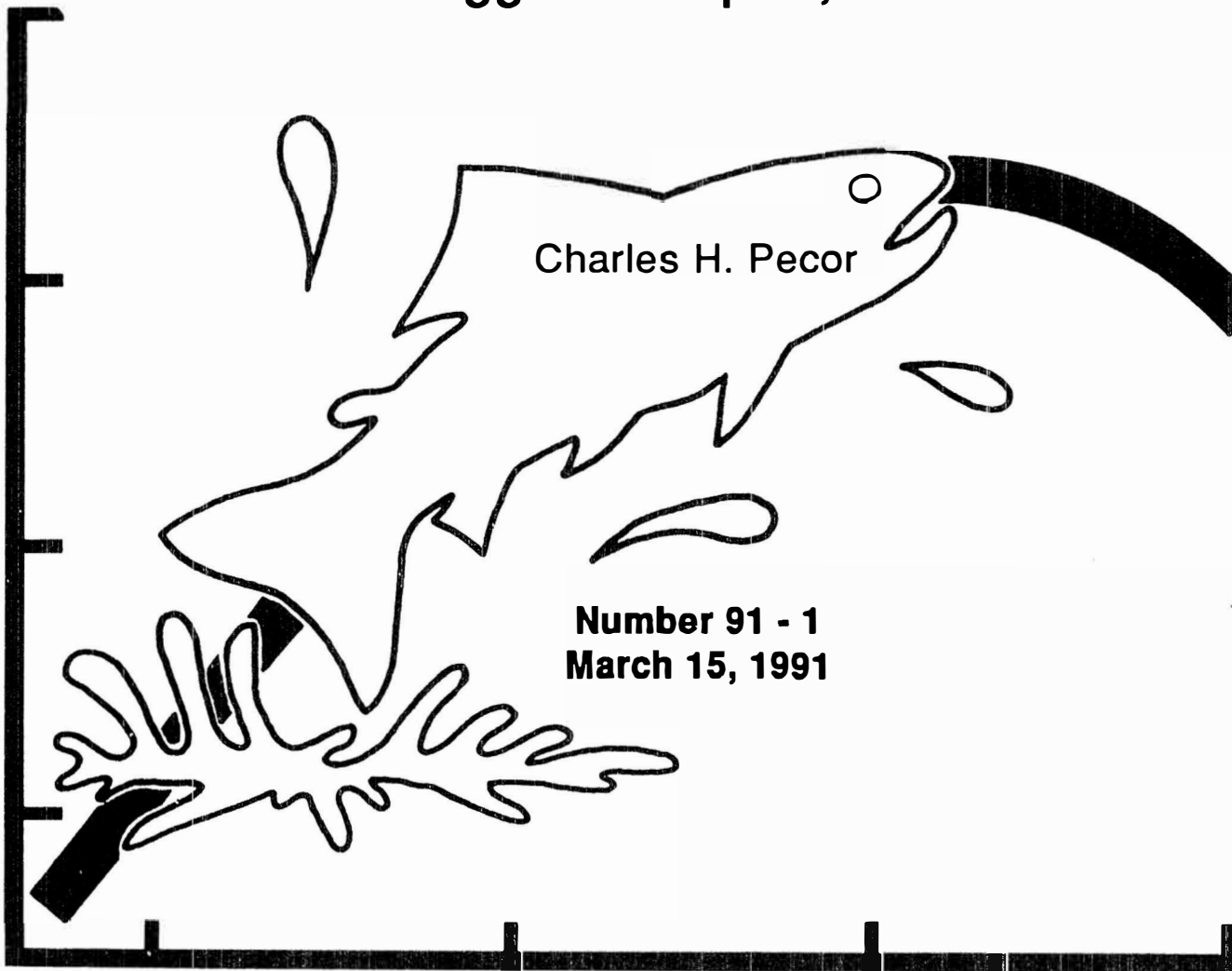


# FISHERIES DIVISION

## TECHNICAL REPORT

### Platte River Harvest Weir and Coho Salmon Egg-take Report, 1990



Michigan Department of  
Natural Resources

**MICHIGAN DEPARTMENT OF NATURAL RESOURCES  
FISHERIES DIVISION**

**Fisheries Technical Report 91-1  
March 15, 1991**

**PLATTE RIVER HARVEST WEIR AND COHO SALMON  
EGG-TAKE REPORT, 1990**

**Charles H. Pecor**

## **Platte River Harvest Weir and Coho Salmon Egg-take Report, 1990**

**Charles H. Pecor**

*Michigan Department of Natural Resources  
Platte River State Fish Hatchery  
15200 Honor Highway  
Beulah, Michigan 49617*

Since 1966 the Platte River, Benzie County, has been the primary source of brood fish for Michigan's coho salmon stocking program. Eggs are collected each fall at the Platte River State Fish Hatchery, located 4.0 miles east of Honor (Figure 1). The coho are raised to the smolt stage (about 5.5 inches long) in 1.5 years and stocked at selected sites throughout Michigan.

Prior to 1979, between 265,000 and 1,092,000 (average 607,000) coho smolts were stocked in the Platte River (Table 1). This produced sufficient adults for egg-take operations plus a spectacular Lake Michigan sport fishery from Frankfort to Platte Bay in August and September. The annual plants for 1979-84 approximated 1 million smolts and these plants, with the exception of the 1984, produced annual returns to the weir of 123,113 to 168,049 adults, or 12.7% to 16.3%. The 1984 plants produced a 1985 return of only 80,354 coho adults, or 8.1%. Plants since 1984 have decreased to the 1987 low of 622,079 smolts and then increased to 923,544 in 1988. The 1989 plant was 806,190 smolts (Table 1). Adult returns have remained relatively low.

The Platte River has two salmon blocking weirs. The lower weir is located 1.6 miles upstream from the river mouth (Figure 1). Since 1980 it has been the primary site for harvesting surplus salmon. Steelhead runs are monitored there also. The upper weir,

located at the Platte River Hatchery, has facilities for holding adults and collecting eggs.

Historically, in-state and out-of-state commitments required the collection of 12 to 14 million coho eggs annually. Depending on the size of the returning coho, the egg-take required about 5,750-7,000 adult females (age 1.1).<sup>1</sup> To assure that enough females were available for egg-take, Fisheries Division directed that the first 30,000 salmon reaching the lower weir be passed upstream (allowed to swim through the open weir). An additional 3,000 salmon were passed each week to maintain a sport fishery in the river. However, in 1988, 1989, and 1990, the egg-take and weir operations were altered as a result of a court ruling in a suit filed by Platte Lake Improvement Association regarding phosphorus released from Platte River Hatchery and returning adult salmon. The court orders for the 1988 and 1989 salmon runs are described in previous weir reports (Pecor 1989 and 1990). During 1990, the court again allowed the passage of the first 20,000 adult salmon and then 1,000 a week up to October 15. The weir was operated until

---

<sup>1</sup>Age 1.1 for an anadromous fish means that one winter was spent in the river (or hatchery) prior to smolting and one winter was spent in Lake Michigan after smolting.

December 1, when the grates were removed and the building winterized. The court also mandated that an intensive creel survey be done on the Platte River to determine the number of fish caught by anglers. Thirteen people were hired to conduct the survey from September 12 to December 1. The results of this survey are presented in a separate report (Ryckman 1991).

Salmon blocked by the lower weir (including surplus coho; a moderate run of chinook; and, in recent years, a few pink salmon) are collected and harvested. Coho jacks (age-1.0) were blocked for the second year by the addition of smaller-spaced (15/16 inch) weir grates. Trout that are collected during harvest operations are counted and released upstream. This includes a moderate run of steelhead plus small runs of brown trout and lake trout. All salmon collected at the upper weir are harvested, including the coho used for egg-take.

The 1990 salmon run was typical when compared to the past few years with lower returns. The fish concentrated off Frankfort and Platte bays during the last 2 weeks in August and migrated up the river during the last 15 days in September as expected. The open-water fishery was relatively good considering the lower return rate which was recorded for this year. The river fishery was excellent. The salmon stayed in Loon Lake and the lower Platte River for an extended period of time.

### Lower Weir Operation, 1990

The weir grates were installed on August 16. On August 20, additional smaller-spaced weir grates were placed on top of the existing grates to prevent coho jacks from escaping upstream without being counted. Beginning on August 23, the weir gate was closed at night and the accumulated fish were processed the next morning. The weir gate was left open during the day. National Park Service personnel assisted in this operation by closing the weir gate at night. Employees of Tempotech Industries manned the weir 24 hours per day from September 7 to November

21, and intermittently between November 22 and December 1. Tempotech Industries has the contract with the State to harvest surplus salmon.

A total of 23,919 salmonids (salmon plus trout) were actually counted through the weir between September 2 and October 13. All fish swimming through the weir were counted by species. Separate counts were made for coho and chinook jacks but chinook jacks were difficult to identify and were probably counted as adult coho in most cases (Table 2). The coho and chinook runs peaked on September 15 and 23, respectively (Figures 2 and 3).

Harvesting operations began September 15 and continued intermittently until November 30. Salmon were actually harvested on 29 days during this period but on only 13 of the harvest days did salmon numbers exceed 200 fish. Only 1 full semitrailer load and 23 partial loads were sent to Tempotech Industries in Hart, Michigan. All trout collected during harvesting were transferred upstream from the weir.

### *Coho salmon*

The harvest of coho salmon began on September 15 and ended on November 30, a period of 77 days. However, 71% of the coho were harvested between September 17 and September 23 (Figure 2). A total of 11,212 adult coho weighing 69,488 pounds and 472 jack coho weighing 752 pounds were harvested (Table 3). Weighted seasonal mean weights of coho adults and jacks were 6.6 and 1.6 pounds, respectively (Table 4). An additional 21,609 adult coho were passed upstream for egg-take operations at the upper weir (Table 2). A weekly summary of the number and weight of coho passed and harvested, by age and sex, is shown in Table 5.

The total run of 32,821 adult coho in the lower Platte River represented a return of only 4.1% of the 1989 smolt plant. This was the lowest percent return during the period 1979-1990 (Table 6). Although returns to the weir were relatively low, the spring fishery for

coho in southern Lake Michigan was spectacular.

Most of the harvested coho were age 1.1. The average lengths and weights for age-1.1 males and females, calculated from weekly biological samples, are shown in Table 4. Males averaged 26.9 inches and 6.9 pounds and females averaged 25.6 inches and 6.3 pounds.

During harvest operation 472 age-1.0 coho were harvested and all were males (jacks). They had an average length of 15.4 inches and average weight of 1.6 pounds (Table 4). No age-1.2 coho were observed in the harvest.

