}$$

A variance estimate for \hat{C}_h is given by:

$$\hat{V}(\hat{C}_h) = \sum_{i=1}^Q \frac{N_i^2 o_{hi}}{n_i^2} \left(1 - \frac{o_{hi}}{n_i} \right)$$

For any sampled stratum, the estimate of the proportion of the catch comprised of hatchery fish is made such that there is a 95% chance that it is within 10% of the true proportion. When combined over strata, the precision of the estimated hatchery contribution improves.

Estimating Survival Rates with CWT's

The survival rate of the release group coded with tag t (S_t), was estimated as:

$$\hat{S}_t = \frac{\hat{C}_{St} + \hat{C}_{Ut}}{R_t},$$

where

R_t = total number of fish in release group coded with tag t released from hatchery.

Assuming the total release of salmon associated with a tag code is known with negligible error, and that the cumulative variance contributions associated with the unsampled strata are small, a suitable variance estimate for S_t is given by:

$$\hat{V}(\hat{S}_t) = \frac{\sum_{i=1}^L x_{it} \left[\frac{N_i \hat{\alpha}}{s_i P_t} \right] \left[\frac{N_i \hat{\alpha}}{s_i P_t} - 1 \right]}{R_t^2}.$$

Estimating Survival Rates with Otoliths

An estimate of the survival rate for hatchery h , S_h , was made from otolith recoveries as follows:

$$\hat{S}_h = \frac{\hat{C}_{sh} + \hat{C}_{uh}}{R_h}$$

where,

R_h = Number of pink salmon released from hatchery h .

An approximate variance of \hat{S}_h is given by:

$$\hat{V}(\hat{S}_h) = \frac{\sum_{i=1}^Q \frac{N_i^2 o_{hi}}{n_i^2} \left(1 - \frac{o_{hi}}{n_i}\right)}{R_h^2}$$

There were very few unsampled strata and the variance associated with \hat{C}_{uh} is assumed negligible.

RESULTS AND DISCUSSION

Much of the CWT information supplied in the following section was derived from CWT summary reports submitted by each facility that applied tags in 1996 (Table 1). No coded wire tags were applied to pink salmon in 1997. Thermal mark information was also derived from summary reports submitted by each facility.

Applying Tags In 1997

Main Bay Hatchery

Main Bay hatchery tagged sockeye salmon smolt from the 1995 brood year Eyak, Coghill and Eshamy stocks. A pipeline failure in January of 1996 caused the premature death of most of the eggs being incubated. A few hundred thousand survivors were released in the spring of 1997 as smolt. The Eyak stock was tagged at a 20:1 ratio while the other two stocks were tagged at a 40:1 ratio.

A total of 131,503 Eyak stock smolt with an average weight of 14.4 grams were released, of which 6,726 contained tags. The Coghill stock had a release of 239,023 smolt with an average weight 14.2 grams of these 6,106 contained tags. Two groups of Eshamy stock smolt were released. One release contained 435,703 smolt with an average weight of 7.9 grams containing 11,160 tagged fish. The other release contained 409,487 smolt with an average weight of 6.8 grams containing 10,330 tagged fish. These fish were all released at Main Bay hatchery (Table 2).

Gulkana Hatchery

The hatchery operation at Gulkana is not typical. This hatchery stocks emergent fry into under-utilized lakes and then captures the out migrating smolt the following year for enumeration and tagging. The smolt outmigration from Summit lake started on June 2 and continued through July 4 with the smolt averaging 5.63 grams. A total of 594,445 smolt migrated from the lake, of which 39,602 contained valid tags for a tagging ratio of 15:1. Once again, Crosswind lake's smolt outmigration was much more compressed this season than in past years with approximately 50% of the out migration occurring in one night. A total of 2,380,483 smolt averaging 7.77 grams migrated from Crosswind lake. the migration started on May 30 and was completed by June 25. A total of 141,085 valid tagged smolt were included in the total outmigration for a tagging ratio

of 16.9:1. Applying CWT's to this group of migrating sockeye salmon was skewed towards the end of the outmigration because the tagging personnel were not able to keep up with the volume of migrating fish early in the season. By June 14, approximately 97% of the smolt outmigration was complete, but only 67% of the CWT's were applied (Table 2). An additional tag application machine was sent to the Gulkana hatchery this year in an effort to avoid applying tags in a non-representative manner in the future.

Prior to 1996, a set number of tags were applied to the outmigrating smolt from two stocked lakes, Summit and Crosswind. The result of this application method was that tag ratios varied widely between the two lakes and between years. These wide variations prevented the tagged fish recoveries from being used inseason as a management tool. Contribution rates could only be made after tags were decoded, and this took from 5 to 10 days. Starting in 1996 a tag ratio of 1:15 was established as the standard ratio to be used for both lake systems each season. Once all the year classes returning are from these standard tagging ratio releases, inseason hatchery contributions can be calculated using only detected-tag information. Managers can then use this information in determining fishing time and area both in the commercial gill net fishery and in the sport dip net fishery as it would be generally available within 48 hours of a fishery closure.

Applying Thermal Marks In 1996

A. F. Koernig Hatchery

Otoliths of pink and chum salmon at this hatchery were thermal marked with one four (4) ring band as the base mark. One module of pink salmon incubators was also marked with an accessory mark which was composed of one three (3) ring band laid down after the hatch was complete. A total of 52.4 million thermal marked pink salmon fry were released at the hatchery site. Within that total were 16.5 million fry that had an accessory mark applied to their otoliths. These pink salmon were to be released as early-plankton-released fry and the accessory mark will distinguish them from the remaining release groups. A total of 8.8 million chum salmon fry were released on site containing a single band of four rings on their otoliths.

All of the eggs at AFK hatchery were spawned at WHN hatchery in 1996 and shipped to the AFK hatchery after they reached the eyed stage. Thermal marking occurred after the eggs were seeded into incubators at the AFK hatchery. After the thermal marking was complete and post mark samples were examined, it was discovered that there were some additional rings resembling thermal marks, just prior to the applied mark. These could have been created during the egg transfer between the two hatcheries. Unfortunately, these additional rings may cause confusion between the AFK thermal mark of four rings in one band with that of the Solomon Gulch thermal mark which is 6 rings in one band. The run-timing of the AFK and Solomon Gulch fish is fairly different, however, which will likely allow accurate separation of the stocks.

W. H. Noerenberg Hatchery

All the pink and chum salmon fry released at WHN hatchery and at the Port Chalmers remote chum salmon release site received thermal marks. The pink salmon released at the WHN hatchery received a base mark prior to hatching of one band with eight (8) rings. A total of 106.4 million pink salmon fry were released on site with this base mark. Within this total, 30.5 million pink salmon alevins had an accessory mark of three rings in one band applied to their otoliths after they hatched to distinguish them as a late, large-release rearing group.

A total of 70.0 million chum salmon were released at the WHN hatchery site that were divided into two release groups. The first was an early plankton release which involved 34.3 million fry that were marked with one band of three (3) rings followed by a second band of four (4) rings applied prior to hatch. The second release of late, large fry involved 35.7 million chum salmon and had one band of three (3) rings followed by a second band with two (2) rings applied before hatch.

A total of 17.3 million chum salmon were remote released at Port Chalmers with a base mark of one band with six (6) rings. The same two release strategies are being studied at that location as at the WHN hatchery site. The early plankton release group involved 6.6 million fry that only had the base mark. The late, large release group involved 10.7 million fry that had a second band of two (2) rings applied after the base mark, but prior to hatch.

Cannery Creek Hatchery

All 136.8 million pink salmon fry released at the Cannery Creek hatchery had the same thermal mark applied to their otoliths. The Cannery Creek base mark is composed of one band of 3 rings followed by a second band of three rings prior to hatch. This hatchery did have some start up problems with their water heating system which resulted in a glitched first ring in the beginning treatment group. As a result, the first band was started again which in some instances gave the appearance of having four rings in the first band instead of three. This glitch mark will not be a problem since the AFK hatchery mark of four rings is not immediately followed by a band of three rings. The three ring accessory mark applied at the AFK hatchery occurred after hatch so a considerable spacing difference is apparent between the first four rings and the three ring accessory mark.

Solomon Gulch Hatchery

All 188.9 million of the Solomon Gulch hatchery pink salmon received a thermal mark on their otoliths. This mark was composed of one band with six rings. Even though there were some instances where the water temperature during the heating cycle failed to stabilize at four degrees above ambient, it did not appear to affect the quality of the mark. The unfortunate addition of two rings on the AFK mark possibly from egg transport from WHN hatchery may confuse the

identification between the AFK and Solomon Gulch hatchery otoliths. This confusion will only affect the latter portion of the Solomon Gulch pink salmon run as they are an early stock of fish and have nearly completed their run entry by the time the AFK hatchery fish start to enter into PWS.

CWT-Derived Hatchery Contributions to the 1997 Harvest

Pink Salmon

Hatchery contributions of pink salmon to the common property fisheries within each district were estimated for each statistical week of the 1997 fishing season (Table 4). Hatchery contributions of pink salmon to the cost recovery fisheries within each district were estimated by statistical week for the 1997 season (Table 5). Hatchery contributions of pink salmon to the brood stock for each hatchery were also estimated by statistical week for the 1997 season (Table 6).

Sockeye Salmon

The hatchery contributions of sockeye salmon to the common property fishery, cost recovery and brood stock within each district were estimated in the same manner as described above for pink salmon.

Chum Salmon

The hatchery contribution of chum salmon to the common property, cost recovery and brood stock was done postseason using the total salmon captured rather than by period or statistical week. A few chum salmon were examined from different districts within PWS while looking for stray Port Chalmers chum salmon, but these were not taken in sufficient quantities to make a determination of hatchery contributions. One Port Chalmers tagged chum salmon was recovered in the common property fishery in the Coghill District out of 34 tags examined. Another 180 tags were examined from the spawning rack at WHN hatchery. No tags from the Port Chalmers release were recovered at the spawning rack.

Coho Salmon

The hatchery contribution of coho salmon to the common property, cost recovery and brood stock was done postseason using the total salmon captured rather than by period or statistical week.

Common Property Harvest Estimates Derived Using Coded Wire Tags

Pink Salmon

Coded wire tag recoveries indicated that Solomon Gulch hatchery had the largest number of fish return to the hatchery followed by AFK, WHN, and Cannery Creek in that order (Table 7). As indicated in the otolith thermal mark section there was an estimated additional 300,000 pink salmon in the Valdez area that went unharvested because of the fisherman's strike and 180,000

pink salmon in the stream adjacent to Cannery Creek hatchery that were not included in these two hatchery totals.

In 1997, Solomon Gulch hatchery made the largest contribution to the common property harvest with approximately 62% of the return caught. The next largest contributions to the common property fishery were made by AFK, Cannery Creek and WHN hatcheries and wild stocks in that order (Table 4). The largest contributor in a district was that of the nearest pink salmon hatchery.

The contribution by PWSAC to the common property fishery using coded wire tag calculations amounted to 9.63 million pink salmon. The total number of pink salmon caught in the cost recovery harvest by PWSAC amounted to 7.38 million fish. The total number taken for brood stock at PWSAC hatcheries was 728.8 thousand fish. Thus, the corporation's share was 8.11 million pink salmon. The post season analysis using coded wire tags indicates that the PWSAC cost recovery and brood stock amounted to 45.7% of the corporation's contribution to the common property fishery ($\text{Corporation share} / (\text{Common Property contribution} + \text{Corporation share})$).

Sockeye Salmon

The 1997 sockeye salmon common property catch in PWS including the Copper and Bering River Districts is estimated to be 3.88 million fish. The cost recovery harvest at Main Bay hatchery totaled 236.0 thousand sockeye salmon. An additional 200 sockeye were sold incidental to the pink salmon cost recovery at WHN hatchery as well. The cost recovery harvest at Main Bay was based on pre-season contract sales which were tied to a grounds price to reach a revenue goal. As a result of higher than expected sales prices, revenue goals were exceeded in order to meet the pre-season sales contracts. A cost recovery harvest occurred for the first time at the Gulkana hatchery this season. A total of 30.1 thousand sockeye were captured at a weir in the river draining Crosswind lake and sold.

The return to Main Bay hatchery from the early run zero-check release was estimated at 7.0 thousand sockeye salmon. A total of 4.6 thousand early run fish were used for brood stock (Table 14) 2.0 thousand early run fish were harvested in the common property fishery including 1.3 thousand taken in the Copper River district and 0.4 thousand were captured during cost recovery operations (Tables 12, 13 & 17).

The return from the mid-run release was 821.2 thousand sockeye salmon. A total of 620.8 thousand mid-run sockeye salmon were taken in the common property fishery (Table 12) including 10.6 thousand fish taken in the Copper River District (Table 17) and 196.9 thousand were taken during cost recovery (Table 13). An estimated 3.5 thousand mid-run fish were utilized as brood stock during the late run egg takes (Table 14).

The return from the late run release totaled 146.8 thousand sockeye salmon. The common property catch of the hatchery late run sockeye salmon amounted to 118.1 thousand adults (Table 12) none of which were taken in the Copper River District. A total of 24.3 thousand

sockeye salmon were cost recovered (Table 13) and 4.4 thousand fish were used as brood stock (Table 14).

The return to the Copper River District was the highest on record at 4.1 million sockeye salmon which does not include the escapements into the Copper River Delta systems. The commercial common property catch in the Copper River District was 2.955 million sockeye salmon. The escapement past the sonar counters at Miles lake totaled 1.148 million sockeye salmon. The Gulkana hatchery contribution to this return is not precise since accurate smolt outmigration numbers from hatchery stockings are not known for the Paxson lake stockings. Based on CWT recoveries, smolt outmigration estimates, and an assumed average survival for the Paxson lake fish, the hatchery contribution to the Copper River run was estimated to be 387.2 thousand sockeye salmon (Tables 17, 18 & 19).

The Gulkana hatchery contributed an estimated 266.7 thousand sockeye salmon to the commercial gillnet fishery from stockings in Crosswind, Summit and Paxson lakes. The commercial fishery caught 170.8 thousand Crosswind lake and 7.0 thousand Summit lake sockeye salmon. Since Paxson lake stockings are not marked, no estimation using CWT's can be made. It is assumed that the survivals of the Paxson lake stockings are the average of those of Summit and Crosswind lakes which results in an estimated commercial catch of 88.9 thousand Paxson lake sockeye salmon (Table 17).

The Personal Use fishery on the Copper River had an estimated harvest of 153.0 thousand sockeye salmon which included an estimated 7.7 thousand hatchery produced sockeye salmon. The lack of an adequate sampling program in the Personal Use fishery probably underestimated the hatchery contribution, no information is available however to adjust the estimated number. Again, the Paxson lake contribution had to be estimated without the aid of CWT recovery data (Table 18). In addition, approximately 90.0 thousand sockeye were taken in the subsistence fishery in the Copper River which were not scanned for CWT's. Some hatchery contribution was undoubtedly made to this fishery, but the number is unknown.

