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YREKA, CA

2000 Chinook Salmon Spawning Ground Survey

Klamath National Forest

Final Report

Prepared by

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ABSTRACT

Cooperative spawner escapement surveys between the Forest Service, California Department of Fish and Game, and local volunteers have occurred since 1992. In recent years the Karuk and Yurok tribes have also been involved as cooperators. These surveys are used to estimate the total in-river run of fall chinook salmon for the Klamath Fisheries Management Council, and the Pacific Fisheries Management Council, to use in determining the next years harvest allocations.

The Salmon River, Scott River, and mid-Klamath River tributaries are surveyed on an annual basis with both carcass mark/recapture and redd count methodologies. The redd surveys are used in the mid-Klamath tributaries, Wooley Creek, and the lower Salmon River. The carcass mark/recapture methodology is used in conjunction with redd surveys on the Salmon above Nordheimer Creek, and Scott River. The cooperative survey began October 16, 2000 and ended November 28, 2000.

An estimated run of 1,772 fish returned to the Salmon River, 6,253 fish returned to the Scott River, and 2,312 returned to miscellaneous mid-Klamath River tributaries. The Salmon River spawning was concentrated in those reaches that have historically had heavy spawning. The Scott River spawning distribution is flow dependent with the valley having the highest concentration of spawning in higher flow years, and the canyon having the highest concentration of spawning during low flow years. The Scott River 2000 surveys found the concentration of spawning in the Meamber to USGS gage reach. This historically is a heavily utilized reach during higher flow years.

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INTRODUCTION

Prior to the cooperative effort between the Forest Service (USFS), California Department of Fish and Game (CDFG), and the tribes, weirs or racks were in the Salmon and Scott Rivers. This methodology became controversial as different publics became concerned over the effects the racks were having on fish survival, fish distribution and their ability to get to spawning areas, and the propensity of certain individuals to poaching fish congregating below the racks. The ability to collect the same data without the above side effects on the fish was a driving factor in developing the current data gathering techniques on the Salmon and Scott Rivers.

Over the past twenty-four years, the California Department of Fish and Game (CDFG) has been charged with determining chinook salmon (*Oncorhynchus tshawytscha*) spawner escapement in the Klamath River. The data generated by CDFG has been and continues to be valuable for the Klamath Fisheries Management Council's (KFMC) and the Pacific Fisheries Management Council's (PFMC) determination of harvest allocations for the management of Klamath River fish stocks. CDFG now uses a combination of counting weirs, spawner carcass surveys, redd (fish nest) surveys, and hatchery returns to develop these important estimates.

CDFG, Six Rivers National Forest (SRNF), and the Klamath National Forest (KNF) (hereafter referred to as the USFS) have conducted chinook spawner surveys for many years. Since each agency has different missions, the objectives for these surveys were always slightly different. Beginning in 1992, shrinking budgets in both State and Federal programs, combined with a desire to increase cooperative operations between agencies, the CDFG and the USFS joined forces to accomplish spawner escapement surveys. These surveys included cooperation from the Karuk Tribal government, Yurok Tribal Government, local volunteers, members of the Salmon River Restoration Council, Scott Valley CRMP, and public schools. This cooperative effort has improved the accuracy of CDFG estimates.

For FY 2001, the USFS, CDFG, Karuk, and the Yurok conducted chinook salmon spawning ground surveys within the Salmon River Sub-basin, Scott River Sub-basin, and mid-Klamath River tributaries. Volunteers consisted of the Salmon River Restoration Council and students from local schools. A combination of redd counts, and mark and recapture carcass counts, were completed to assess spawner escapement and habitat utilization in these water bodies. This report summarizes the redd count portion of the survey. A separate report (Mega Table) will be prepared by CDFG biologists for the population estimates to be used by the KFMC and PFMC.

The Cooperative effort with CDFG began October 16, 2000 and ended November 28, 2000 (Table 1).

Table 1. Survey Schedule for Salmon River, Scott River, and Tributaries.

Survey Week	Salmon River Monday	Scott River Tuesday	Tributaries Wednesday	Salmon River Thursday	Scott River Friday
1	10/16	10/17	10/18	10/19	10/20
2	10/23	10/24	10/25	10/26	10/27
3	10/30	10/31	11/1	11/2	11/3
4	11/6	11/7	11/8	11/9	11/10
5	11/13	11/14	11/15	11/16	11/17
6	11/20	11/21	11/22	Thanksgiving	Off
7	11/27	11/28			

METHODS AND MATERIALS

The USFS and CDFG held two training sessions for agency employees, tribal employees, and volunteers. On October 10 and 11, 2000, the redd survey/carcass count training was held at Petersburg Guard Station on the Upper South Fork of the Salmon River. On September 26 whitewater training was conducted on the Shasta River. On September 27 and October 11, whitewater training was conducted on the Salmon River. All participants had to attend both the survey and whitewater training sessions regardless of past experience.

Crews conducted two concurrent surveys, redd counts and carcass counts, on cooperative reaches in the Salmon and Scott Rivers. In addition, other tributaries had only redd surveys completed (Table 2). A typical crew consisted of two people. Each crew walked two to five miles of the river each survey day unless health and safety concerns limited crews abilities to survey. Crews identified, counted, and marked redds a minimum of once per week within the carcass count reaches. However, surveying for redds each survey date was found to be most efficient in keeping up with the heavily utilized areas where redd superimposition occurred. Each redd was marked by tying pink or orange flagging to adjacent vegetation on the river bank.