During the 12 weekly biological surveys, a total of 1,323 adult coho were sampled for biological data. One fresh and four healed lamprey wounds were observed on coho in the biological samples and 11 fish had adipose (Ad) fin clips. The Ad fin clip is reserved for studies utilizing coded-wire microtags but none of the Great Lakes states wire tagged coho that were expected to return in 1990. A check of a number of heads from Ad-clipped coho with a field tag detector found no coded-wire tags. It appears that some coho with missing adipose fins are a natural occurrence or an effect of hatchery rearing, as deformed dorsal fins are in hatchery-reared steelhead.

In addition to the normal harvest of fish from below the lower weir, coho were also harvested from above the lower weir. This harvest was necessary because of the relatively large number of coho that did not move upstream after they were passed through the weir. This was the third consecutive year that coho did not move upstream after being passed through the weir and corresponds to years that a percentage of the smolt plants were planted just above the lower weir. During the spring of 1987, 1988, and 1989, about 100,000 (15%), 200,000 (25%), and 400,000 (50%) smolts, respectively, were planted just above the lower weir to evaluate their survival and return compared to smolts planted at the normal hatchery planting site. The smolts planted in 1988 were marked and evaluation of the 1989 returns showed that smolts planted at the lower weir had a lower

return rate to the hatchery than smolts planted at the hatchery. Generally, as the number of smolts planted at the lower weir increased, the number of adults staying just above the lower weir increased. Based on this information, all smolts released in the Platte River during 1990 were planted at the hatchery.

The harvest above the lower weir was done with two 100 foot seines supplied by Tempotech Industries. One seine was placed in the river at the boat landing about 300 feet above the weir and was used as a blocking seine. The second seine was placed across the river at the weir and pulled upstream to the blocking seine where the salmon were trapped and pulled to shore. The river was seined on five dates between October 22 and November 28, 1990. A total of 2,365 adult coho, 1 adult chinook and 3 chinook jacks were removed from the river. An additional 159 adult coho were also removed from above the lower weir during the weir operation period. The adult coho from above the lower weir had an average length and weight of 26.5 inches and 6.5 pounds. Sex composition was 54.3% female and 45.7% male.

In summary, a total of 32,821 adult coho salmon reached the lower Platte River weir during the fall of 1990—15,394 (46.9%) males and 17,427 (53.1%) females (Table 5). The total adult run was 4.1% of the 1989 plant of 806,190 age-1.0 smolts (Table 6).

### *Chinook salmon*

The chinook salmon run in the lower Platte River spanned the period from September 25 to November 30, although 85% of the run was harvested between September 23 and October 17 (Figure 3). A total of 1,621 chinook, including 978 adults (age 0.2 to 0.5) and 643 jacks (age 0.0 and 0.1), weighing 15,732 pounds were harvested (Table 7). The average weights of adults and jacks were 13.4 and 4.2 pounds, respectively. An additional 140 chinook were passed upstream at the lower weir (Table 2). A weekly summary of chinook passed and harvested combined, by age and sex, is shown in Table 8.

Biological data were collected from 612 adult chinook randomly sampled during the harvest operation. In addition, biological data were collected from 276 jack chinook sorted out of the harvest. Chinook salmon length frequencies were converted to age frequencies by means of a length-age frequency table (Table 9) constructed by District 6 personnel at the Harrietta warehouse. They used scale samples and length measurements obtained during creel census at Ludington, Manistee, Frankfort, and Grand Traverse Bay, for the months August through October 1990. In applying this table to those length groups in which two or more age groups are represented, the lighter fish were arbitrarily assigned to the younger age group and the heavier fish were assigned to the older age group. The resulting estimates of age composition of the 1990 chinook harvest was 0.3% age 0.0, 38.0% age 0.1, 17.8% age 0.2, 30.4% age 0.3, 12.9% age 0.4, and 0.6% age 0.5 (Table 8). Average lengths and weights for each age group are presented in Table 10.

Four chinook with lamprey wounds, all healed, were recorded in the biological samples. Lamprey wounding was present on 0.5% of the chinook examined, compared to 1.3% for 1989. Eight chinook with fin clips were noted during the biological samples, three jacks and five adults. Two of the jacks had left ventral (LV) clips and one had a left pectoral (LP) clip. The LV clips designated chinook planted in 1989 into Lake Michigan by the Indiana Department of Natural Resources and the LP clip designated chinook planted in 1989 into Lake Michigan at Chicago by the Illinois Department of Conservation. Of the five adults, two had Ad clips, one had adipose-right pectoral (Ad-RP) clip, one had a right pectoral-left ventral (RP-LV) clip, and one had a LV clip. The Ad clip indicated that the fish contained coded-wire microtags in their snouts but the heads were not saved for tag recovery. The Ad-RP clip designated chinook planted by Illinois at Chicago (Diversey Harbor) in 1987. The RP-LV clip designated chinook planted by Michigan at Swan Creek, Lake Huron in 1988. The LV clip designated wild smolts captured and released in the Pere Marquette

River during a smolt study conducted by Michigan State University in 1988.

The total run of 1,761 chinook at the lower weir in 1990 was the lowest return for the 12-year period 1979-90 (Table 11). The average return for this period was 4,722 chinook. The average weight of adult chinooks in 1990 was 0.6 pounds less than in 1989 (Table 11). Adult males and females comprised 61.3% and 38.7% of the adult run, respectively. Jacks comprised 38.3% of the overall run (Table 12). All chinook were either strays from other plants, escapees from the Platte River Hatchery, or the result of natural reproduction since chinook are not planted in the Platte River.

#### *Pink salmon*

Pink salmon in the Platte have normally run only during odd-numbered years. However, in 1990 one pink salmon was harvested. This fish was a male weighing 2.9 pounds and measuring 21.1 inches in length.

#### *Steelhead trout*

The steelhead run was strong throughout the fall but peaked the week of October 17 (Table 13). During the harvest operation, 2,434 steelhead were handled. This was the largest number of steelhead handled by almost 900 fish during the period 1980-present (Table 14). An additional 582 steelhead were passed upstream through the open weir gate and the total steelhead run in the lower Platte River was 3,016 fish. A weekly summary of the number and weight of steelhead returning to the lower Platte weir by age and sex is presented in Table 15.

Biological information, including scale samples, were collected from 479 steelhead. All scale samples (including steelhead and brown trout) were aged by District 6 personnel at Harrietta warehouse. A total of 10 age groups were recorded in 1990 (Table 15) as compared to eleven in 1989 and nine in 1988. Fish in age-group 2.1 were the most numerous (29.5%) and fish in age-group 2.5

were the least numerous (0.3%). Most (69.0%) of the steelhead smolted after two summers in the river and 31.0% smolted after one summer in the river. In 1989, 41.1% smolted after one summer in the river. The average lengths and weights for each age group are shown in Table 16.

The size of the returning steelhead was more dependent upon the years spent in Lake Michigan than on age-at-smolting or years in the river (Table 17), as was true in the other years. Steelhead which had spent two or three summers (age  $\_1$  and  $\_2$ ) in Lake Michigan accounted for 82.7% of the run. Fish which had spent four and five summers in Lake Michigan were represented at lower numbers (Table 17). A summary of fall steelhead runs in the lower Platte River is presented in Table 18.

No lamprey scars or wounds were observed on any steelhead. Two steelhead had Ad fin clips and one had a LP fin clip. One of the Ad-clipped fish corresponded to 1986 plants of "Skamania" steelhead by Michigan in the Betsie, Boardman, Manistee and White rivers. The second Ad-clipped fish aged from scales was planted in 1987 but no Ad-clipped fish were planted in 1987 in Lake Michigan. The LP-clipped fish corresponded to a 1987 plant of "Skamania" steelhead by Wisconsin in the Oconto River.

Overall, steelhead in 1990 had a mean length of 25.2 inches and a mean weight of 6.8 pounds, and consisted of 49% males and 51% females. Steelhead scales showing one or more spawning checks accounted for 12.3% of the sample.

#### *Brown trout and lake trout*

Brown trout and lake trout are only minor components of the salmonid run in the Platte River (Tables 13 and 14). A total of 42 brown trout and 3 lake trout were counted and transferred upstream in 1990. Nineteen additional brown trout were passed upstream when the coho salmon were passed. This gives total runs in 1990 of 61 brown trout and 3 lake trout.

Biological information was obtained from 42 brown trout. Four age groups were identified: age-1.1 (19 fish), age-2.1 (25 fish), age 1.2 (6 fish), age-2.2 (11 fish). Lengths ranged from 18.4 to 27.0 inches (average 22.4) and weights ranged from 2.6 to 10.4 pounds (average 5.7). The sex ratio was 54.1% male to 45.9% female. One brown trout had three lamprey wounds, one fresh and two healed.

Only three lake trout were passed upstream, two on November 17 and one on November 19. Two lake trout had right pectoral (RP) clips and the other had a LP clip. The LP- and RP-clipped lake trout were planted in 1985 and 1986, respectively, at Frankfort and Empire as well as numerous other ports on Lake Michigan. These fish had an average length and weight of 28.0 inches and 7.1 pounds, respectively. Two of the lake trout were females and one had a healed lamprey wound.

#### **Upper Weir Operation, 1990**

The operation at the upper Platte River weir is primarily for egg-taking and does not have the capability of harvesting a large number of salmon efficiently. The facility consists of a weir, fish passageway, fish ladder, maturation ponds, and egg-taking building. The weir blocks the upstream migration of salmonids and directs them up the fish ladder into the maturation ponds. The salmon are held in these ponds for up to 3 weeks while the eggs mature or "ripen", then the eggs are stripped and fertilized.

The weir stop-logs were in place by August 16 and the facility was fully operational by September 5.

#### *Coho salmon*

The first coho salmon (one jack) reached the maturation ponds on August 27. The first large group of coho reached the upper weir on September 14 and a second large group of fish arrived on September 29. The fish stayed in the river system for an extended period of

time. All six ponds were near capacity by October 10.

Egg-taking operations started on October 12. A total of 8,481,600 eggs were collected and fertilized during six working days between October 12 and October 24. Of these eggs, 6,518,100 (76.8%) were for in-state rearing and 1,963,500 (23.2%) were for out-of-state commitments (i.e., Indiana, 0.65 million; Illinois, 0.95 million; and Wisconsin, 0.36 million).

The 1990 egg-take was modified for the second year to allow inspections for bacterial kidney disease (BKD) in potential spawners. The eggs from any coho exhibiting gross symptoms of BKD were discarded and all materials coming in contact with the infected fish were disinfected in an iodine solution. Approximately 8.6% of the females used in the egg-take had visible BKD symptoms compared to 8.4% in 1989. In almost all cases the spleen was the primary organ which showed symptoms. This procedure identified only fish with visible BKD symptoms and not fish with lesser infections of BKD. Males were not inspected. Egg quality was poor throughout the egg-take operations. Water temperatures at the lower weir were above 19°C (66°F) during the major migration into the lower river but below 14°C (57°F) at the hatchery during the maturation period. In addition to the loss of eggs from females with BKD, the eggs from 8.9% of the females were discarded because of the large number of "buckshot" (over ripe) eggs.