The hatchery produced sockeye salmon that were used as brood stock or were excess brood stock at Gulkana hatchery and those counted on the spawning grounds at Summit lake and Crosswind lake totaled 112.8 thousand adults. All sockeye salmon returning to Crosswind lake and all the late run sockeye salmon that returned to Summit lake were assumed to be hatchery produced. All sockeye salmon returning to the Gulkana hatchery sites were also assumed to be hatchery produced (Table 19). Since sockeye salmon returning to the Gulkana hatchery do not carry CWT's and a small local population of wild fish exists, assignment of all fish returning to the hatchery is not strictly valid. One could argue, however, that since the local population is composed primarily of fish released from the hatchery, the local 'wild' population could indeed be looked upon as a hatchery population. Approximately 3.3 thousand adults are allowed to spawn naturally in the spring water creeks below the hatchery. The total number of hatchery produced sockeye salmon that passed the Miles lake sonar is estimated to be 120.5 thousand fish.

Returns of fish reared at the Main Bay hatchery include adult sockeye salmon returns from remote releases at Coghill lake, and Eshamy lake.

Returns to Coghill lake amounted to 225.6 thousand sockeye salmon, of which 119.9 thousand were hatchery produced and 105.7 thousand were wild (Tables 12, 13, 15 & 17). Contributions to the common property fishery by Coghill lake hatchery stockings were made in the Coghill District, Eshamy District, Eastern District, Southwestern District and the Copper River District. The common property catch of wild Coghill lake sockeye salmon was 56.0 thousand fish (Tables 12 & 17). A directed cost recovery harvest did not occur at Coghill lake, however, 15.1 thousand wild Coghill lake sockeye were caught incidental to the hatchery cost recovery programs. The escapement into Coghill lake totaled 35.5 thousand fish. Based on CWT recoveries, an estimated 0.8 thousand hatchery released pre-smolt and 34.7 wild sockeye contributed to the Coghill lake escapement. The hatchery remote released sockeye salmon smolt contribution came from brood year 1992 and the pre-smolt contribution came from brood year 1993. The brood year 1992 smolt were released in 1994 and were released into the Coghill river estuary. The brood year 1993 sockeye salmon pre-smolt were stocked into Coghill lake in 1994.

Eshamy lake had a total return of 56.3 thousand sockeye salmon of which 0.7 thousand were hatchery produced (Tables 12 & 16). No directed cost recovery fishery occurred at Eshamy lake. There were 17.0 thousand wild Eshamy sockeye salmon caught in the common property harvest (Table 12). The escapement into Eshamy lake was 39.0 thousand sockeye salmon when the counting weir was removed on Sept. 1 which included an estimated 0.7 thousand hatchery produced sockeye salmon.

Cost Recovery Harvest Estimates Derived Using Coded Wire Tags

Pink Salmon

Cost recovery harvests were stratified and sampled in a similar fashion as done with otolith sampling. The pink salmon cost recovery harvest at AFK hatchery was the largest at 3.19 million fish (Table 5). The remaining hatchery cost recovery contributions were in the following order of abundance: Solomon Gulch, 2.43 million; WHN, 2.15 million; Cannery Creek, 1.14 million and wild fish, 0.91 million.

Sockeye Salmon

Main Bay hatchery cost recovered 236.0 thousand sockeye salmon. The cost recovery occurred on the Eyak, Coghill and Eshamy stocks that returned to Main Bay hatchery in 1997. In addition, 0.2 thousand sockeye salmon were cost recovered incidental to chum and pink salmon cost recovery operations at WHN hatchery. Cost recovery of 30.1 thousand sockeye salmon also occurred in 1997 on the sockeye salmon produced by the Gulkana hatchery bound for Crosswind Lake.

Otolith-Derived Hatchery Contributions to the 1997 Harvest

Only pink salmon returning in 1997 contained thermal marks. The common property fishery contribution using otolith marks was calculated by district and period while the same fishery contribution using coded wire tags was calculated by statistical week. The cost recovery and brood stock contributions were calculated by district and statistical week.

Common Property Harvest Estimates Derived Using Thermal Marks

Pink Salmon

The 1997 pink salmon return to PWS including the Copper and Bering rivers was 28.31 million and ranks fifth out of the last 20 years. The total harvest in PWS was 25.80 million pink salmon. The common property pink salmon harvest was 15.98 million and 9.82 million were taken during cost recovery fisheries which includes roe stripped fish. In addition, 1.09 million were taken as brood stock and 1.42 million naturally escaped into index streams. The AFK hatchery produced the largest hatchery return this season with 6.95 million fish. The Solomon Gulch hatchery was the second highest producing hatchery with a documented return of 6.79 million fish. However, because of a fishermen's strike towards the end of the Solomon Gulch return an estimated 300,000 pink salmon went unharvested and died near the Solomon Gulch hatchery. If these fish had been accounted for in the harvest then the Solomon Gulch hatchery production would have exceeded the returns of the AFK hatchery. WHN hatchery had the next highest return with 6.19 million fish followed by Cannery Creek hatchery with 5.78 million fish (Table 11). Cannery Creek also had an estimated 180,000 pink salmon in the stream adjacent to the hatchery because of the weir washing out. These fish were not included in the total as they were an undocumented estimate. Stream escapements were generally strong on the east side of PWS again and below average in the northern and northwest side, but average in the Southwest District where runs have been weak in the past few years.

The cost recovery catch numbers do not match the numbers generated from cost recovery fish tickets because of the sale of spawned pink salmon brood stock. In order to avoid counting brood fish twice, carcasses that were sold after spawning were not included in the cost recovery catch total as they were already counted in the brood stock total.

In 1997, pink salmon produced by Solomon Gulch hatchery comprised the largest portion of the common property harvest (Table 8). Approximately 59% of the Solomon Gulch return was harvested in the Common Property fishery. The remaining common property harvest was produced, in order of abundance, by AFK hatchery, Cannery Creek hatchery, WHN hatchery, and wild stocks. In general, the largest contributor to a district was the nearest hatchery producing pink salmon.

The contribution by PWSAC to the common property fishery amounted to 10.89 million pink salmon. The total number of pink salmon caught in the cost recovery harvest by PWSAC

amounted to 7.38 million fish. The total number taken for brood stock at PWSAC hatcheries was 728.8 thousand fish. Thus, the corporation's share was 8.11 million pink salmon. The post season analysis indicates that the PWSAC cost recovery and brood stock amounted to 42.7% of the corporation's contribution to the common property fishery (Corporation share/(Common Property contribution + Corporation share)).

Contrary to recent years, pink salmon survival rates were higher in the southwestern portion of PWS. The survival rate associated with the AFK hatchery was the highest overall at 6.4%; that associated with the Cannery Creek hatchery was 4.1%, which was slightly higher than the 3.7% survival at the WHN hatchery. The survival rate of fish released from the Solomon Gulch hatchery was the lowest at 3.0%. Environmental factors which could have caused this trend include, but are not limited to, water circulation patterns, food availability, and presence of predators.

Cost Recovery Harvest Estimates Derived Using Thermal Marks

Pink Salmon

Cost recovery harvests were stratified by statistical week (Table 9). Daily harvests were not sampled in all cases, so a number of daily strata had to be combined. In general, contributions to cost recovery harvests from hatcheries other than the one of origin were small. Main Bay hatchery was a notable exception. Since Main Bay hatchery produces only sockeye salmon, the 38.9 thousand pink salmon sold in their cost recovery operation originated from other locations as did the 1.6 thousand chum salmon. The pink salmon cost recovery harvest contribution by the AFK hatchery was the highest at 3.21 million. The remaining hatchery cost recovery contributions of pink salmon are in the following order of abundance: Solomon Gulch, 2.42 million; WHN, 2.21 million; Cannery Creek, 1.86 million and wild fish, 0.07 million.

Common Property Harvest Estimates of Species Not Thermally Marked

Chum salmon

The chum salmon return to Eshamy and Coghill Districts totaled 1.73 million adults. The WHN hatchery production was calculated to be 1.60 million chum salmon adults (total catch - (historical average wild catch prior to 7/31 in Coghill District + 1994 wild catch in Eshamy District) + brood and excess brood). The common property chum salmon catch in the Coghill District was 719.4 thousand and 43.2 thousand in the Eshamy District. The cost recovery catch in the Coghill District was 800.4 thousand and 1.6 thousand in the Eshamy District. The total brood stock available was 170.0 thousand which includes holding mortality and fish remaining after the egg take was complete.

The Port Chalmers common property catch totaled 183.6 thousand chum salmon. These fish were produced from remote released chum fry from WHN hatchery. No cost recovery occurred at this location and none of the fish were used as brood stock.

The total chum salmon return to the Valdez area, subdistricts 50, 60 and 61, was 425.0 thousand adults. The common property catch in the Eastern District for the above subdistricts was 412.4 thousand adults. The total cost recovery catch of chum salmon at Solomon Gulch hatchery was 2.5 thousand fish. The total number of chum salmon that were excess brood and salvaged for roe was 9.0 thousand adults. Additionally, there were 1.1 thousand chum salmon that passed through the hatchery weir and spawned in the stream adjacent to the hatchery. The Solomon Gulch hatchery production was calculated to be 268.0 thousand chum salmon (total catch - (historical wild chum salmon catch in the Valdez statistical area) + brood and excess brood).

Coho salmon

The total coho salmon return to the Valdez area was estimated at 93.3 thousand adults. This estimation was made without the input from sport fish state wide harvest surveys as they will not be generated until next year. After the removal of the historical wild catch from that area the total hatchery contribution is estimated to be 92.8 thousand fish which equates to 5.0% survival from release.

The total coho salmon return to the Coghill District was estimated to be 13.4 thousand adults. The same problem exists for the sport fish catch in this area as it does in the Valdez area. After the removal of the historical wild catch the hatchery return is estimated to be 12.4 thousand which equates to 7.0% survival. An additional 6.9 thousand coho were estimated to have returned to the remote release locations to be harvested by sport fishing anglers. Since actual numbers are not available from the Sport Fish division this number was created by multiplying the smolt released by the WHN hatchery survival rate.

Cost Recovery Harvest Estimates of Species Not Thermally Marked

Chum Salmon

The WHN hatchery cost recovered 800.4 thousand chum salmon. Main Bay hatchery also cost recovered 1.6 thousand chum salmon incidental to their sockeye salmon harvest.

A directed cost recovery did not occur at the Solomon Gulch hatchery, but 2.5 thousand chum salmon were captured incidental in the pink salmon cost recovery. In addition, 11.0 thousand adult chum salmon were salvaged for their roe at the hatchery as that hatchery is no longer propagating that species.

Survival Rates by Tag Code

The experimental release groups which were released in June of 1996 survived at nearly the same levels as those released with other treatments. Those released from the WHN hatchery at approximately one gram averaged 3.08% survival while those released from the AFK hatchery at approximately 0.75 grams survived at 5.43%. The survivals of the other release groups at the WHN hatchery averaged 2.77% and those at the AFK hatchery, excluding the direct release group, averaged 6.40% (Table 3). These survivals are not as impressive as last year. Warm water temperatures, stress and vibriosis within the rearing pens required the fish to be released early and at sizes only slightly larger than other rearing groups.

It is interesting to speculate on the reasons for the survival of the larger pink salmon fry to have not shown the dramatic differences as in the past. It could have been from the stress and disease mentioned earlier, or simply that the size difference was not that great when released. No other trends could be found in any of the other release groups from the WHN hatchery. Some releases from the early fed groups survived a high rates from the AFK hatchery suggesting that the larger fish released early survived better than large fish released late. (Table 3).

There are no apparent trends in survival rates for Cannery Creek pink salmon (Table 3). However, because of the high tag loss rate in the Cannery Creek fish this data should be viewed with caution. It is unknown at this time whether the tag loss occurred evenly throughout all tag codes or if some codes lost tags at higher rates. It is possible that the fish tagged early in the season lost their tags at a higher rate than fish tagged later in the season.

Contrary with recent years, pink salmon survival rates calculate using CWT's were higher in the southwestern portion of PWS. This trend agrees with that found with the return calculated from otolith marks. The survival rates calculated from coded wire tags associated with the AFK hatchery was the highest overall at 6.1%; that associated with the WHN hatchery was lower at 3.3%, which was slightly higher than the 3.2 % survival at the Cannery Creek hatchery. The survival rate of fish released from the Solomon Gulch hatchery was the lowest at 3.1%. If the undocumented fish that were left in the Port of Valdez and those that remained in the stream along side Cannery Creek were included in the calculation of survivals, all the hatcheries except AFK would have had the same survival rate of 3.3%

Sockeye salmon survivals from brood year 1992 are complete and are listed in Table 20. The brood year 1993 survivals are only partially complete as the three ocean fish will return in the summer of 1998. The 1993 brood year is listed to provide a look at the trend for some of the release groups, but will not be conclusive until next year.

CONCLUSIONS

- 1) Hatchery production of pink salmon in PWS was average for 1997 with good returns to the AFK hatchery and average returns to the WHN, Cannery Creek and Solomon Gulch hatcheries.
- 2) Main Bay hatchery releases of Coghill sockeye salmon of larger sizes produced approximately 2% higher average survivals than smaller smolt sizes without changing the run age composition from what was expected.
- 3) Poor tag retention in fish released from the Cannery Creek hatchery, W.H. Noerenberg hatchery and the Solomon Gulch hatchery caused serious problems in estimating hatchery contributions using CWT's to the catch in the 1997 fishery. The advent of otolith marking has clearly been beneficial for contribution estimations of hatchery production.
- 4) The release of large pink salmon fry later in the season produced survival rates at both the AFK and WHN hatcheries equivalent to those released as early and late fed. The direct released fish survived much less than all other groups at AFK.
- 5) The remote released sockeye salmon smolt at Coghill lake produced an estimated 53% of the total return to that system. This year sufficient wild sockeye adults were present to reach the escapement goal early enough in the season to allow a common property fishery to occur in the Coghill District while the quality of the fish was still very good. As an enhancement tool this year's sockeye salmon return was a success, and the presmolt release did provide returning adults with a much stronger homing urge than the smolt released in the estuary in previous years. Two years of returns from presmolt stocked into Coghill lake remain, but no more returns from smolt releases are expected.
- 6) The remote released sockeye salmon at Eshamy Lake completed their life cycle this year with an estimated 200 adults passing through the weir at the lake. They did not contribute to the common property fishery in the Eshamy or Coghill Districts. As with the Coghill remote smolt release, this release strategy was somewhat successful as an enhancement tool, but is doubtful as a rehabilitation project and greatly complicated the management of the wild Eshamy population. As far as management purposes are concerned the Eshamy hatchery remote release production is complete.

