

Summary of the 1966-67 winter steelhead fishery on the Alsea and Wilson rivers

The fisheries

Alsea River

For the first time since the initiation of the sampling program on the Alsea River, no increase in activity occurred in 1966-67 (Table 1). An estimated total of 26,100 angler days expended was comparable to the 26,700 angler days estimated for 1965-66^{1/}.

An estimated total of 5,039 fish was taken by the fishery of which 1,462 (29 percent) were from natural reproduction and 3,576 (71 percent) were of hatchery origin (Table 1). The total catch decreased approximately 1,900 fish from the 1965-66 seasonal total. The catch of wild fish was the highest yet recorded.

The decline in the catch of hatchery fish below that of 1963-64 and 1965-66 seasons is, in part, a reflection of the 30 percent reduction in stocking rate that occurred in the spring of 1965, and a result of a rapid movement of the mature hatchery fish upstream through the fishery as indicated by escapement data.

Approximately 3,600 hatchery fish escaped the sport fishery and were recovered at the trap. The escapement was the second highest recorded. A total of 758 wild fish was recovered.

Hatchery fish were recovered at the rate of 0.032 fish per hour in the fishery which was similar to the rate estimated in 1961-62 and 1964-65. Fishing success for wild fish increased from a low of 0.007 in 1965-66 to 0.012 in 1966-67 which was comparable to the 1964-65 level but still below the previous five season average of 0.019 fish per hour.

^{1/}See Table 2 in Fishery Report #5.

Many of the wild fish returning on their spawning migration were in the stream as juveniles in the 1964-65 flood. They were successful in withstanding the high water which existed repeatedly during that winter.

Wilson River

Fishing pressure declined on the Wilson River in 1966-67 to an estimated total of 21,580 angler days of use (Table 1) from a high of 30,280 in 1965-66. The catch of wild and hatchery fish, fishing success, and effort were similar to the 1963-64 season. In 1966-67, about 5,450 steelhead were caught of which 3,500 (64 percent) were of hatchery origin and 1,950 (36 percent) originated from natural reproduction. The decline in the total catch of hatchery fish is in part a function of the reduction in angling activity and, possibly, survival rate. The lack of escapement data prevents pinpointing the actual cause(s). Stocking rates have remained constant at about 100,000 fish each spring for the Wilson.

Wild and hatchery fish were caught at the rate of 0.021 and 0.036 fish per hour, respectively. Fishing success in 1966-67 was similar to previous years^{2/}.

Wild stocks on the Alsea and Wilson rivers appear to be relatively stable as indicated by total catch figures over the period 1960-67. There appears to be neither a sustained decline in abundance as a result of the large introduction of hatchery fish and increased angler activity nor increases in abundance as a result of the addition of adult hatchery fish to the spawning populations. Escapement of fish to the spawning tributaries might be more than sufficient at the present time to seed the stream to capacity. Additional escapement of hatchery spawners is not needed.

^{2/} See Table 3, Fishery Report #5.

Effects of boundary extension on the upper Wilson River fishery

In January of 1967, the upper angling boundary was advanced approximately five miles upstream from the Highway 6 bridge at Lee's Camp to the mouth of the South Fork which represents approximately a 75 percent increase in area open to the angler (in the upper Wilson River.) There has been some concern that adult steelhead in the new area would be particularly vulnerable to the fishery because the area was believed to be used for spawning.

Some indication of the influence of the boundary extension upon total catch can be gained through an examination of the 1966-67 upper river fishery statistics (catch, effort and success) with those for the five previous years (Table 2). The upper river fishery in 1966-67 appears to be similar to those observed in the previous seasons, particularly with respect to effort.

A breakdown of the effort and catch statistics between the new (Lee's Camp to the South Fork) and old (Jordan Creek to Lee's Camp) areas of the upper Wilson River can be seen in Tables 3 and 4, respectively. The new area received about 32 percent of the effort expended in the upper river (Table 3). In the new area, 173 anglers were interviewed. They had caught 17 fish at the rate of 0.032 fish per hour (Table 4). A total of 358 anglers with 28 fish was interviewed in the old area and had a success rate of 0.032 fish per hour. The ratio of marked to unmarked fish was similar for the two areas.

It appears that there was (no increase in effort in the upper area) as a result of the boundary changes but there was a redistribution of effort. Fishing success was similar for the new and old areas. Fishing success in 1966-67 for the upper river as a whole was similar to the success in previous years. As a result, the total harvest remained similar to other years. A potential increase in harvest in the upper area might be expected as the fishing pressure increases in the new area, since fish availability appears to be similar for the old and new areas.

The effects of the three-fish bag limit on total harvest on the Wilson River.

Table 5 presents the distribution of observed catch with respect to the number of anglers catching no fish, one fish, two fish, and three fish for a period covering six migratory seasons on the Wilson River. The results observed in 1967-68 were generally similar to those observed in 1966-67. The 290 "completed" anglers interviewed had caught 96 fish of which 8 (8.3 percent) were the "third fish". Theoretically, the total catch was increased by 8.3 percent or 452 fish as a result of the three-fish bag limit.

It should be kept in mind that the appearance of three fish in an angler's bag could have occurred without any increase in catch as a result of an angler acknowledging ownership of the "third fish", whereas prior to the three-fish bag limit the fish would have been claimed by a non-successful member of the angler party.

The hours fished in 1966-67 by "completed" and "incompleted" anglers are similar to those observed in previous years. The number of anglers catching more than two fish is so small that the additional time spent fishing for the third fish does not influence the mean hours-per-angler statistics. The three-fish bag limit appears to be of benefit to the better fishermen who represent only a small proportion of the total angling population.