The eye-up rate of coho salmon eggs incubated at the Platte River Hatchery reflected the poor quality of the 1990 eggs. The average eye-up rate for eggs collected at Platte River was 58.6%, with a daily range from 58.0% to 60.7%. The use of an iodophor for the first time during water-hardening to control BKD may also have adversely impacted the eye-up rate for coho. Coho eye-up rates during the previous 10 years ranged from 50.4% (1984) to 82.2% (1980) and averaged 70.5%.

A total of 3,573 female coho salmon were stripped to collect the 8.5 million eggs (Table 19), an average of 2,379 eggs per female. A check of the fecundity of 25

individual females at the end of the run showed an average of 3,183 eggs per female with a range between 1,924 and 4,785 eggs per female. The difference between 2,379 and 3,183 represents the eggs that were retained by stripped females during egg-take operations and eggs that were taken and discarded because they were "buckshot" or because the parent fish had BKD. The average fecundities of the 25 individual fish sampled during 1983, 1984, 1985, 1986, and 1987 were 3,204, 2,290, 2,850, 2,042, and 2,916 eggs per female, respectively.

The egg-take and harvest operation at the upper weir accounted for 10,832 coho, including 1,545 (14.3%) jacks and 9,287 (85.7%) adults (Table 19). The number of adults harvested at the upper weir was only 43% of the estimated total number of adults passed at the lower weir. However, in addition to the fish harvested at the upper weir, 2,524 adult coho were harvested from just above the lower weir. Thus 11,811 (54.7%) adult coho of the 21,609 adult coho passed upstream were harvested and 9,798 adult coho were left in the system. Between 1983 and 1987, 67% to 76.5% of the adult coho passed reached the upper weir. Between 1988 and 1990, only 43% to 58% reached the upper weir. All three of these years of lower returns to the upper weir correspond to years that a portion of the coho for Platte River were planted at the lower weir.

The adult run at the upper weir consisted of 43.3% male and 56.7% female, based on the actual numbers of fish harvested. Males averaged 27.4 inches in length and 7.0 pounds in weight, and females averaged 26.1 inches in length and 6.6 pounds in weight. Overall, the adult coho averaged 26.7 inches and 6.8 pounds. Coho at the upper weir were larger in both length and weight than coho harvested at the lower weir. Ninety-nine percent of the adult coho handled at the upper weir were used in the egg-take operations. The total weight of adult and jack coho harvested at the upper weir was 59,635 pounds (Table 20).

A total of 1,545 jack coho (100% males, age 1.0) were harvested at the upper weir (Table 19). The total jack run in the Platte



River, including jacks harvested at the lower weir, was 2,017. This represents 0.3% of the total coho smolt plant in 1990 and 5.8% of the total run of 34,838 coho (adults and jacks) in the Platte River during 1990.

The weighted mean length and weight of jacks for 1990 were 15.4 inches and 1.5 pounds. In 1987, 1988, and 1989, the jacks averaged 15.8, 15.3, and 15.6 inches in length and 1.6, 1.3, and 1.5 pounds in weight, respectively.

#### *Chinook salmon*

Only 49 chinook were harvested at the upper weir (Table 21) and all were males (35.7% adults and 64.3% jacks). The average weight of all chinook (adults and jacks combined) was 6.4 pounds. The total harvest of 49 fish was 33.5% of the number of chinook passed at the lower weir.

#### **Summary**

The 1990 run of coho salmon in the Platte River consisted of 32,821 adults (46.9% male and 53.1% female) and 2,017 jacks (100% male). Mean sizes at the lower weir were 26.9 inches and 6.9 pounds for adult males and 25.6 inches and 6.3 pounds for adult females, and 15.4 inches and 1.6 pounds for jacks. Mean sizes at the upper weir were 27.4 inches and 7.0 pounds for adult males, 26.1 inches and 6.6 pounds for adult females, and 15.4 inches and 1.5 pounds for jacks.

A grand total of 25,040 coho adults and jacks weighing 146,046 pounds were harvested. A total of 11,684 adults and jacks weighing 70,240 pounds were harvested at the lower weir and 13,356 adults and jacks weighing 75,806 pounds were harvested at the upper weir or just above the lower weir. The upper weir harvest included 3,573 stripped females weighing 17,948 pounds, from which 8.5 million eggs were taken. Egg quality was poor as reflected in an average eye-up of 58.6% for eggs collected at the Platte River Hatchery.

The 1990 run of 1,761 chinook (76.1% males and 23.9% females) was the lowest return during the period 1979 to 1990. Ultimately, 1,670 of these chinook (94.8%, 16,044 pounds) were harvested—1,621 at the lower weir and 49 at the upper weir. The age composition of the chinook run was 0.3%, age-0.0 jacks; 38.0%, age-0.1 jacks; 17.8%, age-0.2 adults; 30.4%, age-0.3 adults; 12.9%, age-0.4 adults; and 0.6%, age-0.5 adults. The mean weights of age groups 0.0 through 0.5 were 0.6, 4.2, 9.4, 13.8, 17.4, and 26.1 pounds, respectively.

The 1990 fall steelhead run of 3,016 fish (49% males and 51% females) was the largest recorded during the past 11 years. Ten different age groups were identified but fish which had spent two or three summers in Lake Michigan (age groups 1.1, 2.1, 1.2, and 2.2) accounted for 82.7% of the run. Overall the steelhead averaged 25.2 inches long and weighed 6.8 pounds.

Other salmonids passed upstream or harvested included 61 brown trout, 3 lake trout, and 1 pink salmon.

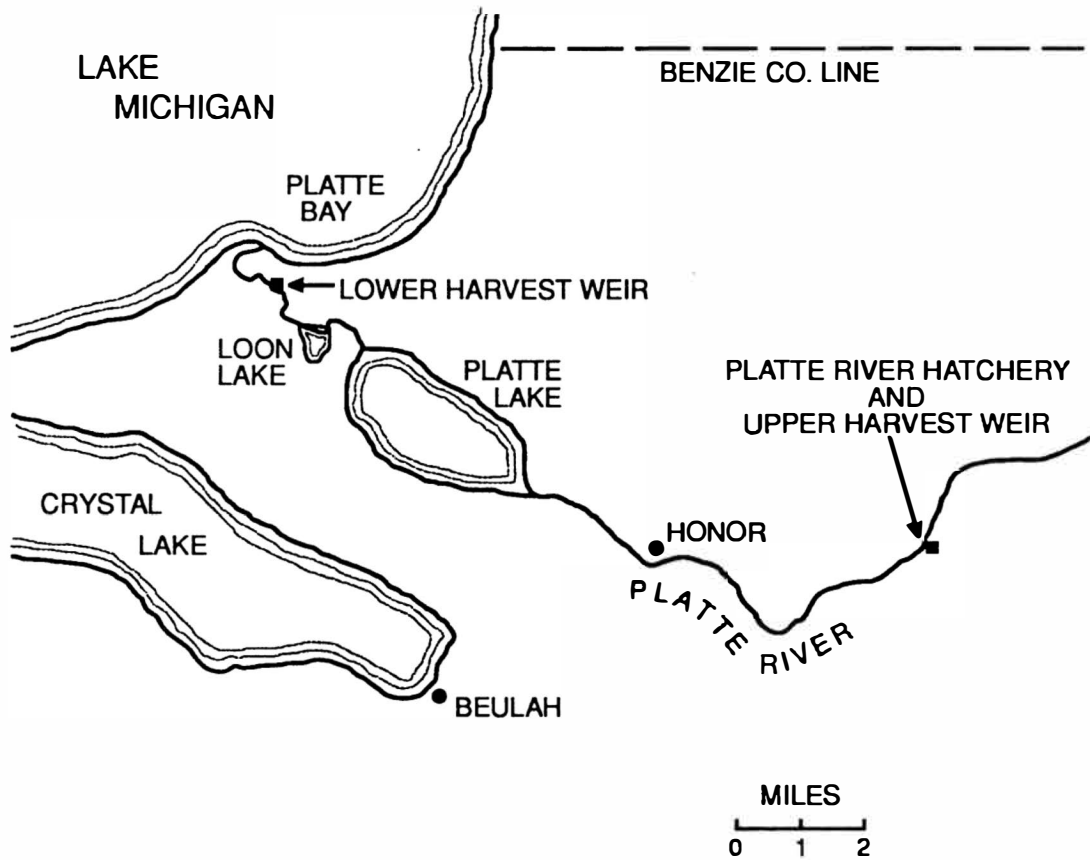


Figure 1.—Location of the Platte River Hatchery and the upper and lower harvest weirs.

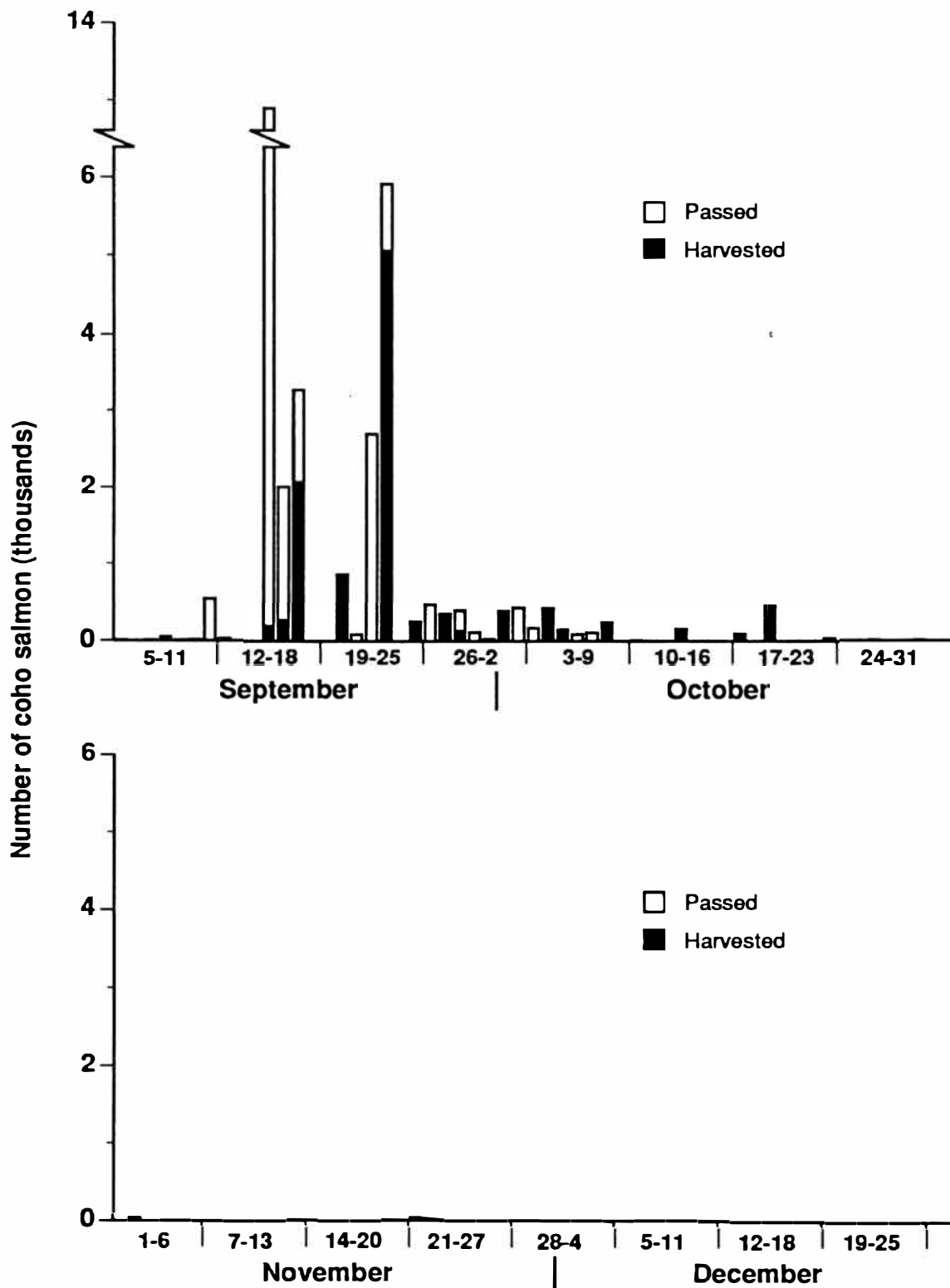


Figure 2.—Periodicity of coho salmon passed upstream or harvested at the lower Platte River weir, fall 1990.