| SPECIES | HATCHERY | RELYR | BDYR | RELSITE | TAG CODE | BEG REL | END REL | REL WT | EXPERIMENT | TAGGED | RELEASED | TAG RATIO |
|---------|------------------|-------|------|----------------------|------------|----------|----------|--------|------------------|---------|------------|-----------|
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031315 | 05/11/96 | 05/11/96 | 0.66 | REARING STRATEGY | 17,818 | 10,768,841 | 604.38 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031401 | 05/11/96 | 05/11/96 | 0.52 | REARING STRATEGY | 16,976 | 10,374,384 | 611.121 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031402 | 05/11/96 | 05/11/96 | 0.48 | REARING STRATEGY | 17,090 | 10,325,538 | 604.186 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031403 | 05/11/96 | 05/11/96 | 0.4 | REARING STRATEGY | 18,284 | 10,912,648 | 596.841 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031404 | 05/11/96 | 05/11/96 | 0.38 | REARING STRATEGY | 18,130 | 10,626,187 | 586.111 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031405 | 05/24/96 | 05/24/96 | 0.56 | REARING STRATEGY | 14,476 | 8,312,086 | 574.198 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031406 | 05/24/96 | 05/24/96 | 0.52 | REARING STRATEGY | 15,080 | 8,638,583 | 572.85 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031407 | 05/24/96 | 05/24/96 | 0.47 | REARING STRATEGY | 14,990 | 8,594,441 | 573.345 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031408 | 05/24/96 | 05/24/96 | 0.47 | REARING STRATEGY | 15,855 | 9,745,337 | 614.654 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031409 | 05/24/96 | 05/24/96 | 0.24 | REARING STRATEGY | 13,319 | 7,877,679 | 591.462 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031410 | 05/24/96 | 05/24/96 | 0.71 | REARING STRATEGY | 6,857 | 4,088,687 | 596.279 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031411 | 05/24/96 | 05/24/96 | 0.61 | REARING STRATEGY | 6,955 | 4,150,370 | 596.746 |
| PINK | A F KOERNIG | 1996 | 1995 | SAWMILL BAY 226-40 | 1301031412 | 05/24/96 | 05/24/96 | 0.79 | REARING STRATEGY | 7,268 | 4,222,195 | 580.929 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030413 | 05/07/96 | 05/07/96 | 0.31 | TIME OF RELEASE | 16,025 | 9,615,650 | 600.041 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030414 | 05/07/96 | 05/07/96 | 0.27 | TIME OF RELEASE | 16,557 | 9,934,444 | 600.015 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030415 | 05/12/96 | 05/12/96 | 0.28 | TIME OF RELEASE | 16,619 | 9,971,524 | 600.007 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030501 | 05/15/96 | 05/15/96 | 0.27 | TIME OF RELEASE | 16,632 | 9,978,551 | 599.961 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030502 | 05/16/96 | 05/16/96 | 0.26 | TIME OF RELEASE | 16,623 | 9,973,804 | 600 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030503 | 05/22/96 | 05/22/96 | 0.27 | TIME OF RELEASE | 16,628 | 10,291,792 | 618.943 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030504 | 05/22/96 | 05/22/96 | 0.28 | TIME OF RELEASE | 16,633 | 10,764,086 | 647.152 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030505 | 05/22/96 | 05/22/96 | 0.27 | TIME OF RELEASE | 16,983 | 10,703,108 | 630.225 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030506 | 05/22/96 | 05/22/96 | 0.29 | TIME OF RELEASE | 16,637 | 10,979,642 | 659.953 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030507 | 05/24/96 | 05/24/96 | 0.29 | TIME OF RELEASE | 16,630 | 11,213,439 | 674.29 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030508 | 05/24/96 | 05/24/96 | 0.26 | TIME OF RELEASE | 15,230 | 10,232,285 | 671.851 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030509 | 05/28/96 | 05/28/96 | 0.29 | TIME OF RELEASE | 16,783 | 11,018,655 | 656.537 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030510 | 05/28/96 | 05/28/96 | 0.29 | TIME OF RELEASE | 16,629 | 9,978,652 | 600.075 |
| PINK | CANNERY CREEK | 1996 | 1995 | CANNERY CR 222-50 | 1301030511 | 05/28/96 | 05/28/96 | 0.24 | TIME OF RELEASE | 9,642 | 5,785,499 | 600.031 |
| PINK | SOLOMON GULCH | 1996 | 1995 | SOLOMON GULCH 221-60 | 1301031113 | 05/07/96 | 05/07/96 | 0.34 | NONE | 53,278 | 31,830,481 | 597.441 |
| PINK | SOLOMON GULCH | 1996 | 1995 | SOLOMON GULCH 221-60 | 1301031114 | 05/28/96 | 05/28/96 | 0.34 | NONE | 53,562 | 31,989,818 | 597.248 |
| PINK | SOLOMON GULCH | 1996 | 1995 | SOLOMON GULCH 221-60 | 1301031115 | 05/28/96 | 05/28/96 | 0.34 | NONE | 136,086 | 80,464,628 | 591.278 |
| PINK | SOLOMON GULCH | 1996 | 1995 | SOLOMON GULCH 221-60 | 1301031201 | 05/07/96 | 05/28/96 | 0.86 | NONE | 133,277 | 78,803,400 | 591.275 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031202 | 06/02/96 | 06/02/96 | 1.29 | TIME OF RELEASE | 4,958 | 2,851,883 | 612.067 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031203 | 06/02/96 | 06/02/96 | 1.36 | TIME OF RELEASE | 5,052 | 2,996,758 | 593.183 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031204 | 06/02/96 | 06/02/96 | 1.06 | TIME OF RELEASE | 4,731 | 2,850,133 | 602.438 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031205 | 06/01/96 | 06/01/96 | 0.81 | TIME OF RELEASE | 4,945 | 2,689,583 | 543.899 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031206 | 05/03/96 | 05/03/96 | 0.37 | TIME OF RELEASE | 12,277 | 7,146,802 | 582.129 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031207 | 05/03/96 | 05/03/96 | 0.36 | TIME OF RELEASE | 11,711 | 7,131,155 | 608.928 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031208 | 05/03/96 | 05/03/96 | 0.49 | TIME OF RELEASE | 12,372 | 6,768,978 | 547.121 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031209 | 05/03/96 | 05/03/96 | 0.28 | TIME OF RELEASE | 11,649 | 6,958,899 | 597.382 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031210 | 05/03/96 | 05/03/96 | 0.29 | TIME OF RELEASE | 11,758 | 7,089,362 | 602.939 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031211 | 05/03/96 | 05/03/96 | 0.28 | TIME OF RELEASE | 11,677 | 7,010,355 | 600.356 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031212 | 05/03/96 | 05/03/96 | 0.29 | TIME OF RELEASE | 11,247 | 6,737,469 | 599.046 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031213 | 05/03/96 | 05/03/96 | 0.3 | TIME OF RELEASE | 11,863 | 7,093,496 | 582.129 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031214 | 05/03/96 | 05/03/96 | 0.28 | TIME OF RELEASE | 10,748 | 6,400,600 | 582.129 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031215 | 05/03/96 | 05/03/96 | 0.3 | TIME OF RELEASE | 11,674 | 6,922,926 | 582.129 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031215 | 05/03/96 | 05/03/96 | 0.3 | TIME OF RELEASE | 11,674 | 6,922,926 | 582.129 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031301 | 05/03/96 | 05/03/96 | 0.29 | TIME OF RELEASE | 12,664 | 7,585,848 | 599.009 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031302 | 05/03/96 | 05/03/96 | 0.27 | TIME OF RELEASE | 12,115 | 7,173,971 | 592.156 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031303 | 05/03/96 | 05/03/96 | 0.3 | TIME OF RELEASE | 12,260 | 7,227,585 | 589.526 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031304 | 05/03/96 | 05/03/96 | 0.27 | TIME OF RELEASE | 12,361 | 7,320,089 | 592.192 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031305 | 05/03/96 | 05/03/96 | 0.28 | TIME OF RELEASE | 12,314 | 7,304,017 | 593.147 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031306 | 05/03/96 | 05/03/96 | 0.28 | TIME OF RELEASE | 12,305 | 7,310,726 | 594.126 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031307 | 05/03/96 | 05/03/96 | 0.26 | TIME OF RELEASE | 11,972 | 7,342,976 | 613.346 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031308 | 05/03/96 | 05/03/96 | 0.27 | TIME OF RELEASE | 12,257 | 7,372,255 | 601.473 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031309 | 05/09/96 | 05/09/96 | 0.29 | TIME OF RELEASE | 12,132 | 7,288,100 | 600.734 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031310 | 05/09/96 | 05/09/96 | 0.29 | TIME OF RELEASE | 12,374 | 7,998,210 | 646.372 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031311 | 05/09/96 | 05/09/96 | 0.27 | TIME OF RELEASE | 12,625 | 7,757,000 | 614.416 |
| PINK | WALLY NOERENBERG | 1996 | 1995 | LAKE BAY 223-40 | 1301031312 | 05/09/96 | 05/09/96 | 0.25 | TIME OF RELEASE | 12,087 | 7,179,817 | 594.011 |

Table 2

Hatchery releases of sockeye and coho salmon by tag code in PWS during 1997

| Hatchery | Species | Location of Release | Tag Code | Release Dates | Release Weight (gms) | Number Released | Number Tagged | Tag Ratio |
|------------------|----------------|---------------------|-------------|---------------|----------------------|-----------------|---------------|-----------|
| W. H. Noerenberg | Coho | Lake Bay | 312636 | 6/10 | 16.65 | 53,366 | 2,993 | 17.83 |
| | | Lake Bay | 312637 | 6/10 | 15.42 | 51,578 | 2,984 | 17.28 |
| Main Bay | Sockeye | Main Bay | 312638 | 5/22 | 14.19 | 239,023 | 6,106 | 39.15 |
| | | Main Bay | 312639 | 5/22 | 14.37 | 131,503 | 6,726 | 19.55 |
| | | Main Bay | 312640 | 5/23 | 7.92 | 435,703 | 11,160 | 39.04 |
| | | Main Bay | 312641 | 5/23 | 6.78 | 409,487 | 10,330 | 39.64 |
| Gulkana | Sockeye | Summit Lake | 312523 | 6/03 - 6/20 | 5.66 | 279,718 | 17,504 | 15.98 |
| | | Summit Lake | 312531 | 6/20 - 6/25 | 5.67 | 138,675 | 11,000 | 12.61 |
| | | Summit Lake | 312643 | 6/25 - 6/28 | 5.56 | 55,080 | 5,769 | 9.55 |
| | | Summit Lake | 312610 | 6/28 - 7/01 | 5.56 | 100,216 | 2,706 | 37.03 |
| | | Summit Lake | 312611 | 7/03 - 7/05 | 5.56 | 20,756 | 2,623 | 7.91 |
| | Crosswind Lake | 312521 | 5/31 - 6/06 | 7.22 | 1,380,777 | 32,887 | 41.99 | |
| | | 312519 | 6/05 - 6/09 | 7.01 | 231,566 | 25,164 | 9.20 | |
| | | 312520 | 6/09 - 6/13 | 9.37 | 306,510 | 25,627 | 11.96 | |
| | | 312642 | 6/13 - 6/15 | 8.64 | 386,742 | 11,384 | 33.97 | |
| | | 312644 | 6/16 | 8.64 | 9,939 | 6,020 | 1.65 | |
| | | 312645 | 6/16 | 8.64 | 6,053 | 3,670 | 1.65 | |
| | | 1301031313 | 6/17 - 6/18 | 8.64 | 9,885 | 7,721 | 1.28 | |
| | | 1301031314 | 6/18 - 6/19 | 8.64 | 9,466 | 8,140 | 1.16 | |
| | | 1301031513 | 6/19 - 6/21 | 8.64 | 7,354 | 6,611 | 1.11 | |
| | | 1301031512 | 6/21 | 8.64 | 3,717 | 3,204 | 1.16 | |
| | | 312646 | 6/22 - 6/23 | 10.38 | 8,308 | 2,439 | 3.41 | |
| | | 312647 | 6/24 | 10.38 | 3,642 | 2,744 | 1.33 | |
| | | 312648 | 6/25 | 10.38 | 9,848 | 2,750 | 3.58 | |
| 312649 | 6/26 - 6/29 | 10.38 | 6,676 | 2,724 | 2.45 | | | |