The change in daily bag limit from two to three fish has resulted in an 8 to 11 percent (452-878 fish) increase in total harvest in the last two migratory seasons. It is apparent that an increase in daily bag or weekly possession limits are not going to result in a greatly increased harvest of winter steelhead. Daily, weekly and/or seasonal bag limits for winter steelhead in Oregon coastal streams receiving hatchery stocking probably could be liberalized

- 4% of anglers caught third st.
- Increase total catch by 8-11%.
- 20 caught 100% of the st.

without jeopardizing future stock size. A less restrictive bag limit would benefit only the skilled angler. It is necessary to make an assumption that the additional fish caught by the skilled angler would not have been caught by the less efficient angler with increased effort.

Table 1. Estimates of effort, catch and fishing success for wild and marked steelhead on the Alsea and Wilson rivers in 1966-67.

River	Alsea	Wilson
<u>Fishing intensity</u>		
Angler days	26,086	21,576
<u>Catch</u>		
Wild fish	1,462 (29%)	1,950 (36%)
Marked fish	3,576 (71%)	3,504 (64%)
Total fish	5,039 (100%)	5,454 (100%)
<u>Fishing success</u>		
Wild fish per hour	0.012	0.021
Marked fish per hour	0.032	0.036
Total fish per hour	0.044	0.057

Table 2. Estimated catch, effort and fishing success for the upper Wilson River for the 1961-67 period.

Migratory season	Estimated catch(\pm S.E.)	Fishing success (fish-per-hour)	Angler days
1961-62	499 \pm 70	0.024	4,720
1962-63	828 \pm 161	0.034	5,292
1963-64	1,253 \pm 133	0.046	6,413
1964-65	1,439 \pm 265	0.050	4,428
1965-66	1,068 \pm 145	0.032	7,095
1966-67	927 \pm 155	0.043	5,198

Table 3. Distribution of fishing effort for two areas in the upper Wilson River in January, February and March, 1967

Location	Month	Cars counted (percent)			Total
		January	February	March	
Jordan Cr. to Lee's Camp		295(60)	422(73)	66(86)	783(68)
Lee's Camp to South Fork		197(40)	157(27)	11(14)	365(32)
Total		492(100)	579(100)	77(100)	1,148(100)

Table 4. Distribution of catch and comparative fishing success from observed anglers on the upper Wilson River in January, February and March, 1967.

Location	Month			Total
	January	February	March	
<u>Jordan Cr. to Lee's Camp</u>				
Anglers interviewed	122	180	56	358
Hours fished	291	424	159	874
Wild steelhead	1	5	3	9
Marked steelhead	6	8	5	19
Total fish	7	13	8	28
Fish per hour	0.024	0.031	0.050	0.032
<u>Lee's Camp to South Fork</u>				
Anglers interviewed	99	69	5	173
Hours fished	318	186	12	516
Wild steelhead	3	1	0	4
Marked steelhead	6	7	0	13
Total fish	9	8	0	17
Fish per hour	0.028	0.043	0.0	0.032

Table 5. The distribution of observed catch and hours per angler among "complete" and "incomplete" anglers interviewed on the Wilson River over six migratory seasons.

	Season	Number of anglers catching no fish (percent)	Number of anglers catching one fish (percent)	Number of anglers catching two fish (percent)	Number of anglers catching three fish (percent)	Number of anglers catching fish (percent)	Hours per angler week days	Hours per angler weekend days
<i>Incomplete</i>	1961-62	5,081(93.3)	363(6.7)			363(6.7)	2.41	2.47
	1962-63	3,319(89.8)	379(10.2)			379(10.2)	2.70	3.04
	1963-64	4,024(87.7)	564(12.3)			564(12.3)	2.47	2.88
	1964-65	2,250(83.9)	431(16.0)	2(0.1)	0	433(16.1)	2.60	2.75
	1965-66	4,020(88.1)	436(9.6)	104(2.3)	0	540(11.9)	2.52	2.79
	1966-67	1,787(88.9)	190(9.4)	35(1.7)	0	225(11.2)	2.67	2.90
<i>Complete</i>	1961-62	184(76.7)	27(11.2)	29(12.1)		56(23.3)	4.85	4.37
	1962-63	352(73.3)	88(18.3)	40(8.3)		128(26.6)	4.47	4.57
	1963-64	356(69.4)	108(21.0)	49(9.6)		157(30.6)	5.13	4.98
	1964-65	299(79.7)	63(16.8)	9(2.4)	4(1.1)	76(20.3)	5.33	5.01
	1965-66	357(77.6)	61(13.3)	24(5.2)	18(3.9)	103(22.4)	4.62	4.91
	1966-67	227(78.3)	38(13.1)	17(5.9)	8(2.7)	63(21.7)	5.07	4.22
<i>Combined</i>	1961-62	5,265(92.6)	390(6.9)	29(0.5)		419(7.4)		
	1962-63	3,671(87.9)	467(11.2)	40(0.9)		507(12.1)		
	1963-64	4,380(85.9)	672(13.2)	49(0.9)		721(14.1)		
	1964-65	2,549(82.4)	494(16.0)	47(1.5)	4(0.1)	545(17.6)		
	1965-66	4,377(87.2)	497(9.9)	128(2.5)	18(0.4)	643(12.8)		
	1966-67	2,014(87.5)	228(9.9)	52(2.3)	8(0.3)	288(12.5)		