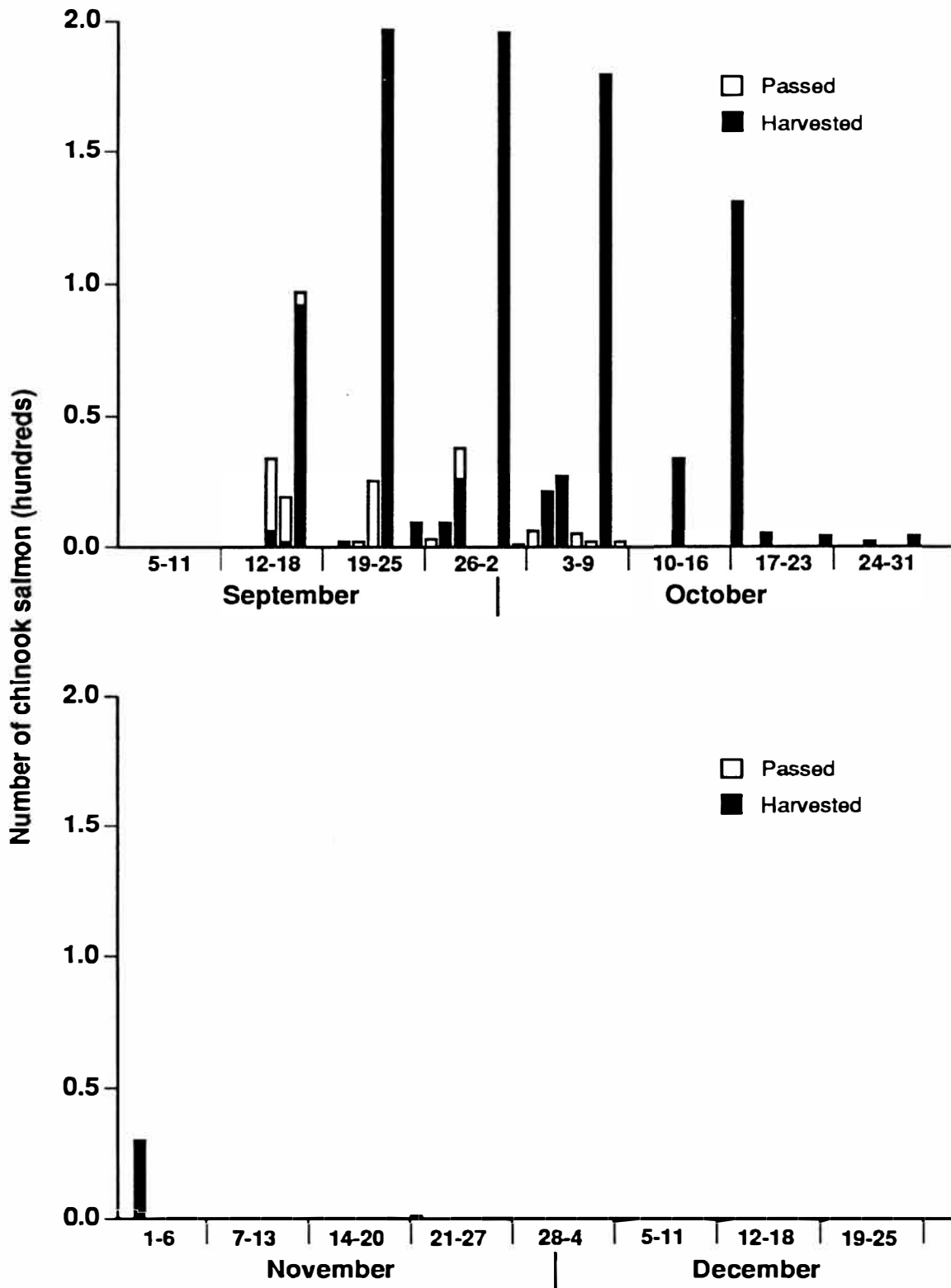


Figure 3.—Periodicity of chinook salmon passed upstream or harvested at the lower Platte River weir, fall 1990.

Table 1.—Number of anadromous salmonids planted in the Platte River, 1966-90.

Year	Coho (yearlings)	Chinook (spring fingerlings)	Steelhead (yearlings)	Atlantic salmon (yearlings)
1966	265,000	—	—	—
1967	503,000	—	—	—
1968	309,000	—	—	—
1969	1,092,069	—	—	—
1970	777,640	—	—	—
1971	390,381	53,500	—	—
1972	406,330	40,630	—	—
1973	918,135	—	206,924	—
1974	804,131	—	100,386	7,308
1975	800,202	—	87,600	—
1976	500,903	—	—	—
1977	606,814	—	—	—
1978	516,202	—	—	—
1979	973,032	—	—	—
1980	1,028,038	—	—	—
1981	944,205	—	—	—
1982	1,000,000	—	—	—
1983	953,499	—	—	—
1984	989,192	—	—	—
1985	817,483	—	—	—
1986	751,183	—	—	—
1987	622,079	—	—	—
1988	923,544	—	—	—
1989	806,190	—	—	—
1990	636,775	—	—	—
Total	18,335,027	94,130	394,910	7,308

Table 2.—Total number of adult coho and chinook, jack coho and chinook salmon passed upstream at the lower Platte River weir, fall 1990.

Date	Coho		Chinook	
	Adults	Jacks	Adults	Jacks
8/27	2	0	0	0
Weekly total	2	0	0	0
9/03	0	1	0	0
9/05	8	3	0	0
9/07	9	0	0	0
9/08	51	8	0	0
9/09	10	1	0	0
Weekly total	78	13	0	0
9/10	15	0	0	0
9/11	545	95	0	0
9/12	30	16	0	0
9/13	5	0	0	0
9/15	12,700	809	28	13
9/16	1,729	173	17	1
Weekly total	15,024	1,093	45	14
9/17	1,201	139	5	1
9/21	89	10	2	1
9/22	2,680	141	25	1
9/23	850	50	0	0
Weekly total	4,820	340	32	3
9/26	467	20	3	2
9/28	250	19	12	2
9/29	111	6	0	0
9/30	31	6	0	0
Weekly total	859	51	15	4
10/02	425	36	1	5
10/03	168	15	6	2
10/05	36	3	0	1
10/06	85	2	5	0
10/07	105	16	2	1
Weekly total	819	72	14	9
10/09	0	0	2	2
10/10	7	0	0	0
Weekly total	7	0	2	2
Annual total	21,609	1,569	108	32

Table 3.—Summary of adult and jack coho salmon harvested at the lower Platte River weir, fall 1990.

Date	Coho harvested			Cumulative total	Jack total weight (pounds)	Adult total weight (pounds)
	Jacks age 1.0	Adult age 1.1	Mortalities			
9/15	8	194	0	202	12	1,382
9/16	12	273	0	487	19	1,895
Weekly total	20	467	0		31	3,277
9/17	113	2,060	2	2,662	181	13,472
9/20	146	859	1	3,668	234	4,880
9/23	135	5,060	1	8,864	216	30,872
Weekly total	394	7,979	4		631	49,224
9/25	12	251	0	9,127	16	1,536
9/27	7	349	1	9,484	11	2,160
9/28	8	136	1	9,629	13	832
Weekly total	27	736	2		40	4,528
10/01	9	372	1	10,011	15	2,184
10/04	9	418	3	10,441	15	2,466
10/05	1	111	0	10,553	1	635
Weekly total	19	901	4		31	5,385
10/08	4	238	2	10,797	6	1,460
10/13	0	154	1	10,952	0	951
Weekly total	4	392	3		6	2,411
10/17	0	90	0	11,042	0	572
10/19	7	451	0	11,500	12	2,963
Weekly total	7	541	0		12	3,535
10/23	0	40	1	11,541	0	248
10/26	0	9	1	11,551	0	59
Weekly total	0	49	2		0	307
10/29	0	11	0	11,562	0	60
11/02	1	42	1	11,606	1	264
Weekly total	1	53	1		1	324

Table 3.—Continued:

Date	Coho harvested			Cumulative total	Jack total weight (pounds)	Adult total weight (pounds)
	Jacks age 1.0	Adult age 1.1	Mortalities			
11/05	0	18	0	11,624	0	120
11/09	0	7	0	11,631	0	36
Weekly total	0	25	0		0	156
11/19	0	7	0	11,638	0	44
11/21	0	40	0	11,678	0	257
Weekly total	0	47	0		0	301
11/26	0	3	0	11,681	0	19
11/30	0	3	0	11,684	0	21
Weekly total	0	6	0		0	40
Annual total	472	11,196	16	11,684	752	69,488



Table 4.—Mean total length (inches) and weight (pounds), by age and sex, of coho salmon harvested at the lower Platte River weir, fall 1990. Two standard errors in parentheses.