Table 3

Survival rates by tag code of hatchery pink salmon returning to PWS in 1997

| Origin | Tag Code | # Tagged | # Released | Survival Rate | Standard Error | Lower 95% Conf. Limit | Upper 95% Conf. Limit |
|------------------|------------|-----------|------------|---------------|----------------|-----------------------|-----------------------|
| SOLOMON GULCH | 1301031113 | 53,278 | 31,830,481 | 2.486 | 0.247 | 2.002 | 2.970 |
| | 1301031114 | 53,562 | 31,935,605 | 4.641 | 0.397 | 3.863 | 5.419 |
| | 1301031115 | 136,086 | 80,327,167 | 2.579 | 0.164 | 2.258 | 2.899 |
| | 1301031201 | 133,277 | 78,803,400 | 3.393 | 0.187 | 3.026 | 3.760 |
| WALLY NOERENBERG | 1301031202 | 4,957 | 2,851,883 | 4.828 | 2.687 | 0 | 10.095 |
| | 1301031203 | 5,050 | 2,996,758 | 1.556 | 0.610 | 0.361 | 2.751 |
| | 1301031204 | 4,731 | 2,850,133 | 4.031 | 1.247 | 1.588 | 6.474 |
| | 1301031205 | 4,945 | 2,689,583 | 2.729 | 2.181 | 0 | 7.004 |
| | 1301031206 | 12,273 | 7,146,802 | 3.159 | 1.016 | 1.168 | 5.151 |
| | 1301031207 | 11,711 | 7,131,155 | 3.180 | 0.703 | 1.803 | 4.558 |
| | 1301031208 | 12,371 | 6,768,978 | 3.955 | 0.821 | 2.345 | 5.564 |
| | 1301031209 | 11,649 | 6,958,899 | 3.190 | 0.634 | 1.949 | 4.432 |
| | 1301031210 | 11,758 | 7,089,362 | 2.716 | 0.652 | 1.438 | 3.994 |
| | 1301031211 | 11,677 | 7,010,355 | 2.456 | 0.569 | 1.342 | 3.571 |
| | 1301031212 | 11,247 | 6,737,469 | 3.906 | 1.315 | 1.328 | 6.484 |
| | 1301031213 | 11,863 | 7,093,496 | 3.492 | 0.743 | 2.034 | 4.949 |
| | 1301031214 | 10,748 | 6,400,600 | 3.908 | 0.731 | 2.475 | 5.341 |
| | 1301031215 | 11,674 | 6,922,926 | 3.112 | 0.914 | 1.319 | 4.904 |
| | 1301031301 | 12,664 | 7,585,848 | 4.078 | 1.267 | 1.595 | 6.562 |
| | 1301031302 | 12,115 | 7,173,971 | 3.676 | 0.659 | 2.383 | 4.968 |
| | 1301031303 | 12,266 | 7,227,585 | 3.917 | 0.764 | 2.419 | 5.415 |
| | 1301031304 | 12,368 | 7,320,089 | 2.954 | 0.623 | 1.733 | 4.174 |
| | 1301031305 | 12,319 | 7,304,017 | 1.894 | 0.491 | 0.930 | 2.857 |
| | 1301031306 | 12,309 | 7,310,726 | 2.996 | 0.632 | 1.757 | 4.234 |
| 1301031307 | 11,967 | 7,342,976 | 3.105 | 0.697 | 1.738 | 4.471 | |
| 1301031308 | 12,253 | 7,372,255 | 2.544 | 0.520 | 1.526 | 3.563 | |
| 1301031309 | 12,138 | 7,288,100 | 3.369 | 1.175 | 1.065 | 5.673 | |
| 1301031310 | 13,372 | 7,998,210 | 0.732 | 0.303 | 0.137 | 1.326 | |
| 1301031311 | 12,620 | 7,757,000 | 1.422 | 0.485 | 0.472 | 2.372 | |
| 1301031312 | 12,085 | 7,179,817 | 1.705 | 0.416 | 0.890 | 2.519 | |
| A F KOERNIG | 1301031315 | 17,818 | 10,768,841 | 9.200 | 2.138 | 5.009 | 13.390 |
| | 1301031401 | 16,976 | 10,374,384 | 8.145 | 2.290 | 3.656 | 12.634 |
| | 1301031402 | 17,090 | 10,325,538 | 7.886 | 1.896 | 4.169 | 11.603 |
| | 1301031403 | 18,284 | 10,912,648 | 6.464 | 1.602 | 3.324 | 9.604 |
| | 1301031404 | 18,130 | 10,626,187 | 6.419 | 1.688 | 3.109 | 9.728 |
| | 1301031405 | 14,476 | 8,312,086 | 5.549 | 1.858 | 1.907 | 9.191 |
| | 1301031406 | 15,080 | 8,638,583 | 4.660 | 1.538 | 1.645 | 7.675 |
| | 1301031407 | 14,990 | 8,594,441 | 4.093 | 1.547 | 1.060 | 7.126 |
| | 1301031408 | 15,855 | 9,745,337 | 5.223 | 1.395 | 2.489 | 7.956 |
| | 1301031409 | 13,319 | 7,877,679 | 1.956 | 0.758 | 0.471 | 3.441 |
| | 1301031410 | 6,857 | 4,088,687 | 6.208 | 2.977 | 0.373 | 12.042 |
| | 1301031411 | 6,955 | 4,150,370 | 4.336 | 2.442 | 0 | 9.123 |
| 1301031412 | 7,268 | 4,222,195 | 5.754 | 2.578 | 0.702 | 10.806 | |
| CANNERY CREEK | 1301031413 | 16,086 | 9,615,650 | 4.330 | 0.644 | 3.067 | 5.592 |
| | 1301031414 | 16,557 | 9,934,444 | 3.107 | 0.467 | 2.192 | 4.023 |
| | 1301031415 | 16,632 | 9,971,524 | 4.649 | 0.788 | 3.105 | 6.192 |
| | 1301031501 | 16,623 | 9,978,551 | 3.857 | 0.680 | 2.524 | 5.190 |
| | 1301031502 | 16,636 | 9,973,804 | 2.028 | 0.446 | 1.154 | 2.902 |
| | 1301031503 | 16,628 | 10,291,792 | 2.958 | 0.495 | 1.989 | 3.928 |
| | 1301031504 | 16,477 | 10,764,086 | 4.672 | 0.956 | 2.798 | 6.546 |
| | 1301031505 | 16,931 | 10,703,108 | 3.193 | 0.502 | 2.210 | 4.176 |
| | 1301031506 | 16,637 | 10,979,642 | 4.387 | 0.723 | 2.970 | 5.803 |
| | 1301031507 | 16,642 | 11,213,439 | 2.277 | 0.838 | 0.634 | 3.920 |
| | 1301031508 | 15,230 | 10,232,285 | 2.182 | 0.417 | 1.364 | 3.000 |
| | 1301031509 | 16,732 | 11,018,655 | 1.872 | 0.394 | 1.100 | 2.645 |
| | 1301031510 | 16,592 | 9,978,652 | 1.752 | 0.391 | 0.987 | 2.518 |
| | 1301031511 | 9,642 | 5,785,499 | 2.053 | 0.637 | 0.804 | 3.302 |

Table 4

Pink salmon hatchery contribution to PWS common property fisheries using CWTs

Coghill District Common Property Harvest (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|----------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 24 | 6/08 - 6/14 | | | | | | | | | 0 | 0 | 0.0 | 0.0 | |
| 25 | 6/15 - 6/21 | | | | | | | | | 0 | 0 | 0.0 | 0.0 | |
| 26 | 6/22 - 6/28 | | | | | | | | | 0 | 0 | 0.1 | 0.1 | |
| 27 | 6/29 - 7/05 | | | | | | | | | 0 | 0 | 0.3 | 0.3 | |
| 28 | 1/ 7/06 - 7/12 | | | 5.2 | 73 | | | | | 5.2 | 73 | 1.9 | 7.2 | |
| 29 | 1/ 7/13 - 7/19 | | | 19.5 | 73 | | | | | 19.5 | 73 | 7.3 | 26.8 | |
| 30 | 7/20 - 7/26 | | | 151.7 | 73 | | | | | 151.7 | 73 | 56.3 | 208.0 | 16 |
| 31 | 7/27 - 8/02 | | | 46.1 | 95 | | | | | 46.1 | 95 | 2.2 | 48.2 | 2 |
| 32 | 8/03 - 8/09 | | | 218.3 | 79 | 23.9 | 9 | | | 242.2 | 88 | 35.3 | 277.5 | 39 |
| 33 | 8/10 - 8/16 | | | 84.0 | 47 | 89.4 | 50 | | | 173.5 | 97 | 4.2 | 177.7 | 49 |
| 34 | 8/17 - 8/23 | | | 261.7 | 62 | 54.8 | 13 | | | 316.5 | 75 | 102.6 | 419.1 | 38 |
| 35 | 8/24 - 8/30 | | | 221.7 | 52 | 65.7 | 15 | | | 287.4 | 67 | 142.3 | 429.7 | 41 |
| 36 | 8/31 - 9/06 | | | 346.1 | 94 | 23.2 | 6 | | | 369.2 | 100 | 0.0 | 369.2 | 85 |
| 37 | 9/07 - 9/13 | | | 42.7 | 64 | 8.6 | 13 | | | 51.4 | 77 | 15.4 | 66.8 | 6 |
| Subtotal | | 0 | 0 | 1,397.0 | 69 | 265.6 | 13 | 0 | 0 | 1,662.7 | 82 | 367.9 | 2,030.6 | 276 |

1/ Proportions from Week 30 were used to estimate hatchery contributions

Continued

Table 4

Pink salmon hatchery contribution to PWS common property fisheries using CWTs

Eastern District Common Property Harvest (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 27 | 6/29 - 7/05 | | | | | | | 574.8 | 97 | 574.8 | 97 | 19.9 | 594.8 | 125 |
| 28 | 7/06 - 7/12 | | | | | | | 1,198.2 | 99 | 1,198.2 | 99 | 11.1 | 1,209.2 | 253 |
| 29 | 7/13 - 7/19 | | | | | 4.6 | 0 | 1,202.8 | 100 | 1,207.4 | 100 | 0.0 | 1,207.4 | 370 |
| 30 | 7/20 - 7/26 | | | | | 6.2 | 1 | 681.1 | 94 | 687.4 | 95 | 33.9 | 721.3 | 205 |
| 31 | 7/27 - 8/02 | | | | | | | 200.5 | 97 | 200.5 | 97 | 7.2 | 207.7 | 50 |
| 32 | 8/03 - 8/09 | | | | | | | 83.5 | 76 | 83.5 | 76 | 26.0 | 109.5 | 19 |
| 33 | 8/10 - 8/16 | | | 14.0 | 5 | 35.3 | 12 | 221.8 | 75 | 271.2 | 92 | 26.5 | 297.7 | 94 |
| 34 | 8/17 - 8/23 | | | | | 61.8 | 35 | 78.0 | 44 | 139.8 | 79 | 37.0 | 176.8 | 25 |
| 35 | 8/24 - 8/30 | | | | | 4.3 | 45 | | | 4.3 | 45 | 5.4 | 9.8 | 1 |
| 36 1/ | 8/31 - 9/06 | | | | | 0.1 | 45 | | | 0.1 | 45 | 0.1 | 0.1 | |
| Subtotal | | 0 | 0 | 14.0 | 0 | 112.4 | 2 | 4,240.8 | 94 | 4,367.2 | 96 | 167.1 | 4,534.4 | 1142 |

1/ Proportions from Week 35 were used to estimate hatchery contributions

Pink salmon hatchery contribution to PWS common property fisheries using CWTs

Eshamy District Common Property Harvest (x1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 27 | 6/29 - 7/05 | | | 2.3 | 49 | | | | | 0.0 | 0 | 0.3 | 0.3 | |
| 28 | 7/06 - 7/12 | | | 0.7 | 49 | | | | | 2.3 | 49 | 2.3 | 4.6 | |
| 29 | 7/13 - 7/19 | | | 8.2 | 49 | | | | | 0.7 | 49 | 0.7 | 1.4 | |
| 30 | 7/20 - 7/26 | | | | | | | | | 8.2 | 49 | 8.3 | 16.5 | 1 |
| 31 | 7/27 - 8/02 | | | 11.5 | 23 | | | | 23.1 | 34.5 | 69 | 16.1 | 50.7 | 3 |
| 32 | 8/03 - 8/09 | | | 17.2 | 60 | | | | | 17.2 | 60 | 11.5 | 28.7 | 2 |
| 33 | 8/10 - 8/16 | | | 22.5 | 100 | | | | | 22.5 | 100 | 0.0 | 22.5 | 8 |
| 34 | 8/17 - 8/23 | | | 52.6 | 84 | | | | | 62.5 | 100 | 0.0 | 62.5 | 7 |
| 35 | 8/24 - 8/30 | | | 10.5 | 29 | | | | | 31.2 | 87 | 4.5 | 35.7 | 3 |
| Subtotal | | | | 20.4 | 9 | 135.6 | 61 | 0 | 0 | 23.1 | 10 | 43.8 | 222.9 | 24 |

1/ Proportions from Week 30 were used to estimate hatchery contributions

Table 4

Pink salmon hatchery contribution to PWS common property fisheries using CWTs

Northern District Common Property Harvest (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 31 | 7/27 - 8/02 | | | | | 194.2 | 77 | 9.2 | 4 | 203.4 | 81 | 50.5 | 253.9 | 40 |
| 32 | 8/03 - 8/09 | | | 71.3 | 6 | 989.4 | 84 | | | 1,060.7 | 90 | 116.2 | 1,176.9 | 167 |
| 33 | 8/10 - 8/16 | | | 302.4 | 68 | 138.2 | 31 | | | 440.5 | 99 | 4.8 | 445.3 | 72 |
| 34 | 8/17 - 8/23 | | | 146.0 | 17 | 523.7 | 61 | | | 669.7 | 78 | 192.3 | 861.9 | 81 |
| 35 | 8/24 - 8/30 | | | | | 288.6 | 82 | | | 288.6 | 82 | 61.7 | 350.3 | 36 |
| 36 | 8/31 - 9/06 | | | | | | | | | 0.0 | 0 | | 0.0 | |
| 37 | 9/07 - 9/13 | | | | | | | | | 0.0 | 0 | | 0.0 | |
| 38 1/ | 9/14 - 9/20 | | | 1.6 | 2 | 48.4 | 65 | | | 50.0 | 67 | 24.4 | 74.4 | |
| Subtotal | | 0 | 0 | 521.3 | 16 | 2,182.5 | 69 | 9.2 | 0 | 2,713.0 | 86 | 449.8 | 3,162.8 | 396 |

1/ Proportions from Week 38 of the rack return were used to estimate hatchery contributions

Pink salmon hatchery contribution to PWS common property fisheries using CWTs

Southwestern District Common Property Harvest (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|-------------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 31 | 7/27 - 8/02 | 11.4 | 14 | 22.5 | 28 | 7.4 | 9 | 3.6 | 5 | 44.9 | 56 | 35.4 | 80.2 | 12 |
| 32 | 8/03 - 8/09 | 1,040.9 | 79 | 121.2 | 9 | 114.7 | 9 | 9.0 | 1 | 1,285.8 | 98 | 29.8 | 1,315.6 | 226 |
| 33 | 8/10 - 8/16 | 966.4 | 60 | 1,97.4 | 12 | 115.8 | 7 | 26.2 | 2 | 1,305.9 | 81 | 308.2 | 1,614.1 | 275 |
| 34 | 8/17 - 8/23 | 653.6 | 48 | 263.6 | 19 | 146.0 | 11 | 13.7 | 1 | 1,076.8 | 79 | 292.4 | 1,369.3 | 136 |
| 35 | 8/24 - 8/30 | 364.2 | 36 | 381.7 | 38 | 180.4 | 18 | | | 926.3 | 92 | 83.6 | 1,009.8 | 25 |
| 36 | 8/31 - 9/06 | 316.9 | 67 | 13.4 | 3 | 13.9 | 3 | | | 344.2 | 73 | 130.2 | 474.4 | 51 |
| 37 1/ | 9/07 - 9/13 | 44.2 | 67 | 1.9 | 3 | 1.9 | 3 | | | 48.0 | 73 | | 48.0 | |
| Subtotal | | 3,397.7 | 57 | 1,001.7 | 17 | 579.9 | 10 | 52.5 | 1 | 5,031.8 | 85 | 879.6 | 5,911.4 | 725 |
| Grand Total | | 3,418.0 | 22 | 3,069.7 | 19 | 3,140.4 | 20 | 4,325.6 | 27 | 13,953.8 | 88 | 1,908.3 | 15,862.1 | 2,563 |

1/ Proportions from Week 36 were used to estimate hatchery contributions

Coghill District Cost Recovery Harvest (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|----------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 29 | 1/ 7/13 - 7/19 | | | 2.3 | 73 | | | | | 2.3 | 73 | 0.8 | 3.1 | |
| 30 | 1/ 7/20 - 7/26 | | | 4.2 | 73 | | | | | 4.2 | 73 | 1.5 | 5.7 | |
| 31 | 7/27 - 8/02 | | | 325.6 | 98 | 2.3 | 1 | 2.3 | 1 | 330.2 | 100 | 0.1 | 330.3 | 97 |
| 32 | 8/03 - 8/09 | | | 551.1 | 100 | | | | | 551.1 | 100 | 0.0 | 551.1 | 130 |
| 33 | 8/10 - 8/16 | | | 707.4 | 88 | | | | | 707.4 | 88 | 98.4 | 805.7 | 174 |
| 34 | 8/17 - 8/23 | | | 449.2 | 92 | 19.3 | 4 | | | 468.5 | 96 | 21.1 | 489.6 | 101 |
| 35 | 8/24 - 8/30 | | | | | | | | | 0.0 | 0 | | 0.0 | |
| 36 | 2/ 8/31 - 9/06 | | | 21.9 | 92 | 0.9 | 4 | | | 22.8 | 96 | 1.0 | 23.8 | |
| 37 | 9/07 - 9/13 | | | | | | | | | 0.0 | 0 | | 0.0 | |
| 38 | 3/ 9/14 - 9/20 | | | 32.6 | 92 | 0.7 | 2 | | | 33.3 | 94 | 2.0 | 35.2 | |
| 39 | 3/ 9/21 - 9/27 | | | 19.9 | 92 | 0.4 | 2 | | | 20.3 | 94 | 1.2 | 21.5 | |
| Subtotal | | 0 | 0 | 2,114.0 | 93 | 23.7 | 1 | 2.3 | 0 | 2,140.0 | 94 | 126.1 | 2,266.1 | 502 |

1/ Proportions from Week 30 of the Coghill District common property catch were used to calculate hatchery contribution estimates

2/ Proportions from Week 34 of the Coghill District common property catch were used to calculate hatchery contribution estimates

3/ Proportions from Week 38 of the Wally Noerenberg Hatchery brood stock were used to calculate hatchery contribution estimates

Eastern District Cost Recovery Harvest (X1000)

| Week | Date | AFK Hatchery | | WNI Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 25 | 6/15 - 6/21 | | | | | | | 8.6 | 100 | 8.6 | 100 | 0 | 8.6 | 5 |
| 26 | 6/22 - 6/28 | | | | | | | 432.3 | 100 | 432.3 | 100 | 0 | 432.3 | 161 |
| 27 | 6/29 - 7/05 | | | | | | | 908.6 | 100 | 908.6 | 100 | 0 | 908.6 | 281 |
| 28 | 7/06 - 7/12 | | | | | | | 845.0 | 100 | 845.0 | 100 | 0 | 845.0 | 285 |
| 29 | 7/13 - 7/19 | | | | | | | 221.3 | 100 | 221.3 | 100 | 0 | 221.3 | 83 |
| 34 | 8/17 - 8/23 | | | | | | | 8.9 | 85 | 8.9 | 85 | 1.5 | 10.4 | |
| 35 | 8/24 - 8/30 | | | | | | | 2.5 | 54 | 2.5 | 54 | 2.1 | 4.7 | 2 |
| 36 | 8/31 - 9/06 | | | | | | | 2,427.3 | 100 | 2,427.3 | 100 | 3.7 | 2,431.0 | 817 |
| Subtotal | | 0 | 0 | 0 | 0 | 0 | 0 | 2,427.3 | 100 | 2,427.3 | 100 | 3.7 | 2,431.0 | 817 |

1/ Solomon Gulch Hatchery brood stock estimates from Week 34 were used to calculate hatchery contributions.

Eshamy District Cost Recovery Harvest (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 28 | 7/06 - 7/12 | | | | | | | | | 0.0 | | 0.0 | 0.0 | |
| 31 | 7/27 - 8/02 | | | | | | | | | 0.0 | 0 | 1.8 | 1.8 | 0 |
| 32 | 8/03 - 8/09 | | | 8.3 | 60 | | | | | 8.3 | 60 | 5.6 | 13.9 | 13 |
| 33 | 8/10 - 8/16 | | | 11.9 | 52 | | | | | 11.9 | 52 | 11.2 | 23.2 | 1 |
| Subtotal | | 0 | 0 | 20.3 | 52 | 0 | 0 | 0 | 0 | 20.3 | 52 | 18.6 | 38.9 | 14 |

Northern District Cost Recovery Harvest (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 31 | 7/27 - 8/02 | | | | | 166.3 | 47 | | | 166.3 | 47 | 184.6 | 350.9 | 20 |
| 32 | 8/03 - 8/09 | | | | | 594.1 | 60 | | | 594.1 | 60 | 387.9 | 982.0 | 102 |
| 33 | 8/10 - 8/16 | | | | | 272.7 | 69 | | | 272.7 | 69 | 123.9 | 396.6 | 34 |
| 34 | 8/17 - 8/23 | | | | | 71.5 | 53 | | | 71.5 | 53 | 62.2 | 133.6 | 6 |
| 38 | 9/14 - 9/20 | | | 0.2 | 2 | 6.0 | 65 | | | 0.0 | 0 | 3.0 | 0.0 | |
| 39 | 9/21 - 9/27 | | | 0.2 | 0 | 1,110.6 | 59 | | | 6.2 | 67 | 761.7 | 9.3 | |
| Subtotal | | 0 | 0 | 0.2 | 0 | 1,110.6 | 59 | 0 | 0 | 1,110.8 | 59 | 761.7 | 1,872.5 | 162 |

1/ Cannery Creek Hatchery brood stock estimates from Week 38 were used to calculate hatchery contributions.

Southwestern District Cost Recovery Harvest (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|-------------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 30 | 7/20 - 7/2 | 206.4 | 100 | | | | | | | 206.4 | 100 | 0 | 206.4 | 12 |
| 31 | 7/27 - 8/02 | 852.4 | 100 | | | | | | | 852.4 | 100 | 0 | 852.4 | 110 |
| 32 | 8/03 - 8/09 | 555.5 | 99 | 5.2 | 1 | | | | | 560.7 | 100 | 0 | 560.7 | 98 |
| 33 | 8/10 - 8/16 | 724.0 | 100 | | | 3.1 | | | | 727.0 | 100 | 0 | 727.0 | 80 |
| 34 | 8/17 - 8/23 | 849.4 | 99 | 10.7 | 1 | | | | | 860.1 | 100 | 0 | 860.1 | 85 |
| Subtotal | | 3,187.6 | 99 | 15.9 | 0 | 3.1 | 0 | 0 | 0 | 3,206.6 | 100 | 0 | 3,206.6 | 385 |
| Grand Total | | 3,187.6 | 32 | 2,150.4 | 22 | 1,137.3 | 12 | 2,429.6 | 25 | 8,905.0 | 91 | 910.1 | 9,815.1 | 385 |

Pink salmon hatchery contribution to PWS hatchery brood stocks using CWTs

Cannery Creek Pink Salmon Brood Stock (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 35 | 8/24 - 8/30 | | | | | 6.6 | 100 | | | 6.6 | 100 | 0.0 | 6.6 | 6 |
| 36 | 8/31 - 9/06 | | | | | 89.1 | 100 | | | 89.1 | 100 | 0.2 | 89.3 | 57 |
| 37 | 9/07 - 9/13 | | | 1.7 | 1 | 76.5 | 57 | | | 78.1 | 58 | 55.0 | 133.1 | 41 |
| 38 | 9/14 - 9/20 | | | 2.0 | 2 | 59.6 | 65 | | | 61.6 | 67 | 30.1 | 91.7 | 29 |
| Subtotal | | 0 | 0 | 3.7 | 1 | 231.8 | 72 | 0 | 0 | 235.4 | 73 | 85.3 | 320.7 | 133 |

Solomon Gulch Pink Salmon Brood Stock (1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|----------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 30 | 7/20 - 7/26 | | | | | | | 44.3 | 84 | 44.3 | 84 | 8.3 | 52.6 | 37 |
| 31 | 7/27 - 8/02 | | | | | | | 48.5 | 59 | 48.5 | 59 | 33.7 | 82.2 | 43 |
| 32 | 8/03 - 8/09 | | | | | | | 82.9 | 70 | 82.9 | 70 | 35.6 | 118.5 | 72 |
| 33 | 8/10 - 8/16 | | | | | | | 26.7 | 58 | 26.7 | 58 | 19.3 | 46.0 | 17 |
| 34 | 8/17 - 8/23 | | | | | | | 50.8 | 85 | 50.8 | 85 | 8.8 | 59.7 | 36 |
| 35 | 8/24 - 8/30 | | | | | | | 0.0 | 0 | 0.0 | 0 | | 0.0 | |
| 36 | 8/31 - 9/06 | | | | | | | 2.5 | 54 | 2.5 | 54 | 2.1 | 4.7 | 2 |
| Subtotal | | 0 | 0 | 0 | 0 | 0 | 0 | 255.8 | 70 | 255.8 | 70 | 107.9 | 363.7 | 207 |

Pink salmon hatchery contribution to PWS hatchery brood stocks using CWTS

Wally Noerenberg Pink Salmon Brood Stock (X1000)

| Week | Date | AFK Hatchery | | WN Hatchery | | CC Hatchery | | SG Hatchery | | TOTAL HATCHERY | | TOTAL WILD | TOTAL CATCH | NUMBER TAGS |
|-------------|-------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|----------------|------------|------------|-------------|-------------|
| | | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | Contribution | Percentage | | | |
| 34 | 8/17 - 8/23 | | | 6.7 | 100 | | | | | 6.7 | 100 | 0.0 | 6.7 | 10 |
| 35 | 8/24 - 8/30 | | | 32.4 | 97 | | | 1.0 | 3 | 33.4 | 100 | 0.0 | 33.4 | 33 |
| 36 | 8/31 - 9/06 | | | 120.4 | 90 | | | | | 120.4 | 90 | 13.8 | 134.2 | 113 |
| 37 | 9/07 - 9/13 | | | 120.8 | 76 | 2.1 | 1 | | | 122.9 | 84 | 37.0 | 159.9 | 119 |
| 38 | 9/14 - 9/20 | | | 41.4 | 92 | 0.9 | 2 | | | 42.3 | 94 | 2.5 | 44.8 | 47 |
| 39 1/ | 9/21 - 9/27 | | | 23.9 | 92 | 0.5 | 2 | | | 24.4 | 94 | 1.4 | 25.9 | |
| Subtotal | | 0 | 0 | 345.7 | 85 | 3.5 | 1 | 1.0 | 0 | 350.3 | 86 | 54.7 | 405.0 | 322 |
| Grand Total | | 0 | 0 | 349.4 | 32 | 235.3 | 22 | 256.8 | 24 | 841.4 | 77 | 247.9 | 1,089.4 | 322 |

1/ Proportions from Week 38 of the Wally Noerenberg Hatchery brood stock were used to calculate hatchery contribution estimates

Table 7

Pink salmon contribution by hatchery to PWS fisheries and brood stocks by CWTs

| Common Property Fishery | | | | | | | |
|------------------------------|---------------|------------------|---------------|------------|--------|------------|--|
| A. F. Koernig | Cannery Creek | W. H. Noerenberg | Solomon Gulch | Wild Stock | Total | % Hatchery | |
| 3,418 | 3,140 | 3,070 | 4,326 | 1,908 | 15,862 | 88% | |
| Cost Recovery Fishery | | | | | | | |
| A. F. Koernig | Cannery Creek | W. H. Noerenberg | Solomon Gulch | Wild Stock | Total | % Hatchery | |
| 3,188 | 1,137 | 2,150 | 2,430 | 910 | 9,815 | 91% | |
| Brood Stock and Roe Recovery | | | | | | | |
| A. F. Koernig | Cannery Creek | W. H. Noerenberg | Solomon Gulch | Wild Stock | Total | % Hatchery | |
| 0 | 235 | 349 | 257 | 248 | 1,089 | 77% | |
| Totals | | | | | | | |
| 6,606 | 4,513 | 5,570 | 7,012 | 3,066 | 26,767 | 89% | |

All numbers are in thousands

Table 8 Pink salmon hatchery contribution to PWS common property fisheries using otoliths

| Hatchery contribution by district and period for CPF from otoliths | | | | | | |
|--|--|---------------|---------------|-----------------|--------------|----------|
| Date | Period | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
| | District: | 212 | | | | |
| 5/15-5/16 | 1 | 0 | 0 | 0 | 0 | 0 |
| 5/19-5/20 | 2 | 0 | 0 | 0 | 0 | 0 |
| 5/23-5/23 | 3 | 0 | 0 | 0 | 0 | 0 |
| 5/26-5/26 | 4 | 0 | 0 | 0 | 0 | 0 |
| 5/29-5/29 | 5 | 0 | 0 | 0 | 0 | 0 |
| 5/31-5/31 | 6 | 0 | 0 | 0 | 0 | 0 |
| 6/2-6/3 | 7 | 0 | 0 | 0 | 0 | 0 |
| 6/5-6/6 | 8 | 0 | 0 | 0 | 0 | 1 |
| 6/9-6/10 | 9 | 0 | 0 | 0 | 0 | 1 |
| 6/12-6/14 | 10 | 0 | 0 | 0 | 0 | 0 |
| 6/16-6/17 | 11 | 0 | 0 | 0 | 0 | 1 |
| 6/19-6/21 | 12 | 0 | 0 | 0 | 0 | 9 |
| 6/23-6/25 | 13 | 0 | 0 | 0 | 0 | 10 |
| 6/26-6/28 | 14 | 19 | 0 | 0 | 0 | 390 ** |
| 6/30-7/2 | 15 | 8 | 0 | 0 | 0 | 162 ** |
| 7/3-7/5 | 16 | 15 | 0 | 0 | 0 | 311 ** |
| 7/7-7/8 | 17 | 19 | 0 | 0 | 0 | 387 ** |
| 7/10-7/12 | 18 | 5 | 0 | 0 | 0 | 112 ** |
| 7/14-7/15 | 19 | 43 | 0 | 0 | 0 | 895 ** |
| 7/17-7/19 | 20 | 19 | 0 | 0 | 0 | 394 ** |
| 7/21-7/22 | 21 | 75 | 0 | 0 | 0 | 1,568 ** |
| 7/24-7/26 | 22 | 62 | 0 | 0 | 0 | 1,285 ** |
| 7/28-7/29 | 23 | 37 | 0 | 0 | 0 | 777 ** |
| 7/31-8/01 | 24 | 29 | 0 | 0 | 0 | 605 |
| 8/4-8/5 | 25 | 29 | 0 | 0 | 0 | 605 * |
| 8/7-8/8 | 26 | 22 | 0 | 0 | 0 | 451 * |
| 8/11-8/12 | 27 | 6 | 0 | 0 | 0 | 133 * |
| | 28 | | | | | |
| | 29 | | | | | |
| | 30 | | | | | |
| | 31 | | | | | |
| | 32 | | | | | |
| | 33 | | | | | |
| | 34 | | | | | |
| | 35 | | | | | |
| | 36 | | | | | |
| | 37 | | | | | |
| | 38 | | | | | |
| | 39 | | | | | |
| | 40 | | | | | |
| | 41 | | | | | |
| | 42 | | | | | |
| | 43 | | | | | |
| | TOTAL | 388 | 0 | 0 | 0 | 8,097 |
| | * Previous period used to apportion catch | | | | | |
| | **Following period used to apportion catch | | | | | |