Week beginning	Measurement	Age 1.0		Age 1.1	
		Male	Female	Male	Female
9/10	Length	15.3 (0.5)	—	27.7 (0.4)	26.0 (0.4)
	Weight	1.6 (0.2)	—	7.5 (0.3)	6.6 (0.3)
9/17	Length	15.4 (0.3)	—	25.7 (0.7)	25.4 (0.3)
	Weight	1.6 (0.1)	—	6.1 (0.5)	6.1 (0.2)
9/24	Length	15.5 (0.4)	—	26.9 (0.7)	25.3 (0.5)
	Weight	1.5 (0.1)	—	6.7 (0.5)	5.8 (0.4)
10/01	Length	15.6 (0.7)	—	25.7 (0.5)	25.0 (0.3)
	Weight	1.6 (0.2)	—	5.9 (0.4)	5.8 (0.2)
10/08	Length	15.8 (0.7)	—	26.5 (0.5)	24.8 (0.3)
	Weight	1.5 (0.2)	—	6.8 (0.5)	5.8 (0.3)
10/15	Length	16.7 (0.6)	—	26.7 (0.5)	25.3 (0.3)
	Weight	1.7 (0.2)	—	7.1 (0.4)	6.2 (0.3)
10/22	Length	13.1 —	—	26.6 (1.0)	24.8 (0.7)
	Weight	0.9 —	—	6.5 (0.7)	5.7 (0.5)
10/29	Length	—	—	25.8 (1.1)	25.0 (0.8)
	Weight	—	—	6.3 (0.8)	5.8 (0.5)
11/05	Length	—	—	26.4 (1.0)	25.3 (1.2)
	Weight	—	—	6.3 (0.8)	6.4 (1.1)
11/12	Length	—	—	—	—
	Weight	—	—	—	—
11/19	Length	—	—	26.2 (1.1)	25.3 (0.6)
	Weight	—	—	6.1 (0.8)	6.2 (0.5)
11/26	Length	—	—	27.1 (2.3)	26.6 (0.7)
	Weight	—	—	6.6 (1.6)	7.2 (0.2)
Weighted seasonal mean	Length	15.4 (0.3)	—	26.9 (0.3)	25.6 (0.2)
	Weight	1.6 (0.1)	—	6.9 (0.2)	6.3 (0.2)
Sexes combined	Length	15.4 (0.3)	—	26.2 (0.2)	—
	Weight	1.6 (0.1)	—	6.6 (0.1)	—

Table 5.—Summary of the number and weight, by age and sex, of jack and adult coho salmon returning to the lower Platte River weir (harvested plus passed), fall 1990.

Week beginning	Male		Female		Total	
	Number	Pounds	Number	Pounds	Number	Pounds
<b>Age 1.0</b>						
9/10	1,126	1,812	—	—	1,126	1,812
9/17	734	1,191	—	—	734	1,191
9/24	78	113	—	—	78	113
10/01	91	145	—	—	91	145
10/08	4	6	—	—	4	6
10/15	7	12	—	—	7	12
10/29	1	1	—	—	1	1
11/05	—	—	—	—	—	—
11/12	—	—	—	—	—	—
11/19	—	—	—	—	—	—
11/26	—	—	—	—	—	—
Total	2,041	3,280	—	—	2,041	3,280
(Percent)	(5.8)	(1.5)	—	—	(5.8)	(1.5)
<b>Age 1.1</b>						
9/10	8,408	63,093	7,163	47,547	15,571	110,640
9/17	5,155	31,609	7,648	46,736	12,803	78,345
9/24	702	4,670	895	5,154	1,597	9,824
10/01	669	3,957	1,055	6,110	1,724	10,067
10/08	154	1,045	248	1,433	402	2,478
10/15	228	1,616	313	1,932	541	3,548
10/22	21	136	30	172	51	308
10/29	23	146	31	180	54	326
11/05	13	81	12	77	25	158
11/12	—	—	—	—	—	—
11/19	17	103	30	187	47	290
11/26	4	26	2	14	6	40
Total	15,394	106,482	17,427	109,542	32,821	216,024
(Percent)	(44.2)	(48.6)	(50.0)	(49.9)	(94.2)	(98.5)

Table 6.—Summary of adult (age 1.1) coho salmon runs at the lower Platte River weir, 1979-90.

Year	Estimated number passed	Number harvested	Total run	Plant in previous year	Percent return	Mean length (inches)	Mean weight (pounds)
1979	36,404	0	36,404	516,202	7.1	23.1	4.4
1980	76,480 <sup>1</sup>	46,633	123,113	973,032	12.7	26.9	7.6
1981	38,874	129,175	168,049	1,028,038	16.3	27.0	6.8
1982	38,951	90,412	129,363	944,205	13.7	25.8	6.2
1983	35,600	120,758	156,358	1,000,000	15.6	26.6	6.9
1984	36,572	105,530	142,102	953,499	14.9	24.8	5.5
1985	30,736	49,659	80,354	989,192	8.1	25.7	6.1
1986	36,124	16,646	52,770	817,483	6.5	24.4	5.3
1987	30,437	24,707	55,144	751,183	7.3	26.1	6.1
1988	4,860	21,258	26,118	622,079	4.2	25.5	6.2
1989	21,250	28,543	49,793	923,544	5.4	26.2	6.3
1990	21,609	11,212	32,821	806,190	4.1	26.2	6.6

<sup>1</sup>Fish not counted; estimated from harvest at upper weir.

Table 7.—Summary of chinook salmon harvested at the lower Platte River weir, fall 1990.

Date	Chinook harvested			Cumulative total	Total weight (pounds)
	Jacks ages 0.0-1.0	Adults ages 0.2-0.5	Mortalities		
9/13	2	2	0	11	30
9/15	1	6	0	7	94
Weekly total	3	8	0		124
9/17	31	92	0	134	1,299
9/20	2	2	0	138	35
9/23	89	197	0	424	2,890
Weekly total	122	291	0		4,224
9/25	7	9	0	440	140
9/27	3	9	0	452	131
9/28	6	26	0	484	363
Weekly total	16	44	0		634
10/01	100	196	0	780	3,052
10/04	19	21	0	820	362
10/05	15	27	0	862	437
Weekly total	134	244	0		3,851
10/08	141	180	0	1,183	3,087
10/13	45	34	0	1,262	667
Weekly total	186	214	0		3,754
10/17	125	131	0	1,518	2,265
10/19	11	5	0	1,534	120
Weekly total	136	136	0		2,387
10/23	15	4	0	1,553	101
10/26	3	2	0	1,558	39
Weekly total	18	6	0		140
10/29	8	4	0	1,570	84
11/02	20	30	0	1,620	505
Weekly total	28	34	0		598
11/21	0	1	0	1,621	20
Weekly total	0	1	0		20
Annual total	643	978	0	1,621	15,732

Table 8.—Summary of the number and weight, by age and sex, of chinook salmon returning to the lower Platte River weir (harvested plus passed), fall 1990.

Week beginning	Male		Female		Total	
	Number	Pounds	Number	Pounds	Number	Pounds
<b>Age 0.0</b>						
9/10	1	1	—	—	1	1
9/17	1	1	—	—	1	1
9/24	2	1	—	—	2	1
10/01	1	1	—	—	1	1
10/08	—	—	—	—	—	—
10/15	—	—	—	—	—	—
10/22	—	—	—	—	—	—
10/29	—	—	—	—	—	—
11/19	—	—	—	—	—	—
Total	5	4	—	—	5	4
(Percent)	(0.3)	(<0.1)	—	—	(0.3)	(<0.1)
<b>Age 0.1</b>						
9/10	16	69	—	—	16	69
9/17	124	552	—	—	124	552
9/24	18	69	—	—	18	69
10/01	142	593	—	—	142	593
10/08	188	802	—	—	188	802
10/15	136	555	—	—	136	555
10/22	18	71	—	—	18	71
10/29	28	108	—	—	28	108
11/19	—	—	—	—	—	—
Total	670	2,819	—	—	670	2,819
(Percent)	(38.0)	(16.3)	—	—	(38.0)	(16.3)
<b>Age 0.2</b>						
9/10	13	135	13	158	26	293
9/17	69	588	24	239	93	827
9/24	13	111	8	89	21	200
10/01	49	451	23	245	72	696
10/08	45	423	9	89	54	512
10/15	34	292	3	33	37	325
10/22	3	22	—	—	3	22
10/29	8	67	—	—	8	67
11/19	—	—	—	—	—	—
Total	234	2,089	80	853	314	2,942
(Percent)	(13.3)	(12.0)	(4.5)	(4.9)	(17.8)	(16.9)

Table 8.—Continued:

Week beginning	Male		Female		Total	
	Number	Pounds	Number	Pounds	Number	Pounds
<b>Age 0.3</b>						
9/10	—	—	13	162	13	162
9/17	100	1,200	62	924	162	2,124
9/24	13	169	8	113	21	282
10/01	78	1,036	62	931	140	1,967
10/08	57	743	50	783	107	1,526
10/15	36	477	37	558	73	1,035
10/22	1	13	—	—	1	13
10/29	9	123	8	128	17	251
11/19	—	—	1	20	1	20
Total	294	3,761	241	3,619	535	7,380
(Percent)	(16.7)	(21.7)	(13.7)	(20.9)	(30.4)	(42.6)
<b>Age 0.4</b>						
9/10	7	125	—	—	7	125
9/17	45	716	24	432	69	1,148
9/24	9	152	7	131	16	283
10/01	23	380	21	393	44	773
10/08	32	544	23	433	55	977
10/15	8	140	17	303	25	443
10/22	1	17	1	17	2	34
10/29	3	48	6	116	9	164
11/19	—	—	—	—	—	—
Total	128	2,122	99	1,825	227	3,947
(Percent)	(7.3)	(12.2)	(5.6)	(10.5)	(12.9)	(22.7)
<b>Age 0.5</b>						
9/10	7	184	—	—	7	184
9/17	—	—	—	—	—	—
9/24	—	—	—	—	—	—
10/01	2	53	—	—	2	53
10/08	—	—	—	—	—	—
10/15	1	24	—	—	1	24
10/22	—	—	—	—	—	—
10/29	—	—	—	—	—	—
11/19	—	—	—	—	—	—
Total	10	261	—	—	10	261
(Percent)	(0.6)	(1.5)	—	—	(0.6)	(1.5)

Table 9.—Length-age distribution (in percent by inch group) for chinook salmon scale sampled during creel census at Ludington, Manistee, Frankfort, and Grand Traverse Bay, during the period August to October 1990. This table was developed by District 6 personnel at the Harrietta warehouse.

Length (inches)	Age					
	0.0	0.1	0.2	0.3	0.4	0.5
<16	100	—	—	—	—	—
17	—	100	—	—	—	—
18	—	100	—	—	—	—
19	—	100	—	—	—	—
20	—	100	—	—	—	—
21	—	100	—	—	—	—
22	—	100	—	—	—	—
23	—	100	—	—	—	—
24	—	67	33	—	—	—
25	—	17	83	—	—	—
26	—	—	100	—	—	—
27	—	—	100	—	—	—
28	—	—	70	30	—	—
29	—	—	75	25	—	—
30	—	—	59	35	6	—
31	—	—	54	38	8	—
32	—	—	40	40	20	—
33	—	—	5	80	15	—
34	—	—	—	92	8	—
35	—	—	—	67	33	—
36	—	—	—	62	38	—
37	—	—	—	50	50	—
38	—	—	—	25	75	—
39	—	—	—	—	100	—
40+	—	—	—	—	75	25

Table 10.—Mean total length (inches) and weight (pounds), by age and sex, of chinook salmon harvested at the lower Platte River weir, fall 1990. Two standard errors in parentheses.