Table 8

Pink salmon hatchery contribution to PWS common property fisheries using otoliths

| Date | Period | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
|-----------|--|---------------|---------------|-----------------|--------------|----------|
| | District: | 221 | | | | |
| 7/3 | 1 | 588,493 | 0 | 0 | 0 | 6,261 |
| 7/7 | 2 | 715,587 | 5,148 | 0 | 0 | 20,592 |
| 7/12 | 3 | 463,042 | 0 | 0 | 0 | 4,874 |
| 7/15 | 4 | 449,429 | 0 | 0 | 0 | 33,403 |
| 7/17 | 5 | 353,050 | 0 | 0 | 0 | 18,039 |
| 7/19 | 6 | 306,881 | 4,910 | 2,455 | 0 | 39,281 |
| 7/21 | 7 | 185,192 | 0 | 0 | 0 | 28,491 |
| 7/23 | 8 | 184,634 | 5,430 | 1,810 | 1,810 | 65,165 |
| 7/25 | 9 | 169,990 | 6,219 | 4,146 | 0 | 68,411 |
| 7/28 | 10 | 190,396 | 2,164 | 0 | 0 | 15,145 |
| | 11 | 0 | 0 | 0 | 0 | 0 |
| | 12 | 0 | 0 | 0 | 0 | 0 |
| | 13 | 0 | 0 | 0 | 0 | 0 |
| | 14 | 0 | 0 | 0 | 0 | 0 |
| | 15 | 0 | 0 | 0 | 0 | 0 |
| | 16 | 0 | 0 | 0 | 0 | 0 |
| | 17 | 0 | 0 | 0 | 0 | 0 |
| 8/6 | 18 | 13,868 | 0 | 0 | 0 | 1,541 |
| 8/7 | 19 | 24,191 | 0 | 0 | 0 | 255 |
| 8/8 | 20 | 32,480 | 0 | 0 | 0 | 1,048 |
| 8/9-8/10 | 21 | 69,164 | 2,280 | 0 | 0 | 1,520 |
| 8/11-8/12 | 22 | 33,900 | 8,030 | 10,705 | 0 | 33,008 |
| 8/13 | 23 | 18,060 | 1,389 | 1,042 | 0 | 12,850 |
| 8/14 | 24 | 39,455 | 3,035 | 2,276 | 0 | 28,073 * |
| 8/15 | 25 | 26,685 | 11,674 | 1,112 | 556 | 13,343 |
| 8/16 | 26 | 7,847 | 3,433 | 328 | 163 | 3,923 * |
| 8/17 | 27 | 11,369 | 13,762 | 2,393 | 0 | 8,975 ** |
| 8/18 | 28 | 18,713 | 22,653 | 3,940 | 0 | 14,774 |
| 8/19 | 29 | 13,658 | 16,533 | 2,875 | 0 | 10,783 * |
| 8/20 | 30 | 7,048 | 8,532 | 1,484 | 0 | 5,564 * |
| 8/21 | 31 | 1,427 | 1,727 | 300 | 0 | 1,127 * |
| 8/22 | 32 | 1,258 | 1,384 | 503 | 0 | 1,257 ** |
| 8/23 | 33 | 1,355 | 1,491 | 542 | 0 | 1,354 ** |
| 8/24 | 34 | 1,629 | 1,792 | 652 | 0 | 1,629 ** |
| | 35 | 0 | 0 | 0 | 0 | 0 |
| 8/26 | 36 | 1,087 | 1,195 | 435 | 0 | 1,087 |
| | 37 | 0 | 0 | 0 | 0 | 0 |
| | 38 | 0 | 0 | 0 | 0 | 0 |
| 8/29 | 39 | 73 | 80 | 29 | 0 | 72 * |
| | 40 | 0 | 0 | 0 | 0 | 0 |
| 8/31-9/2 | 41 | 41 | 45 | 16 | 0 | 40 * |
| | 42 | | | | | |
| | 43 | | | | | |
| | TOTAL | 3,930,002 | 122,906 | 37,043 | 2,529 | 441,885 |
| | * Previous period used to apportion catch | | | | | |
| | **Following period used to apportion catch | | | | | |

Table 8 Pink salmon hatchery contribution to PWS common property fisheries using otoliths

| Date | Period | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild | |
|----------------------|--------|--|---------------|-----------------|--------------|--------|-----|
| District: 225 | | *** 38% of pinks caught prior to July 10 attributed to Solomon Gulch | | | | | |
| 6/30-7/1 | 1 | 18 | 0 | 0 | 0 | 29 | *** |
| 7/3-7/4 | 2 | 107 | 0 | 0 | 0 | 174 | *** |
| 7/7-7/8 | 3 | 300 | 0 | 0 | 0 | 489 | *** |
| 7/10-7/11 | 4 | 0 | 269 | 3,358 | 0 | 134 | ** |
| 7/14-7/15 | 5 | 0 | 24 | 301 | 0 | 12 | ** |
| 7/17-7/18 | 6 | 0 | 79 | 982 | 0 | 39 | ** |
| 7/21-7/22 | 7 | 0 | 287 | 3,587 | 0 | 143 | ** |
| 7/24-7/25 | 8 | 0 | 890 | 11,131 | 0 | 446 | ** |
| 7/28-7/29 | 9 | 0 | 1,474 | 18,430 | 0 | 737 | |
| 7/31-8/1 | 10 | 0 | 3,127 | 25,329 | 0 | 1,563 | |
| 8/4-8/5 | 11 | 0 | 299 | 24,507 | 0 | 3,885 | |
| 8/11-8/12 | 12 | 235 | 469 | 20,420 | 235 | 1,174 | |
| 8/18-8/19 | 13 | 0 | 0 | 37,521 | 0 | 3,263 | |
| 8/21-8/22 | 14 | 0 | 477 | 18,139 | 477 | 2,625 | |
| 8/25-8/26 | 15 | 0 | 509 | 19,338 | 509 | 2,799 | * |
| 8/28-8/29 | 16 | 0 | 277 | 10,518 | 277 | 1,522 | * |
| TOTAL | | 660 | 8,181 | 193,561 | 1,498 | 19,034 | |
| | | * Previous period used to apportion catch | | | | | |
| | | **Following period used to apportion catch | | | | | |

Table 9

Pink salmon hatchery contribution to PWS cost recovery fisheries using otoliths

| District: | 221 | | | | |
|--|---------------|---------------|-----------------|--------------|--------|
| Dates | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
| 6/18-6/21 | 8,525 | 0 | 0 | 0 | 89 |
| 6/22-6/25 | 170,884 | 0 | 0 | 0 | 7,430 |
| 6/26-6/28 | 254,015 | 0 | 0 | 0 | 0 |
| 6/29-6/30 | 344,441 | 0 | 0 | 0 | 0 |
| 7/01-7/02 | 242,849 | 0 | 0 | 0 | 2,556 |
| 7/03-7/05 | 318,799 | 0 | 0 | 0 | 0 |
| 7/06-7/09 | 478,982 | 0 | 0 | 0 | 5,042 |
| 7/10-7/11 | 360,992 | 0 | 0 | 0 | 0 |
| 7/12-7/14 | 219,016 | 0 | 0 | 0 | 2,305 |
| 10 | 0 | 0 | 0 | 0 | 0 |
| 8/22-9/3R | 14,808 | 0 | 0 | 0 | 274 |
| 12 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |
| 30 | | | | | |
| 31 | | | | | |
| 32 | | | | | |
| 33 | | | | | |
| 34 | | | | | |
| 35 | | | | | |
| 36 | | | | | |
| 37 | | | | | |
| 38 | | | | | |
| 39 | | | | | |
| 40 | | | | | |
| 41 | | | | | |
| 42 | | | | | |
| TOTAL | 2,413,311 | 0 | 0 | 0 | 17,696 |
| * Previous period used to apportion catch | | | | | |
| **Following period used to apportion catch | | | | | |

Table 9

Pink salmon hatchery contribution to PWS cost recovery fisheries using otoliths

| District: | 222 | | | | |
|--|---|---------------|-----------------|--------------|--------|
| Dates | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
| 7/29-8/02 | 0 | 336,323 | 7,311 | 0 | 7,311 |
| 8/03-8/05 | 0 | 567,353 | 0 | 0 | 5,972 |
| 8/06-8/09 | 0 | 404,136 | 0 | 0 | 4,541 |
| 8/10-8/13 | 0 | 141,312 | 0 | 0 | 0 |
| 8/14-8/16 | 0 | 252,515 | 0 | 0 | 2,806 |
| 8/17-8/21 | 0 | 128,074 | 0 | 2,784 | 2,784 |
| 7 | | | | | |
| 9/22 | 0 | 9,271 | 0 | 0 | 0 + |
| 9 | | | | | |
| 10 | | | | | |
| 11 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
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| 35 | | | | | |
| 36 | | | | | |
| 37 | | | | | |
| 38 | | | | | |
| 39 | | | | | |
| 40 | | | | | |
| 41 | | | | | |
| 42 | | | | | |
| TOTAL | 0 | 1,838,984 | 7,311 | 2,784 | 23,414 |
| * Previous period used to apportion catch | +arbitrary assignment of excess brood sales | | | | |
| **Following period used to apportion catch | | | | | |

Table 9

Pink salmon hatchery contribution to PWS cost recovery fisheries using otoliths

| District: | 223 | | | | |
|--|---|---------------|-----------------|--------------|-------|
| Dates | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
| 7/13-7/26 | 0 | 0 | 8,792 | 0 | 0 |
| 7/27-7/28 | 2,038 | 0 | 46,885 | 0 | 2,038 |
| 7/29-8/02 | 3,525 | 0 | 296,126 | 0 | 3,525 |
| 8/03-8/05 | 0 | 0 | 290,363 | 0 | 0 |
| 8/06-8/09 | 0 | 0 | 260,776 | 0 | 0 |
| 8/10-8/13 | 0 | 0 | 555,901 | 0 | 0 |
| 8/14-8/16 | 0 | 0 | 247,148 | 2,686 | 0 |
| 8/17-8/19 | 0 | 0 | 261,302 | 0 | 0 |
| 8/19-8/21 | 0 | 2,378 | 225,931 | 0 | 0 |
| 10 | | | | | |
| 9/16 | 0 | 0 | 8,896 | 0 | 0 + |
| 9/18 | 0 | 0 | 12,996 | 0 | 0 + |
| 9/19 | 0 | 0 | 13,335 | 0 | 0 + |
| 9/22 | 0 | 0 | 14,021 | 0 | 0 + |
| 9/23 | 0 | 0 | 7,460 | 0 | 0 + |
| 16 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
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| 36 | | | | | |
| 37 | | | | | |
| 38 | | | | | |
| 39 | | | | | |
| 40 | | | | | |
| 41 | | | | | |
| 42 | | | | | |
| TOTAL | 5,563 | 2,378 | 2,249,932 | 2,686 | 5,563 |
| * Previous period used to apportion catch | +Arbitrary assignment of excess brood sales | | | | |
| **Following period used to apportion catch | | | | | |

Table 9

Pink salmon hatchery contribution to PWS cost recovery fisheries using otoliths

| District: | 225 Eshamy CPF used to apportion cost recovery catch | | | | |
|--|--|---------------|-----------------|--------------|------|
| Dates | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
| 6-Jul | 0 | 0 | 0 | 0 | 23 |
| 27-Jul | 0 | 0 | 1,107 | 0 | 0 ** |
| 31-Jul | 0 | 0 | 672 | 0 | 0 ** |
| 8/3-8/9 | 0 | 0 | 13,894 | 0 | 0 |
| 16-Aug | 0 | 0 | 22,560 | 301 | 301 |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
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| 37 | | | | | |
| 38 | | | | | |
| 39 | | | | | |
| 40 | | | | | |
| 41 | | | | | |
| 42 | | | | | |
| TOTAL | 0 | 0 | 38,233 | 301 | 324 |
| * Previous period used to apportion catch | | | | | |
| **Following period used to apportion catch | | | | | |

Table 9

Pink salmon hatchery contribution to PWS cost recovery fisheries using otoliths

| District: | 226 | | | | |
|--|---------------|---------------|-----------------|--------------|--------|
| Dates | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
| 7/24-7/26 | 0 | 0 | 0 | 206,374 | 0 |
| 7/27-7/29 | 0 | 0 | 0 | 412,332 | 0 |
| 7/30-8/02 | 0 | 0 | 0 | 430,845 | 9,167 |
| 8/03-8/09 | 0 | 0 | 0 | 560,772 | 0 |
| 8/10-8/13 | 0 | 4,126 | 4,126 | 387,814 | 0 |
| 8/14-8/16 | 0 | 3,447 | 0 | 324,082 | 3,447 |
| 8/17-8/18 | 3,382 | 3,382 | 10,145 | 287,439 | 3,382 |
| 8/19-8/22 | 5,754 | 0 | 11,508 | 523,624 | 11,508 |
| 9 | | | | | |
| 10 | | | | | |
| 11 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
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| 38 | | | | | |
| 39 | | | | | |
| 40 | | | | | |
| 41 | | | | | |
| 42 | | | | | |
| TOTAL | 9,136 | 10,955 | 25,779 | 3,133,282 | 27,504 |
| * Previous period used to apportion catch | | | | | |
| **Following period used to apportion catch | | | | | |

Table 10

Pink salmon hatchery contribution to PWS hatchery brood stocks using otoliths

| District: | 221 | | | | | |
|--|---------------|---------------|-----------------|--------------|-------|---|
| Period | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild | |
| 7/21-7/25 | 52,093 | 0 | 0 | 0 | 548 | |
| 7/28-8/01 | 81,361 | 0 | 0 | 0 | 855 | |
| 8/3-8/8 | 55,937 | 0 | 0 | 0 | 589 | |
| 8/10-8/16 | 45,972 | 0 | 0 | 0 | 0 | |
| 8/17-8/23 | 57,911 | 0 | 0 | 0 | 950 | |
| 6 | | | | | | |
| 8/7-8/9R | 47,649 | 0 | 0 | 0 | 0 | |
| 8/8R | 14,311 | 0 | 0 | 0 | 0 | * |
| 8/20R | 813 | 0 | 0 | 0 | 0 | * |
| 9/13R | 224 | 0 | 0 | 0 | 0 | * |
| 11 | 0 | 0 | 0 | 0 | 0 | |
| 12 | 0 | 0 | 0 | 0 | 0 | |
| 13 | 0 | 0 | 0 | 0 | 0 | |
| 14 | 0 | 0 | 0 | 0 | 0 | |
| 15 | 0 | 0 | 0 | 0 | 0 | |
| 16 | 0 | 0 | 0 | 0 | 0 | |
| 17 | 0 | 0 | 0 | 0 | 0 | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |
| 21 | | | | | | |
| 22 | | | | | | |
| 23 | | | | | | |
| 24 | | | | | | |
| 25 | | | | | | |
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| 31 | | | | | | |
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| 38 | | | | | | |
| 39 | | | | | | |
| 40 | | | | | | |
| 41 | | | | | | |
| 42 | | | | | | |
| TOTAL | 356,271 | 0 | 0 | 0 | 2,942 | |
| * Previous period used to apportion catch | | | | | | |
| **Following period used to apportion catch | | | | | | |

Table 10

Pink salmon hatchery contribution to PWS hatchery brood stocks using otoliths

| District: | 222 | | | | |
|--|---------------|---------------|-----------------|--------------|------|
| Period | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
| 8/24-9/6 | 0 | 94,499 | 995 | 0 | 0 |
| 9/7-9/13 | 0 | 131,740 | 1,387 | 0 | 0 |
| 9/14-9/17 | 0 | 91,692 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | | | | | |
| 11 | | | | | |
| 12 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
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| 30 | | | | | |
| 31 | | | | | |
| 32 | | | | | |
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| 34 | | | | | |
| 35 | | | | | |
| 36 | | | | | |
| 37 | | | | | |
| 38 | | | | | |
| 39 | | | | | |
| 40 | | | | | |
| 41 | | | | | |
| 42 | | | | | |
| TOTAL | 0 | 317,931 | 2,382 | 0 | 0 |
| * Previous period used to apportion catch | | | | | |
| **Following period used to apportion catch | | | | | |

Table 10

Pink salmon hatchery contribution to PWS hatchery brood stocks using otoliths

| District: | 223 | | | | |
|--|---------------|---------------|--|--------------|------|
| Period | Solomon Gulch | Cannery Creek | W.H. Noeremberg | A.F. Koernig | Wild |
| 8/22-8/30 | 0 | 0 | 40,150 | 0 | 0 |
| 8/31-9/6 | 0 | 1,398 | 132,842 | 0 | 0 |
| 9/7-9/13 | 0 | 0 | 159,889 | 0 | 0 |
| 9/14-9/15 | 0 | 0 | 42,541 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 |
| 9/16-9/28 | 0 | 0 | 31,651 | 0 | 0 + |
| | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | | | | | |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |
| 26 | | | | | |
| 27 | | | | | |
| 28 | | | | | |
| 29 | | | | | |
| 30 | | | | | |
| 31 | | | | | |
| 32 | | | | | |
| 33 | | | | | |
| 34 | | | | | |
| 35 | | | | | |
| 36 | | | | | |
| 37 | | | | | |
| 38 | | | | | |
| 39 | | | | | |
| 40 | | | | | |
| 41 | | | | | |
| 42 | | | | | |
| TOTAL | 0 | 1,398 | 407,073 | 0 | 0 |
| * Previous period used to apportion catch | | | +Post egg take morts abitrarily assigned | | |
| **Following period used to apportion catch | | | | | |

Table 11

Pink salmon contribution by hatchery to PWS fisheries and brood stocks using otoliths

| All Districts and all periods | | | | | | |
|-------------------------------|---------------|---------------|-----------------|--------------|-----------|------------|
| | Solomon Gulch | Cannery Creek | W.H. Noerenberg | A.F. Koernig | Wild | Total |
| CPF | 4,005,264 | 3,608,272 | 3,464,254 | 3,815,265 | 1,088,828 | 15,981,883 |
| Cost Recovery | 2,428,010 | 1,852,317 | 2,321,255 | 3,139,053 | 74,501 | 9,815,136 |
| Spawning Rack | 356,271 | 319,329 | 409,455 | 0 | 2,942 | 1,087,997 |
| Total | 6,789,545 | 5,779,918 | 6,194,964 | 6,954,318 | 1,166,271 | 26,885,016 |

Table 12

Sockeye salmon hatchery contribution to PWS common property fisheries by CWTs

| Coghill District Common Property | | Releases at Main Bay Hatchery (x1000) | | | | | | | | Remote Releases (X1000) | | | | | | Wild | | Total Catch |
|-------------------------------------|-----------|---------------------------------------|-----|--------|------|----------|------|------|-----|-------------------------|------|----------|-----|------------------|-----|------|------|----------------|
| | | Coghill | | Eshamy | | Main Bay | | Eyak | | Coghill R. | | Other 1/ | | Coghill Presmolt | | No. | % | |
| Ending Date | Stat Week | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | |
| 06/14 | 24 2/ | | | | | 0.2 | 45.1 | | | 0.2 | 49.2 | | | | | 0.0 | 5.6 | 0.4 |
| 06/21 | 25 | | | | | 2.0 | 45.1 | | | 2.2 | 49.3 | | | | | 0.2 | 5.6 | 4.4 |
| 06/28 | 26 | | | | | 33.4 | 84 | | | 5.9 | 14.9 | | | | | 0.0 | 0 | 39.8 |
| 07/05 | 27 | | | | | 16.1 | 23.9 | | | 34.5 | 51.1 | 0.4 | 1.1 | | | 12.9 | 19.1 | 67.5 |
| 07/12 | 28 | | | | | | | | | 17.0 | 30.8 | | | 4.0 | 5.9 | 38.0 | 69.2 | 55.0 |
| 07/19 | 29 | | | | | 4.1 | 16.4 | | | 21.0 | 83.6 | | | | | 0.0 | 0 | 25.2 |
| 07/26 | 30 | | | | | 5.1 | 32.6 | | | 10.3 | 66.1 | | | | | 0.2 | 1.3 | 15.6 |
| 08/02 | 31 | | | | | | | | | 7.9 | 69.1 | | | | | 3.5 | 30.9 | 11.5 |
| 08/09 | 32 | | | | | | | | | 6.0 | 55 | | | | | 0.0 | 0 | 11.0 |
| 08/16 | 33 | | | 0.2 | 1.6 | 4.8 | 43.4 | | | | | | | | | 0.0 | 3.8 | 0.7 |
| 08/23 | 34 | | | 0.2 | 32.4 | 0.5 | 63.8 | | | | | | | | | 0.1 | 9.1 | 0.6 |
| 08/30 | 35 | | | | | 0.5 | 77.2 | | | 0.1 | 13.7 | | | | | 0.1 | 9.1 | 0.6 |
| 09/06 | 36 3/ | | | | | 0.2 | 27.7 | | | 0.1 | 13.8 | | | | | 0.5 | 58.5 | 0.8 |
| 09/13 | 37 | | | | | 0.1 | 27.7 | | | 0.0 | 13.8 | | | | | 0.2 | 58.5 | 0.3 |
| 09/20 | 38 | | | | | | | | | | | | | | | 0.3 | 100 | 0.3 |
| 09/27 | 39 | | | | | | | | 0.0 | | | | | | | 0.0 | 100 | 0.0 |
| Subtotals | | 0 | 0.0 | 0.4 | 0.2 | 66.9 | 28.7 | 0 | 0.0 | 105.3 | 45.2 | 0.4 | 0.2 | 4.0 | 1.7 | 56.0 | 24.0 | 232.9 |

1/ 1 Tag from English Bay River (Big Lake hatchery) recovered

2/ Proportions from Stat Week 25 were used to allocate the catch.

3/ Proportions from Stat Week 35 were used to allocate the catch.

Table 12

Sockeye salmon hatchery contribution to PWS common property fisheries by CWTs

| Eshamy District Common Property | | Releases at Main Bay Hatchery (x1000) | | | | | | | | Remote Releases (X1000) | | | | | | Wild | | Total Catch |
|------------------------------------|-----------|---------------------------------------|---|--------|------|----------|------|------|-----|-------------------------|-----|-----------|---|------------------|---|------|------|----------------|
| | | Coghill | | Eshamy | | Main Bay | | Eyak | | Coghill R. | | Eshamy R. | | Coghill Presmolt | | No. | % | |
| Ending Date | Stat Week | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | |
| 07/05 | 27 | | | 2.8 | 1.1 | 239.3 | 96.2 | 0.7 | 0.3 | 5.9 | 2.4 | | | | | 0 | 0 | 248.8 |
| 07/12 | 28 | | | 25.3 | 21.7 | 91.2 | 78.3 | | | | | | | | | 0 | 0 | 116.5 |
| 07/19 | 29 | | | 27.7 | 34.3 | 53.1 | 65.7 | | | | | | | | | 0 | 0 | 80.8 |
| 07/26 | 30 | | | 19.1 | 28.2 | 47.7 | 70.4 | | | 0.9 | 1.4 | | | | | 0 | 0 | 67.8 |
| 08/02 | 31 | | | 18.0 | 24.5 | 54.2 | 73.9 | | | 1.2 | 1.6 | | | | | 0 | 0 | 73.3 |
| 08/09 | 32 | | | 7.4 | 30.7 | 11.0 | 45.6 | | | | | | | | | 5.7 | 23.6 | 24.1 |
| 08/16 | 33 | | | 7.4 | 30.4 | 16.9 | 69.6 | | | | | | | | | 0.0 | 0 | 24.3 |
| 08/23 | 34 | | | 5.6 | 20 | 16.0 | 57.3 | | | | | | | | | 6.3 | 22.7 | 27.9 |
| 08/30 | 35 | | | 1.3 | 16.9 | 6.6 | 83.1 | | | | | | | | | 0.0 | 0 | 7.9 |
| Subtotals | | 0 | 0 | 114.7 | 17.1 | 536.0 | 79.8 | 0.7 | 0.1 | 8.0 | 1.2 | 0 | 0 | 0 | 0 | 12.0 | 1.8 | 671.5 |

Continued

Sockeye salmon hatchery contribution to PWS common property fisheries by CWTS

| Northern District Common Property Ending Date Stat Week | Cognhill | | Releases at Main Bay Hatchery (X1000) | | Main Bay | | Eyak | | Cognhill R. | | Remote Releases (X1000) | | Cognhill Presmolt | | Wild | | Total Catch |
|---|----------|---|---------------------------------------|---|----------|------|------|---|-------------|---|-------------------------|---|-------------------|---|------|------|----------------|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | |
| 08/02 | 31 | | | | 0.6 | 82.8 | | | | | | | | | 0.2 | 100 | 0.2 |
| 08/09 | 32 | | | | 0.4 | 89.2 | | | | | | | | | 0.1 | 17.2 | 0.8 |
| 08/16 | 33 | | | | 0.1 | 7.6 | | | | | | | | | 0.7 | 92.4 | 0.5 |
| 08/23 | 34 | | | | | | | | | | | | | | 0.1 | 100 | 0.7 |
| 08/30 | 35 | | | | | | | | | | | | | | 1.1 | 49.2 | 0.1 |
| Subtotals | 0 | 0 | 0 | 0 | 1.1 | 50.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.1 | 49.2 | 2.3 |

Sockeye salmon hatchery contribution to PWS common property fisheries by CWT's

| Southwestern District Common Property Ending Date/Stat Week | Coghill | | Releases at Main Bay Hatchery (X1000) | | Main Bay | | Eyak | | Remote Releases (X1000) | | Estharmy R. | | Coghill Presmolt | | Wild | | Total Catch | |
|---|---------|---|---------------------------------------|------|----------|------|------|-----|-------------------------|-----|-------------|-----|------------------|-----|------|------|----------------|--|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | |
| 08/02 | 31 | | | | 1.0 | 53.8 | | | | | | | | | 0.8 | 46.2 | 0.0 | |
| 08/09 | 32 | | 0.2 | 6.3 | 2.5 | 73.7 | | | | | | | | | 0.7 | 20 | 1.8 | |
| 08/16 | 33 | | 1.1 | 34.2 | 0.8 | 61.9 | | | | | | | | | 2.2 | 65.8 | 3.4 | |
| 08/23 | 34 | | | | 0.8 | 33 | | | 0.2 | 6.1 | | | | | 1.3 | 32.1 | 3.3 | |
| 08/30 | 35 | | 1.5 | 67 | 0.0 | 33 | | | | | | | | | 0.0 | 0 | 4.0 | |
| 09/06 | 36 1/ | | 0.1 | 67 | 6.8 | 45.1 | | | | | | | | | 0.0 | 0 | 2.3 | |
| Subtotals | 0 | 0 | 3.0 | 19.9 | 6.8 | 45.1 | 0 | 0.0 | 0.2 | 1.6 | 0 | 0.0 | 0 | 0.0 | 5.0 | 33.4 | 0.1 | |
| 1/ Proportions from Stat Week 35 were used to allocate the catch. | | | | | | | | | | | | | | | | | | |

Table 13

Sockeye salmon hatchery contribution to PWS cost recovery fisheries by CWTs

| Coghill District Cost Recovery | | Releases at Main Bay Hatchery (X1000) | | | | | | | | Remote Releases (X1000) | | | | | | Wild | | Total Catch |
|-----------------------------------|------|---------------------------------------|-----|--------|-----|----------|-----|------|-----|-------------------------|-----|-----------|-----|------------------|-----|------|-------|----------------|
| | | Coghill | | Eshamy | | Main Bay | | Eyak | | Coghill R. | | Eshamy R. | | Coghill Presmolt | | No. | % | |
| Ending Date | Date | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | |
| 07/12 | 28 | | | | | | | | | | | | | | | 0.1 | 100 | 0.1 |
| 07/19 | 29 | | | | | | | | | | | | | | | | | 0.0 |
| 07/26 | 30 | | | | | | | | | | | | | | | | | 0.0 |
| 08/02 | 31 | | | | | | | | | | | | | | | 0.1 | 100 | 0.1 |
| Subtotals | | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0.2 | 100.0 | 0.2 |

| Main Bay Cost Recovery Ending Date Stat Week | Coghill | | Releases at Main Bay Hatchery (X1000) | | Main Bay | | Eyak | | Remote Releases (X1000) | | Coghill Presmolt | | Wild | | Total Catch |
|--|---------|---|---------------------------------------|------|----------|------|------|-----|-------------------------|-----|------------------|-----|------|------|----------------|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | |
| 06/21 | 25 | | | | 5.0 | 60.2 | | | | | | | 3.3 | 39.8 | 8.3 |
| 06/28 | 26 | | | | 57.6 | 99.3 | 0.4 | 0.7 | | | | | 0.0 | 0 | 58.0 |
| 07/05 | 27 | | | | 38.4 | 88 | | | | | | | 5.2 | 12 | 43.7 |
| 07/12 | 28 | | | | 29.3 | 82.2 | | | | | | | 6.4 | 17.8 | 35.6 |
| 07/19 | 29 | | | | 20.1 | 83.8 | | | | | | | 0.0 | 0 | 24.0 |
| 07/26 | 30 | | | | 15.0 | 70.3 | | | | | | | 0.0 | 0 | 21.4 |
| 08/02 | 31 1/ | | | | 4.5 | 29.7 | | | | | | | 0.0 | 0 | 15.2 |
| 08/09 | 32 2/ | | | | 6.6 | 31.8 | | | | | | | 0.0 | 0 | 21.1 |
| 08/16 | 33 | | | | 2.9 | 31.8 | | | | | | | 0.0 | 0 | 9.1 |
| Subtotals | 0 | 0 | 24.3 | 10.3 | 196.9 | 83.3 | 0.4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 14.9 | 6.3 | 236.5 |

1/ Proportions from Stat Week 30 were used to allocate the catch.

2/ Proportions from Stat Week 33 were used to allocate the catch.