Week beginning	Measurement	Age 0.0		Age 0.1		Age 0.2	
		Male	Female	Male	Female	Male	Female
9/10	Length	10.4	—	22.0	—	31.2	31.8
		—	—	(2.9)	—	(2.6)	(0.4)
	Weight	0.7	—	4.3	—	10.4	12.1
		—	—	(1.5)	—	(2.6)	(0.4)
9/17	Length	12.2	—	22.0	—	28.5	30.7
		—	—	(0.5)	—	(1.2)	(1.4)
	Weight	0.7	—	4.5	—	8.5	10.0
		—	—	(0.3)	—	(0.7)	(1.7)
9/24	Length	10.7	—	21.2	—	29.0	31.3
		(3.1)	—	(1.4)	—	(1.4)	(1.1)
	Weight	0.6	—	3.8	—	8.6	11.1
		(0.2)	—	(0.6)	—	(0.9)	(1.6)
10/01	Length	11.0	—	22.1	—	29.8	31.1
		—	—	(0.3)	—	(0.7)	(0.7)
	Weight	0.7	—	4.2	—	9.2	10.6
		—	—	(0.2)	—	(0.5)	(0.8)
10/08	Length	—	—	22.3	—	30.4	30.5
		—	—	(0.5)	—	(0.7)	(0.6)
	Weight	—	—	4.3	—	9.4	9.9
		—	—	(0.3)	—	(0.5)	(1.4)
10/15	Length	—	—	22.1	—	29.4	31.2
		—	—	(0.4)	—	(0.8)	(1.8)
	Weight	—	—	4.1	—	8.6	10.9
		—	—	(0.2)	—	(0.6)	(0.6)
10/22	Length	—	—	21.6	—	27.0	—
		—	—	(0.7)	—	(4.0)	—
	Weight	—	—	3.9	—	7.5	—
		—	—	(0.5)	—	(3.0)	—
10/29	Length	—	—	21.9	—	28.7	—
		—	—	(0.5)	—	(1.8)	—
	Weight	—	—	3.8	—	8.4	—
		—	—	(0.3)	—	(1.4)	—
11/19	Length	—	—	—	—	—	—
		—	—	—	—	—	—
	Weight	—	—	—	—	—	—
		—	—	—	—	—	—
Weighted seasonal mean	Length	11.0	—	22.1	—	29.4	31.0
		—	—	(0.2)	—	(0.3)	(0.4)
	Weight	0.6	—	4.2	—	8.9	10.6
		—	—	(0.1)	—	(0.2)	(0.5)
Sexes combined	Length	11.0	—	22.1	—	29.8	—
		—	—	(0.2)	—	(0.3)	—
	Weight	0.6	—	4.2	—	9.4	—
		—	—	(0.1)	—	(0.2)	—



Table 10.—Continued:

Week beginning	Measurement	Age 0.3		Age 0.4		Age 0.5	
		Male	Female	Male	Female	Male	Female
9/10	Length	—	32.5	38.8	—	42.1	—
		—	(1.1)	—	—	—	—
	Weight	—	12.5	17.9	—	26.2	—
		—	(0.7)	—	—	—	—
9/17	Length	32.7	34.1	34.2	35.6	—	—
		(0.9)	(1.1)	(1.7)	(1.0)	—	—
	Weight	12.0	14.9	15.9	18.0	—	—
		(1.0)	(1.0)	(2.2)	(1.4)	—	—
9/24	Length	33.6	33.4	36.6	36.3	—	—
		(1.2)	(1.4)	(2.2)	(1.3)	—	—
	Weight	13.0	14.1	16.8	18.7	—	—
		(1.2)	(1.5)	(1.8)	(1.2)	—	—
10/01	Length	33.7	34.4	35.9	35.5	41.7	—
		(0.7)	(0.6)	(1.7)	(1.7)	—	—
	Weight	13.3	15.0	16.5	18.7	26.7	—
		(0.6)	(0.7)	(1.5)	(2.3)	—	—
10/08	Length	33.4	35.0	36.3	36.3	—	—
		(0.6)	(0.4)	(1.1)	(0.9)	—	—
	Weight	13.0	15.7	17.0	18.8	—	—
		(0.5)	(0.6)	(1.2)	(1.0)	—	—
10/15	Length	33.7	34.4	36.2	35.2	40.0	—
		(0.9)	(0.5)	(2.0)	(1.1)	—	—
	Weight	13.2	15.1	17.5	17.8	23.8	—
		(0.8)	(0.6)	(2.1)	(1.4)	—	—
10/22	Length	33.2	—	34.9	34.4	—	—
		—	—	—	—	—	—
	Weight	13.2	—	16.8	17.0	—	—
		—	—	—	—	—	—
10/29	Length	34.6	34.7	34.9	36.1	—	—
		(1.0)	(0.8)	(3.0)	(2.0)	—	—
	Weight	13.7	16.0	16.0	19.4	—	—
		(0.8)	(1.1)	(2.5)	(2.2)	—	—
11/19	Length	—	37.9	—	—	—	—
		—	—	—	—	—	—
	Weight	—	19.6	—	—	—	—
		—	—	—	—	—	—
Weighted seasonal mean	Length	33.3	34.3	35.6	35.8	41.8	—
		(0.3)	(0.3)	(0.6)	(0.3)	—	—
	Weight	12.8	15.0	16.6	18.5	26.1	—
		(0.3)	(0.3)	(0.7)	(0.5)	—	—
Sexes combined	Length	33.8		35.7		41.8	
		(0.2)		(0.4)		—	
	Weight	13.8		17.4		26.1	
		(0.2)		(0.5)		—	

Table 11.—Summary of chinook salmon runs at the lower Platte River weir, 1979-90.

Year	Estimated number passed	Number harvested	Total run	Adult (ages 0.2-0.5)	
				Mean length (inches)	Mean weight (pounds)
1979	4,159	543	4,702	—	—
1980	2,736 <sup>1</sup>	1,699	4,435	32.8	14.5
1981	1,391	2,172	3,563	34.7	15.6
1982	1,393	1,606	2,999	34.4	14.0
1983	1,275	4,839	6,114	33.6	14.7
1984	1,566	4,358	5,924	34.8	14.8
1985	1,772	3,093	4,865	34.8	13.9
1986	2,469	2,678	5,147	33.6	12.9
1987	2,451	5,336	7,787	34.1	13.5
1988	460	4,186	4,646	34.4	14.0
1989	191	1,708	1,899	33.8	14.0
1990	140	1,621	1,761	33.1	13.4

<sup>1</sup>Fish not counted; estimated from harvest at upper weir.

Table 12.—Percentage-age composition of chinook salmon runs in the lower Platte River, 1984-present. Number in parentheses is actual number of fish returning for that age group.

Year	Total run	Age					
		0.0	0.1	0.2	0.3	0.4	0.5
1984	5,924	0.0 (0)	5.0 (296)	14.8 (877)	80.2 (4,751)	0.0 (0)	0.0 (0)
1985	4,865	0.0 (0)	8.8 (428)	17.0 (827)	52.3 (2,544)	20.3 (988)	1.6 (78)
1986	5,147	0.1 (5)	3.3 (170)	7.6 (391)	74.4 (3,829)	14.6 (752)	0.0 (0)
1987	7,787	0.1 (11)	11.6 (905)	8.4 (656)	38.3 (2,983)	38.1 (2,965)	3.4 (267)
1988	4,646	0.1 (5)	19.7 (915)	10.6 (493)	53.0 (2,466)	15.9 (739)	0.6 (28)
1989	1,899	0.2 (4)	17.4 (331)	7.6 (144)	46.2 (878)	28.1 (534)	0.4 (8)
1990	1,761	0.3 (5)	38.0 (670)	17.8 (314)	30.4 (535)	12.9 (227)	0.6 (10)

Table 13.—Number of trout released upstream at the lower Platte River weir, fall 1990. Released trout include those actually handled, counted, then transferred upstream (handled), and those which were counted as they swam through the weir gate when it was open (passed).

Date	Steelhead		Brown trout		Lake trout	
	Handled	Passed	Handled	Passed	Handled	Passed
9/03	—	3	—	—	—	—
9/05	—	12	—	—	—	—
9/07	—	6	—	—	—	—
9/08	—	9	—	—	—	—
9/09	—	1	—	—	—	—
Weekly total	0	31	0	0	0	0
9/10	—	10	—	—	—	—
9/11	—	34	—	—	—	—
9/12	—	12	—	—	—	—
9/13	—	7	—	—	—	—
9/15	1	90	—	1	—	—
9/16	3	28	1	—	—	—
Weekly total	4	181	1	1	0	0
9/17	8	3	—	—	—	—
9/20	24	—	—	—	—	—
9/21	—	10	—	1	—	—
9/22	—	26	—	—	—	—
9/23	81	4	2	1	—	—
Weekly total	113	43	2	2	0	0
9/25	59	1	1	—	—	—
9/26	—	30	—	—	—	—
9/27	21	—	2	—	—	—
9/28	21	33	2	—	—	—
9/29	—	25	—	—	—	—
9/30	—	12	—	—	—	—
Weekly total	101	101	5	0	0	0
10/01	84	—	1	—	—	—
10/02	—	61	—	2	—	—
10/03	—	51	—	3	—	—
10/04	125	—	9	—	—	—
10/05	31	12	1	4	—	—
10/06	—	27	—	4	—	—
10/07	—	53	—	3	—	—
Weekly total	240	204	11	16	0	0

Table 13.—Continued:

Date	Steelhead		Brown trout		Lake trout	
	Handled	Passed	Handled	Passed	Handled	Passed
10/08	130	—	3	—	—	—
10/09	—	14	—	—	—	—
10/10	—	8	—	—	—	—
10/13	217	—	4	—	—	—
<b>Weekly total</b>	<b>347</b>	<b>22</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>
10/17	335	—	4	—	2	—
10/19	557	—	3	—	1	—
<b>Weekly total</b>	<b>892</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>3</b>	<b>0</b>
10/23	66	—	1	—	—	—
10/26	15	—	—	—	—	—
<b>Weekly total</b>	<b>81</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
10/29	15	—	1	—	—	—
11/02	474	—	6	—	—	—
<b>Weekly total</b>	<b>489</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>
11/05	2	—	1	—	—	—
<b>Weekly total</b>	<b>2</b>	<b>—</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
11/19	12	—	—	—	—	—
11/21	151	—	—	—	—	—
<b>Weekly total</b>	<b>163</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
11/30	2	—	—	—	—	—
<b>Weekly total</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Annual total</b>	<b>2,434</b>	<b>582</b>	<b>42</b>	<b>19</b>	<b>3</b>	<b>0</b>
<b>Combined total</b>	<b>3,016</b>		<b>61</b>		<b>3</b>	

Table 14.—Annual numbers of fall steelhead, brown trout, and lake trout handled during the harvest of coho salmon at the lower Platte River weir, 1980-90.