Table 14

Sockeye salmon hatchery contribution to PWS hatchery brood stocks by CWTS

| Main Bay Hatchery Rack Return ending Date | Stat Week | Releases at Main Bay Hatchery (X1000) | | | | | | Remote Releases (X1000) | | | | Wild | | Total Catch | | | | | | |
|---|-----------|---------------------------------------|-----|----------|------|----------|---|-------------------------|------|------------|---|-------------|------|----------------|-----------------|-----|-----|-----|-----|------|
| | | Coghill | | Main Bay | | Estharmy | | Eyak | | Coghill R. | | Estharmy R. | | | Coghill (Davis) | | | | | |
| | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | | |
| 05/24 | 21 | | | | | | | | | | | | | | | | | 0.0 | | |
| 05/31 | 22 | | | | | | | | | | | | | | | | | 0.0 | | |
| 06/07 | 23 | | | | | | | | | | | | | | | | | 0.0 | | |
| 06/14 | 24 | | | 0.0 | 12 | | | 0.0 | 88 | | | | | | | | | 0.0 | | |
| 06/21 | 25 | | | 0.0 | 11.1 | | | 0.2 | 88.9 | | | | | | | | | 0.2 | | |
| 06/28 | 26 | | | | | | | 0.8 | 100 | | | | | | | | | 0.8 | | |
| 07/05 | 27 | | | 0.2 | 5.5 | | | 3.4 | 94.5 | | | | | | | | | 3.6 | | |
| 09/20 | 38 | | | | | | | | | | | | | | | | | 0.0 | | |
| 09/27 | 39 | 1/ | | 0.0 | 24.8 | | | | | | | | | 0.0 | 100 | | | 0.1 | | |
| 10/04 | 40 | | | 0.1 | 24.8 | | | 0.4 | 75.2 | | | | | | | | | 0.1 | | |
| 10/11 | 41 | | | 0.5 | 28.8 | | | 1.2 | 71.2 | | | | | | | | | 0.5 | | |
| 10/18 | 42 | | | 1.3 | 50.8 | | | 1.3 | 49.2 | | | | | | | | | 1.7 | | |
| 10/25 | 43 | | | 0.8 | 52.4 | | | 0.7 | 47.6 | | | | | | | | | 2.7 | | |
| 11/01 | 44 | | | 0.6 | 59.5 | | | 0.9 | 40.5 | | | | | | | | | 1.5 | | |
| Subtotals | | 0 | 0.0 | 3.6 | 28.6 | | | 4.5 | 36.1 | | | 4.4 | 35.1 | 0 | 0.0 | 0.0 | 0.2 | 0 | 0.0 | 12.5 |

1/ Proportions from Stat Week 40 were used to allocate the brood stock.

| Coghill Weir | Ending Date | Stat Week | Coghill | | Releases at Main Bay Hatchery (X1000) | | Eskay | | Coghill R. | | Remede Releases (X1000) | | Coghill Presmolt | | Wild | | Total Catch | |
|--------------|-------------|-----------|---------|---|---------------------------------------|---|-------|---|------------|---|-------------------------|---|------------------|------|------|------|-------------|------|
| | | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | |
| | 06/14 | 23 | 1/ | | | | | | | | | | | 0.0 | 100 | 0.0 | | |
| | 06/14 | 24 | 1/ | | | | | | | | | | | 0.1 | 100 | 0.1 | | |
| | 06/21 | 25 | | | | | | | | | | | | 0.2 | 100 | 0.2 | | |
| | 06/28 | 26 | | | | | | | | | | | | 1.3 | 100 | 1.3 | | |
| | 07/05 | 27 | | | | | | | | | | | | 11.2 | 100 | 11.2 | | |
| | 07/12 | 28 | | | | | | | | | | | | 11.9 | 100 | 11.9 | | |
| | 07/19 | 29 | | | | | | | | | | | | 3.6 | 94 | 3.8 | | |
| | 07/26 | 30 | | | | | | | | | | | | 3.7 | 91.9 | 4.0 | | |
| | 08/02 | 31 | | | | | | | | | | | | 2.3 | 89.1 | 2.6 | | |
| | 08/09 | 32 | | | | | | | | | | | | 0.4 | 100 | 0.4 | | |
| | Subtotals | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0.8 | 2.4 | 34.7 | 97.6 | 35.5 |

1/ Proportions from Stat Week 25 were used to allocate the catch.

Sockeye salmon hatchery contribution to the Eshamy River escapement by CWTs

| Ending Date | Stat Week | Eshamy | | Releases at Main Bay Hatchery (X1000) | | Main Bay | | Eyak | | Coghill R. | | Remote Releases (X1000) | | Coghill Presmot | | Wild | | Total Catch | | |
|-------------|-----------|--------|-----|---------------------------------------|-----|----------|-----|------|-----|------------|-----|-------------------------|-----|-----------------|-----|------|---|-------------|------|------|
| | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | | | |
| 07/05 | 27 | | | | | | | | | | | | | | | | | 0.3 | 100 | |
| 07/12 | 28 | | | | | | | | | | | | | | | | | 0.8 | 100 | |
| 07/19 | 29 | 1/ | | | | | | | | | | | | | | | | 2.9 | 100 | |
| 07/26 | 30 | | | | | | | | | | | | | | | | | 3.5 | 100 | |
| 08/02 | 31 | | | | | | | | | | | | | | | | | 3.4 | 100 | |
| 08/09 | 32 | | | | | | | | | | | | | | | | | 1.8 | 100 | |
| 08/16 | 33 | | | | | 0.1 | 0.5 | | | | | | | | | | | 17.5 | 99.5 | |
| 08/23 | 34 | | | | | 0.4 | 7.9 | | | | | 0.2 | 4 | | | | | 4.6 | 88.1 | |
| 08/30 | 35 | | | | | | | | | | | | | | | | | 2.3 | 100 | |
| 09/06 | 36 | 2/ | | | | | | | | | | | | | | | | 1.2 | 100 | |
| Subtotals | | 0 | 0.0 | 0 | 0.0 | 0.5 | 1.3 | 0 | 0.0 | 0 | 0.0 | 0.2 | 0.5 | 0 | 0.0 | | | 38.3 | 96.2 | 39.0 |

1/ Proportions from Stat Week 30 were used to allocate the escapement.

2/ Proportions from Stat Week 35 were used to allocate the escapement.

Table 17

Sockeye salmon hatchery contribution to Copper River common property fisheries

| Copper River District | | | | | | | | | | | | | | | | Total Catch |
|-----------------------|-----------|----------|-----|---------------|-----|-------|-----|----------------|------|-------------|-----|----------------|------|----------------------|------|-------------|
| Ending Date | Stat Week | Main Bay | | Coghill River | | Other | | Crosswind Lake | | Summit Lake | | Total Hatchery | | Wild + Paxson Lk. 1/ | | |
| | | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | |
| 05/17 | 20 | | | | | | | 0.5 | 0.2 | 0.1 | 0.0 | 0.5 | 0.3 | 194.9 | 99.7 | 195.4 |
| 05/24 | 21 | 1.2 | 0.2 | | | | | 2.1 | 0.4 | 0.3 | 0.1 | 3.5 | 0.6 | 543.0 | 99.4 | 546.5 |
| 05/31 | 22 | | | | | | | 5.0 | 0.8 | 0.2 | 0.0 | 5.2 | 0.9 | 604.4 | 99.1 | 609.6 |
| 06/07 | 23 | | | | | | | 3.7 | 0.9 | 0.1 | 0.0 | 3.7 | 0.9 | 423.7 | 99.1 | 427.5 |
| 06/14 | 24 | 0.6 | 0.2 | | | | | 7.8 | 2.5 | 0.3 | 0.1 | 8.7 | 2.8 | 300.8 | 97.2 | 309.5 |
| 06/21 | 25 | 4.8 | 2.0 | 1.4 | 0.6 | | | 19.2 | 8.0 | 0.4 | 0.2 | 25.8 | 10.7 | 214.7 | 89.3 | 240.5 |
| 06/28 | 26 | 3.8 | 1.8 | | | 0.5 | 0.2 | 50.5 | 23.4 | 0.3 | 0.1 | 55.1 | 25.5 | 160.5 | 74.5 | 215.6 |
| 07/05 | 27 | 1.6 | 1.2 | | | 0.0 | 0.0 | 40.7 | 29.6 | 1.0 | 0.8 | 43.3 | 31.5 | 94.1 | 68.5 | 137.5 |
| 07/12 | 28 | | | | | | | 19.6 | 22.1 | 0.9 | 1.1 | 20.5 | 23.2 | 67.8 | 76.8 | 88.3 |
| 07/19 | 29 | | | | | | | 9.7 | 11.1 | 1.2 | 1.4 | 11.0 | 12.5 | 76.7 | 87.5 | 87.6 |
| 07/26 | 30 | | | | | | | 9.2 | 16.7 | 1.4 | 2.6 | 10.6 | 19.3 | 44.4 | 80.7 | 55.0 |
| 08/02 | 31 | | | | | | | 2.1 | 9.4 | 0.4 | 1.9 | 2.5 | 11.3 | 19.8 | 88.7 | 22.4 |
| 08/09 | 32 | | | | | | | 0.6 | 3.9 | 0.3 | 1.8 | 0.9 | 5.7 | 15.0 | 94.3 | 15.9 |
| 08/16 | 33 2/ | | | | | | | 0.2 | 3.9 | 0.1 | 1.8 | 0.2 | 5.7 | 3.8 | 94.3 | 4.1 |
| Subtotals | | 11.9 | 0.4 | 1.4 | 0.0 | 0.5 | 0.0 | 170.8 | 5.8 | 7.0 | 0.2 | 191.6 | 6.5 | 2,763.6 | 93.5 | 2,955.3 |

1/ Paxson Lake hatchery contribution estimated to be about 89,000 fish : hatchery contribution from Paxson Lake is included with wild fish.

2/ Proportions from period 32 were used to calculate contribution estimates

3/ All estimates are X 1000

Table 18

Sockeye salmon hatchery contribution to Copper River personal use fishery

| Chitina Personal Use Fishery | | Crosswind Lake | | Summit Lake | | Total Hatchery | | Wild + Paxson Lk. 1/ | | Total Catch |
|------------------------------|--------|----------------|------|-------------|-----|----------------|-----|----------------------|------|-------------|
| Dates | Period | No. | % | No. | % | No. | % | No. | % | |
| 5/26 - 6/01 | 1 | | | | | 0 | | 0.0 | | 0.0 |
| 6/02 - 6/08 | 2 | | | | | 0 | | 10.9 | 100 | 10.9 |
| 6/09 - 6/15 | 3 | | | | | 0 | | 26.6 | 100 | 26.6 |
| 6/16 - 6/22 | 4 | | | | | 0 | | 22.5 | 100 | 22.5 |
| 6/23 - 6/29 | 5 | | | | | 0 | | 15.6 | 100 | 15.6 |
| 6/30 - 7/06 | 6 | 0.5 | 3.9 | | | 0.5 | 3.9 | 12.3 | 96.1 | 12.8 |
| 7/07 - 7/13 | 7 | | | | | 0.0 | 0 | 13.4 | 100 | 13.4 |
| 7/14 - 7/20 | 8 | 0.9 | 5.5 | 0.1 | 0.5 | 1.0 | 6 | 15.9 | 94.1 | 16.9 |
| 7/21 - 7/27 | 9 | 0.9 | 7.8 | | | 0.9 | 7.8 | 10.1 | 92.2 | 11.0 |
| 7/28 - 8/03 | 10 | 0.3 | 4.2 | | | 0.3 | 4.2 | 6.9 | 95.8 | 7.2 |
| 8/04 - 8/10 | 11 | 0.3 | 4.2 | | | 0.3 | 4.2 | 6.9 | 95.8 | 7.2 |
| 8/11 - 8/17 | 12 /2 | 0.0 | 4.2 | | | 0.0 | 4.2 | 1.1 | 95.8 | 1.1 |
| 8/18 - 8/24 | 13 | 0.9 | 33.0 | | | 0.9 | 33 | 1.8 | 67 | 2.6 |
| 8/25 - 8/31 | 14 /3 | 1.3 | 33.0 | | | 1.3 | 33 | 2.5 | 67 | 3.8 |
| 9/01 - 9/07 | 15 | | | | | | | 0.8 | 100 | 0.8 |
| 9/08 - 9/14 | 16 | | | | | | | 0.3 | 100 | 0.3 |
| 9/15 - 9/21 | 17 | | | | | 0.0 | 0 | 0.2 | 100 | 0.2 |
| 9/22 - 9/28 | 18 | | | | | 0.0 | 0 | 0.0 | 100 | 0.0 |
| 9/29 - 9/30 | 19 | | | | | 0.0 | 0 | 0.0 | 100 | 0.0 |
| Subtotals | | 5.0 | 3.3 | 0.1 | 0.1 | 5.1 | 3.4 | 147.9 | 96.6 | 153.0 |

1/ Paxson Lake hatchery contribution estimated to be 2570 fish. Paxson Lake hatchery fish included with wild fish, as no CWT's are applied to Paxson Lake fish. Estimation is average of Crosswind and Summit Lake contributions.

2/ Proportions from period 11 were used to calculate hatchery contribution estimates.

3/ Proportions from period 13 were used to calculate hatchery contribution estimates.

4/ All estimates are X 1000

Table 19

Sockeye salmon hatchery contribution to Copper River escapement

| Brood and Escapement Surveys | | Gulkana Hatchery Brood Stock 1/ | Crosswind Lk. 1/ | Summit Lake | Total |
|------------------------------|-----------|---------------------------------|------------------|-------------|--------|
| Dates | Stat Week | Number | Number | Number | Number |
| 7/20 - 7/26 | 30 | 0.2 | | | 0.2 |
| 7/27 - 8/02 | 31 | 0.7 | | | 0.7 |
| 8/03 - 8/09 | 32 | | 0.3 | | 0.3 |
| 8/10 - 8/16 | 33 | | 7.1 | | 7.1 |
| 8/17 - 8/23 | 34 | | 5.5 | | 5.5 |
| 8/24 - 8/30 | 35 | 0.2 | 3.1 | 0.0 | 3.3 |
| 8/31 - 9/06 | 36 | 1.1 | 17.2 | 0.1 | 18.4 |
| 9/07 - 9/13 | 37 | 3.2 | 1.1 | 0.1 | 4.4 |
| 9/14 - 9/20 | 38 | 4.2 | 4.6 | 0.1 | 8.9 |
| 9/21 - 9/27 | 39 | 5.2 | 17.1 | 0.9 | 23.2 |
| 9/28 - 10/4 | 40 | 4.2 | 4.9 | 0.6 | 9.7 |
| 10/5 - 10/1 | 41 | | 0.1 | 1.2 | 1.2 |
| Subtotals | | 18.9 | 60.9 | 3.0 | 82.8 |

1/ Table includes only fish used in egg take. Total number of fish returning to Gulkana hatchery and nearby springs was 46,204..

2/ All estimates are X 1000

Table 20

Survival rates by tag code of sockeye salmon returning to Main Bay hatchery

| Brood Year 1992 Survivals | | | | |
|----------------------------------|----------|-------------------|-----------------|-----------------------|
| Stock | Tag Code | Release Wt, (gms) | Survival Est. % | Experiment |
| Eyak | 312150 | | | Destroyed due to IHNV |
| Eshamy | 312341 | 6.40 | 15.01 | On Site |
| Eshamy | 312347 | 7.60 | 6.94 | Remote Release |
| Coghill | 312346 | 8.70 | 20.56 | Remote Release |
| Coghill | 312342 | 9.40 | 16.18 | Size at Release |
| Coghill | 312343 | 6.50 | 13.40 | Size at Release |
| Coghill | 312344 | 6.40 | 15.78 | Size at Release |
| Coghill | 312345 | 11.10 | 19.30 | Size at Release |

| Brood Year 1993 Survivals | | | | |
|----------------------------------|----------|-------------------|-----------------|----------------------------|
| Stock | Tag Code | Release Wt, (gms) | Survival Est. % | Experiment |
| Eyak | 312340 | 8.10 | 9.88 | Zero Check |
| Eshamy | 312440 | 8.84 | 19.81 | Size at Release |
| Coghill | 312426 | 4.17 | 1.46 | Remote Stocking (presmolt) |
| Coghill | 312436 | 4.87 | 11.00 | Size at Release |
| Coghill | 312437 | 10.14 | 11.84 | Size at Release |
| Coghill | 312441 | 6.48 | 15.68 | Size at Release |
| Coghill | 312442 | 11.62 | 15.45 | Size at Release |
| Coghill | 312443 | 5.51 | 10.42 | Size at Release |

| Brood Year 1994 Survivals | | | | |
|----------------------------------|----------|-------------------|-----------------|-----------------|
| Stock | Tag Code | Release Wt, (gms) | Survival Est. % | Experiment |
| Coghill | 312444 | 4.97 | 1.68 | Size at Release |

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