Year	Steelhead	Brown trout	Lake trout
1980	124	7	0
1981	682	78	0
1982	1,276	38	38
1983	1,545	58	7
1984	1,292	74	69
1985	796	79	20
1986	364	31	14
1987	1,079	23	4
1988	655	14	2
1989	847	29	3
1990	2,434	42	3

Table 15.—Summary of the number and weight, by age and sex, of steelhead returning to the lower Platte River weir, fall 1990.

Week beginning	Male		Female		Total	
	Number	Pounds	Number	Pounds	Number	Pounds
<b>Age 1.0</b>						
9/10	—	—	—	—	—	—
9/17	3	3	—	—	3	3
9/24	21	30	—	—	21	30
10/01	28	43	—	—	28	43
10/08	7	12	—	—	7	12
10/15	—	—	—	—	—	—
10/22	5	9	—	—	5	9
10/29	23	42	—	—	23	42
11/05	—	—	—	—	—	—
11/19	—	—	—	—	—	—
11/26	—	—	—	—	—	—
Total	87	139	—	—	87	139
(Percent)	(2.9)	(0.7)	—	—	(2.9)	(0.7)
<b>Age 2.0</b>						
9/10	54	71	—	—	54	71
9/17	17	24	3	7	20	31
9/24	14	22	3	6	17	28
10/01	46	85	—	—	46	85
10/08	13	21	7	14	20	35
10/15	—	—	—	—	—	—
10/22	—	—	—	—	—	—
10/29	57	115	—	—	57	115
11/05	—	—	—	—	—	—
11/19	2	6	2	6	4	12
11/26	—	—	—	—	—	—
Total	203	344	15	33	218	378
(Percent)	(6.7)	(1.7)	(0.5)	(0.2)	(7.2)	(1.8)
<b>Age 1.1</b>						
9/10	—	—	—	—	—	—
9/17	3	11	3	13	6	24
9/24	10	43	17	93	27	136
10/01	9	28	19	111	28	139
10/08	7	31	13	80	20	111
10/15	83	503	33	202	116	705
10/22	4	22	—	—	4	22
10/29	8	41	15	78	23	119
11/05	—	—	—	—	—	—
11/19	7	28	5	33	12	61
11/26	—	—	—	—	—	—
Total	131	707	105	610	236	1,317
(Percent)	(4.3)	(3.4)	(3.5)	(2.9)	(7.8)	(6.4)

Table 15.—Continued:

Week beginning	Male		Female		Total	
	Number	Pounds	Number	Pounds	Number	Pounds
<b>Age 2.1</b>						
9/10	—	—	54	274	54	274
9/17	19	93	26	146	45	239
9/24	14	86	41	240	55	326
10/01	65	399	74	392	139	791
10/08	53	276	83	498	136	774
10/15	17	103	164	916	181	1,019
10/22	16	97	16	92	32	189
10/29	68	458	113	643	181	1,101
11/05	—	—	—	—	—	—
11/19	37	210	30	168	67	378
11/26	1	6	—	—	1	6
Total	290	1,728	601	3,369	891	5,097
(Percent)	(9.6)	(8.3)	(19.9)	(16.3)	(29.5)	(24.6)
<b>Age 1.2</b>						
9/10	—	—	—	—	—	—
9/17	14	130	25	211	39	341
9/24	21	209	24	191	45	400
10/01	19	174	37	314	56	488
10/08	33	288	46	362	79	650
10/15	99	869	83	639	182	1,508
10/22	3	23	8	68	11	91
10/29	53	499	38	307	91	806
11/05	—	—	1	7	1	7
11/19	14	94	9	68	23	162
11/26	—	—	—	—	—	—
Total	256	2,286	271	2,167	527	4,453
(Percent)	(8.5)	(11.0)	(9.0)	(10.5)	(17.5)	(21.5)
<b>Age 2.2</b>						
9/10	54	560	54	417	108	977
9/17	20	203	8	60	28	263
9/24	27	249	7	53	34	302
10/01	119	1,116	19	157	138	1,273
10/08	33	311	40	320	73	631
10/15	99	786	231	1,892	330	2,678
10/22	7	66	8	61	15	127
10/29	23	196	45	445	68	641
11/05	—	—	1	9	1	9
11/19	16	134	30	227	46	361
11/26	—	—	1	7	1	7
Total	398	3,621	444	3,648	842	7,269
(Percent)	(13.2)	(17.5)	(14.7)	(17.6)	(27.9)	(35.1)



Table 15.—Continued:

Week beginning	Male		Female		Total	
	Number	Pounds	Number	Pounds	Number	Pounds
<b>Age 1.3</b>						
9/10	—	—	—	—	—	—
9/17	—	—	6	54	6	54
9/24	3	26	—	—	3	26
10/01	9	101	—	—	9	101
10/08	—	—	13	123	13	123
10/15	—	—	17	139	17	139
10/22	4	38	1	8	5	46
10/29	15	182	8	51	23	233
11/05	—	—	—	—	—	—
11/19	—	—	7	65	7	65
11/26	—	—	—	—	—	—
Total	31	347	52	440	83	787
(Percent)	(1.0)	(1.7)	(1.7)	(2.1)	(2.8)	(3.8)
<b>Age 2.3</b>						
9/10	—	—	—	—	—	—
9/17	6	58	—	—	6	58
9/24	—	—	—	—	—	—
10/01	—	—	—	—	—	—
10/08	7	52	—	—	7	52
10/15	33	342	33	340	66	682
10/22	4	32	4	33	8	65
10/29	15	117	—	—	15	117
11/05	—	—	—	—	—	—
11/19	2	15	2	16	4	31
11/26	—	—	—	—	—	—
Total	67	616	39	389	106	1,005
(Percent)	(2.2)	(3.0)	(1.3)	(1.9)	(3.5)	(4.9)
<b>Age 2.4</b>						
9/10	—	—	—	—	—	—
9/17	—	—	3	30	3	30
9/24	—	—	—	—	—	—
10/01	—	—	—	—	—	—
10/08	7	59	—	—	7	59
10/15	—	—	—	—	—	—
10/22	—	—	—	—	—	—
10/29	—	—	8	74	8	74
11/05	—	—	—	—	—	—
11/19	—	—	—	—	—	—
11/26	—	—	—	—	—	—
Total	7	59	11	104	18	163
(Percent)	(0.2)	(0.3)	(0.4)	(0.5)	(0.6)	(0.8)

Table 15.—Continued:

Week beginning	Male		Female		Total	
	Number	Pounds	Number	Pounds	Number	Pounds
<b>Age 2.5</b>						
9/10	—	—	—	—	—	—
9/17	—	—	—	—	—	—
9/24	—	—	—	—	—	—
10/01	—	—	—	—	—	—
10/08	7	77	—	—	7	77
10/15	—	—	—	—	—	—
10/22	—	—	1	15	1	15
10/29	—	—	—	—	—	—
11/05	—	—	—	—	—	—
11/19	—	—	—	—	—	—
11/26	—	—	—	—	—	—
<b>Total</b>	7	77	1	15	8	92
<b>(Percent)</b>	(0.2)	(0.4)	(0.0)	(0.1)	(0.3)	(0.4)

Table 16.—Mean total length (inches) and weight (pounds), by age and sex, of steelhead passed at the lower Platte River weir, fall 1990. Two standard errors in parentheses.

Week beginning	Measure- ment	Age 1.0		Age 2.0		Age 1.1	
		Male	Female	Male	Female	Male	Female
9/10	Length	—	—	14.3	—	—	—
	Weight	—	—	1.3	—	—	—
9/17	Length	14.8	—	15.1 (0.4)	17.4	20.9	21.7
	Weight	0.9	—	1.4 (0.1)	2.2	3.7	4.2
9/24	Length	14.5 (0.7)	—	15.5 (0.5)	16.7	21.8 (2.3)	23.7 (1.0)
	Weight	1.4 (0.2)	—	1.6 (0.2)	2.0	4.3 (1.0)	5.5 (1.0)
10/01	Length	14.6 (0.6)	—	15.8 (0.6)	—	19.0	24.4 (0.4)
	Weight	1.5 (0.3)	—	1.9 (0.3)	—	3.1	5.8 (0.7)
10/08	Length	15.6	—	15.7 (2.1)	15.9	21.3	24.6 (2.1)
	Weight	1.8	—	1.7 (1.1)	2.0	4.4	6.2 (2.2)
10/15	Length	—	—	—	—	24.2 (2.0)	24.6 (1.8)
	Weight	—	—	—	—	6.1 (1.8)	6.1 (1.7)
10/22	Length	15.8 (0.5)	—	—	—	22.8 (1.4)	—
	Weight	1.8 (0.2)	—	—	—	5.4 (0.8)	—
10/29	Length	16.0 (0.6)	—	16.7 (0.6)	—	23.9	23.3 (3.3)
	Weight	1.8 (0.3)	—	2.0 (0.2)	—	5.1	5.2 (2.0)
11/05	Length	—	—	—	—	—	—
	Weight	—	—	—	—	—	—
11/19	Length	—	—	18.3	18.4	21.7 (4.7)	25.0 (5.0)
	Weight	—	—	3.1	2.9	4.0 (1.8)	6.6 (3.5)
11/26	Length	—	—	—	—	—	—
	Weight	—	—	—	—	—	—
Weighted seasonal mean	Length	15.1 (0.3)	—	15.6 (0.3)	16.7	23.2 (1.5)	24.2 (0.8)
	Weight	1.6 (0.1)	—	1.7 (0.1)	2.1	5.4 (1.4)	5.8 (0.7)
Sexes combined	Length	15.1 (0.3)	—	15.7 (0.3)	—	23.6 (0.8)	—
	Weight	1.6 (0.1)	—	1.7 (0.1)	—	5.6 (0.7)	—

Table 16.—Continued:

Week beginning	Measure- ment	Age 2.1		Age 1.2		Age 2.2	
		Male	Female	Male	Female	Male	Female
9/10	Length	—	23.3	—	—	31.3	27.5
	Weight	—	5.1	—	—	10.4	7.7
9/17	Length	22.3 (1.4)	23.6 (0.6)	28.4 (1.7)	26.9 (1.0)	29.2 (1.3)	26.4 (1.1)
	Weight	4.9 (1.1)	5.6 (0.6)	9.3 (1.2)	8.4 (1.2)	10.1 (1.9)	7.5 (1.2)
9/24	Length	24.5 (3.1)	23.9 (1.0)	29.4 (1.3)	26.6 (0.6)	29.3 (0.5)	27.1 (1.3)
	Weight	6.2 (2.1)	5.8 (0.8)	10.0 (1.4)	8.0 (1.2)	9.2 (0.7)	7.6 (1.5)
10/01	Length	23.9 (1.9)	23.4 (0.9)	29.2 (1.5)	27.6 (0.7)	28.6 (0.8)	27.8 (0.2)
	Weight	6.1 (1.3)	5.3 (0.6)	9.1 (2.0)	8.5 (0.8)	9.4 (0.8)	8.3 (0.2)
10/08	Length	23.4 (1.1)	24.1 (0.8)	28.0 (0.7)	26.8 (1.2)	28.5 (1.1)	26.7 (1.8)
	Weight	5.2 (0.7)	6.0 (0.5)	8.7 (0.5)	7.9 (1.1)	9.4 (1.1)	8.0 (1.3)
10/15	Length	24.3 —	24.1 (1.1)	28.4 (2.4)	26.3 (1.2)	27.8 (1.4)	27.1 (0.9)
	Weight	6.1 —	5.6 (0.6)	8.8 (1.7)	7.7 (1.0)	7.9 (1.0)	8.2 (0.7)
10/22	Length	24.4 (0.7)	24.0 (0.7)	26.5 (1.7)	26.9 (0.8)	29.2 (1.1)	26.7 (0.9)
	Weight	6.0 (0.5)	5.8 (0.3)	7.7 (0.4)	8.5 (0.7)	9.5 (1.1)	7.7 (0.5)
10/29	Length	25.5 (1.9)	23.9 (0.5)	29.0 (0.8)	27.1 (1.3)	28.3 (4.4)	29.0 (0.7)
	Weight	6.7 (1.3)	5.7 (0.3)	9.4 (1.1)	8.1 (0.9)	8.5 (3.7)	9.9 (1.0)
11/05	Length	—	—	—	25.4	—	28.2
	Weight	—	—	—	6.8	—	8.8
11/19	Length	24.3 (0.9)	23.7 (0.9)	25.5 (1.6)	26.5 (1.2)	28.8 (1.5)	26.7 (0.5)
	Weight	5.7 (0.6)	5.6 (0.6)	6.7 (1.4)	7.6 (1.4)	8.3 (1.0)	7.6 (0.5)
11/26	Length	26.3	—	—	—	—	27.1
	Weight	5.5	—	—	—	—	7.3
Weighted seasonal mean	Length	24.2 (0.7)	23.8 (0.4)	28.4 (0.9)	26.8 (0.5)	28.8 (0.6)	27.3 (0.5)
	Weight	6.0 (0.5)	5.6 (0.2)	8.9 (0.7)	8.0 (0.4)	9.1 (0.5)	8.2 (0.5)
Sexes combined	Length	24.0 (0.3)	—	27.6 (0.5)	—	28.0 (0.6)	—
	Weight	5.7 (0.2)	—	8.4 (0.4)	—	8.6 (0.4)	—

Table 16.—Continued:

Week beginning	Measurement	Age 1.3		Age 2.3		Age 2.4	
		Male	Female	Male	Female	Male	Female
9/10	Length	—	—	—	—	—	—
	Weight	—	—	—	—	—	—
9/17	Length	—	28.1 (0.6)	30.5 (0.8)	—	—	30.0
	Weight	—	8.9 (0.7)	9.7 (1.8)	—	—	9.9
9/24	Length	29.8	—	—	—	—	—
	Weight	8.6	—	—	—	—	—
10/01	Length	31.8	—	—	—	—	—
	Weight	11.2	—	—	—	—	—
10/08	Length	—	28.3 (1.3)	27.6	—	28.7	—
	Weight	—	9.5 (0.4)	7.5	—	8.4	—
10/15	Length	—	27.6	29.9 (5.7)	29.2 (1.7)	—	—
	Weight	—	8.2	10.4 (6.2)	10.3 (0.3)	—	—
10/22	Length	28.5 (1.9)	27.2	27.0 (3.5)	28.7 (0.9)	—	28.7
	Weight	9.6 (3.0)	8.4	8.0 (2.3)	8.2 (1.4)	—	9.3
10/29	Length	32.3 (0.1)	25.4	28.7 (0.7)	—	—	—
	Weight	12.1 (1.8)	6.4	7.8 (1.1)	—	—	—
11/05	Length	—	—	—	—	—	—
	Weight	—	—	—	—	—	—
11/19	Length	—	28.5 (0.4)	26.9	27.6	—	—
	Weight	—	9.3 (2.0)	7.5	7.9	—	—
11/26	Length	—	—	—	—	—	—
	Weight	—	—	—	—	—	—
Weighted seasonal mean	Length	31.4 (0.2)	27.6 (0.6)	29.2 (3.2)	29.0 (1.4)	28.7	29.0
	Weight	11.2 (1.3)	8.5 (0.5)	9.2 (3.4)	10.0 (0.3)	8.4	9.4
Sexes combined	Length	—	29.1 (1.8)	—	29.1 (1.6)	—	28.9
	Weight	—	9.5 (1.6)	—	9.5 (1.6)	—	9.0

Table 16.—Continued:

Week beginning	Measure- ment	Age 2.5	
		Male	Female
9/10	Length	—	—
	Weight	—	—
9/17	Length	—	—
	Weight	—	—
9/24	Length	—	—
	Weight	—	—
10/01	Length	—	—
	Weight	—	—
10/08	Length	30.9	—
	Weight	11.0	—
10/15	Length	—	—
	Weight	—	—
10/22	Length	—	34.6
	Weight	—	15.4
10/29	Length	—	—
	Weight	—	—
11/05	Length	—	—
	Weight	—	—
11/19	Length	—	—
	Weight	—	—
11/26	Length	—	—
	Weight	—	—
Weighted seasonal mean	Length	30.9	34.6
	Weight	11.0	15.4
Sexes combined	Length	31.4	
	Weight	11.6	

Table 17.—Age composition, mean length (inches), and mean weight (pounds) summarized by summers growth in Lake Michigan, for steelhead trout sampled at the lower Platte River weir, fall 1990.

Age	Summers in lake	Percent of sample	Mean length (inches)	Mean weight (pounds)
_.0	1	10.1	15.5	1.7
_.1	2	37.3	23.9	5.7
_.2	3	45.4	27.8	8.5
_.3	4	6.3	29.1	9.5
_.4	5	0.6	28.9	9.0
_.5	6	0.3	31.4	11.6
All			25.2	6.8

Table 18.—Summary of fall steelhead runs in the lower Platte River, 1980-90.

Year	Total run	Mean length (inches)	Mean weight (pounds)	Lake age - percentage composition					
				_.0	_.1	_.2	_.3	_.4	_.5
1980	216	24.9	7.2	—	—	—	—	—	—
1981	682	25.0	6.7	—	—	—	—	—	—
1982	1,276	24.3	6.6	—	—	—	—	—	—
1983	1,898	25.6	7.5	—	—	—	—	—	—
1984	1,693	22.8	5.5	30.1	42.0	26.4	1.4	0.0	0.0
1985	1,189	25.2	6.1	15.2	28.4	55.1	1.2	0.0	0.0
1986	707	24.1	6.1	18.5	33.3	37.1	11.1	0.0	0.0
1987	2,963	25.1	6.6	19.4	7.8	64.9	7.9	0.0	0.0
1988	974	23.2	5.4	31.5	23.0	39.6	5.6	0.0	0.0
1989	973	22.9	5.5	30.8	31.3	30.4	6.8	0.5	0.1
1990	3,016	25.2	6.8	10.1	37.3	45.4	6.3	0.6	0.3



Table 19.—Number of coho salmon harvested at the upper Platte River weir, fall 1990.

Date	Jacks	Males	Females		Mortalities
			Round	Stripped	
10/11	48	53	27	0	1,098 <sup>1</sup>
10/12	244	898	203	823	101
Weekly total	292	951	230	823	1,199
10/15	380	1,042	153	1,081	184
10/16	321	808	133	882	61
10/17	113	182	23	236	16
10/18	134	102	102	370	8
Weekly total	948	2,134	411	2,569	269
10/24	225	221	143	181	17
Weekly total	225	221	143	181	17
11/02	46	17	10	0	16
Weekly total	46	17	10	0	16
12/07	3	25	18	0	84 <sup>2</sup>
Weekly total	3	25	18	0	84
Annual total	1,514	3,348	812	3,573	1,585 <sup>3</sup>

<sup>1</sup>Includes all mortality prior to October 12, 1990.

<sup>2</sup>Includes all mortality after November 6, 1989.

<sup>3</sup>Mortality included 1,554 adults and 31 jacks.

Table 20.—Weight (pounds) of coho salmon harvested at the upper Platte River weir, fall 1990.

Date	Jacks	Males	Females		Mortalities
			Round	Stripped	
10/11	73	373	181	0	7,377
10/12	368	6,313	1,360	4,135	673
Weekly total	441	6,686	1,541	4,135	8,050
10/15	574	7,325	1,025	5,432	1,250
10/16	485	5,680	891	4,432	416
10/17	171	1,279	154	1,186	98
10/18	202	717	683	1,859	55
Weekly total	1,432	14,911	2,753	12,909	1,819
10/24	344	1,481	952	904	108
Weekly total	344	1,481	952	904	108
11/02	65	140	56	0	92
Weekly total	65	140	56	0	92
12/07	2	153	100	0	471
Weekly total	2	153	100	0	471
Annual weight	2,285	23,231	5,402	17,948	10,540
Mean weight	1.5	7.0	6.6	5.0	6.6

Table 21.—Number and weight (pounds) of chinook salmon harvested in the upper Platte River weir, fall 1990.

Date	Male Jacks	Female adults	adults	Mortality	Total
<b>Oct 8-14</b>					
Number	3	5	0	3	11
Weight	14	57	40	27	98
<b>Oct 15-21</b>					
Number	16	9	0	3	28
Weight	59	99	0	26	184
<b>Oct 24</b>					
Number	6	1	0	1	8
Weight	15	8	0	3	26
<b>Nov 2</b>					
Number	2	0	0	0	2
Weight	4	0	0	0	4
Annual total number	27	15	0	7	49
Annual total weight	92	164	0	56	312
Mean weight	3.4	10.9	—	8.0	6.4

## References

- Pecor, C. H. 1989. Platte River harvest weir and coho salmon egg-take report, 1988. Michigan Department of Natural Resources, Fisheries Technical Report 89-4, Ann Arbor.
- Pecor, C. H. 1990. Platte River harvest weir and coho salmon egg-take report, 1989. Michigan Department of Natural Resources, Fisheries Technical Report 90-5, Ann Arbor.
- Ryckman, J. R. 1991. Platte River creel survey, fall season, 1990. Michigan Department of Natural Resources, Fisheries Division, Ann Arbor, unpublished.

Report approved by W. C. Latta  
Richard D. Clark, Jr., Editor  
Kelley D. Smith, Editorial Board Reviewer  
Alan D. Sutton, Graphics  
Grace M. Zurek, Word Processor