Where redd superimposition occurred, the number of redds observed that survey date were compared to the number of flags identifying redds at that site. If there were more redds observed than flags counted, the additional redds were flagged and counted. If there was no difference between the number of redds observed and flags counted, the surveyor moved on. If less redds were observed than flags counted, it was noted in the notes section and the surveyor moved on. The objective with the redd surveys was to be conservative. Therefore, where there was redd superimposition, we did not try and determine which redds were new, or which redds were lost when there was no difference in number of or loss in observed redds. The final count of redds for that site was the number of flags counted.

Table 2. Reach and survey descriptions at Base effort level for Mid-Klamath River chinook salmon surveys.

STREAM REACH	SURVEY TYPE	BASE COVERAGE
SALMON RIVER		
North Fork		
8 - 4	Carcass mark & recapture	2 times /wk
4- Forks	Carcass mark & recapture	2 times /wk
South Fork		
Matthews - Indian ¹	Carcass mark & recapture	2 times /wk
Indian - O'Farrill ¹	Carcass mark & recapture	2 times /wk
O'Farrill - Henry Bell ¹	Carcass mark & recapture	2 times /wk
Henry Bell - Forks ¹	Carcass mark & recapture	2 times /wk
Mainstem Salmon		
Forks - Nordheimer	Carcass mark & recapture	2 times /wk
Nordheimer - Grants	Redd Count	1 per season
Grants - Wooley	Redd Count	1 per season
Wooley - Mouth	Redd Count	1 per season
Wooley Creek		
Bridge Ck - Gates Ck	Redd Count	1 per season
Gates Ck - Mouth	Redd Count	1 per season
NF Wooley - Bridge Ck	Redd Count	1 per season
SCOTT RIVER		
Fay Lane - Mouth ^{2,4} (15 reaches)	Carcass mark & recapture	2 /wk for 6 reaches
MID-KLAMATH TRIBUTARIES		
Beaver Creek		
Campground - Mouth ⁴	Redd Count	2 per season
Clear Creek		
Slippery Ck - Mouth	Redd Count	1 every 2 weeks
Dillon Creek		
Mile 3 - Mouth	Redd Count	1 every 2 weeks
Elk Creek		
Bear Ck - Doolittle Ck	Redd Count	1 every 2 weeks
Doolittle Ck - Twins Ck	Redd Count	1 every 2 weeks
Twins Ck - 5 mile bridge	Redd Count	1 every 2 weeks
5 mile bridge - Mouth	Redd Count	1 every 2 weeks

Table 2. Reach and survey descriptions for Base effort level for Mid-Klamath River chinook salmon surveys (continued).

Grider Creek		
Bark Shanty – Campground	Redd Count	1 every 2 weeks
SHASTA RIVER ³		
Yreka Ck - Pioneer Bridge	Carcass mark & recapture	1 every week
Pioneer Bridge - Mouth	Carcass mark & recapture	1 every week
¹ These two reaches have been split (Matthews - O'Farrill and O'Farrill - Forks). Due to heavy use by fish, many times the full reaches cannot be done in one day.		
² Reach selection is influenced by water year.		
³ The Shasta River is surveyed by California Department of Fish and Game.		
⁴ Some private land - access is dependent on landowner permission.		

The number of times a reach was surveyed was directly related to the number of people available on the survey dates. When a lack of manpower was a concern on the Salmon River, the reaches to be surveyed were determined by the level of activity observed on the prior survey date. For the Scott River, the amount of prior activity, and number of reaches not surveyed to date, influenced where the surveys would occur. An attempt was made to have people survey different reaches throughout the week. It was assumed this would lessen the bias in looking for fish the surveyor had tagged and released the previous survey date. However, this was not always accomplished due to manpower and skill levels of the individual surveyor. Some reaches are long and arduous with a select few individuals capable of completing the survey in a day.

Survey reaches done on a yearly basis for the Scott River are flow dependent. In low flow years, the canyon reaches (1-6) are surveyed. In higher flow years, the valley reaches (7-15) are concentrated on for surveys (Table 3, Appendix A). During higher flows, the valley reaches are where the majority of the spawning occurs. However, this is also where the majority of private lands occur. Gaining landowner permission for surveys is an important part of the process on the Scott River.

Carcass surveys were conducted twice a week, using mark and recapture techniques outlined in the Klamath Basin Cooperative Spawning Ground Surveys Training manual (CDFG 2000). The first survey date only marked carcasses. Recapture of carcasses did not begin until the second survey date. Recaptured/old carcasses were chopped to prevent confusing carcass count data in downstream reaches. The spawning

population was estimated by CDFG biologists based on the expansion of recovery information using the Peterson and Schaefer models. The Peterson Mark and Recapture Estimate and the Schaefer Method for Stratified Populations are used to estimate a population's size when the population is too large to count or is not all visible at once.

The Peterson model is expressed as:

$$N = \frac{(M)(C)}{R}$$

Where N = the population size
M = number of salmon marked (tagged)
C = number of carcasses in the sample
R = number of marked carcasses recovered

The Schaefer model is expressed as:

$$N = \sum N_{ij} = \sum \left(R_{ij} \cdot \frac{M_i}{R_i} \cdot \frac{C_j}{R_j} \right)$$

Where N = the population size
M_i = number of fish marked in the ith period of marking
M = Σ M_i, total number marked
C_j = number of fish caught and examined in the jth period of recovery
C = Σ C_j, total number examined
R_{ij} = number of fish marked in the ith marking period which are recaptured in the jth recovery period
R_i = total recaptures of fish tagged in the ith period
R_j = total recaptures during the jth period

The process in the field is as follows:

- 1) Take a sample of the population (carcasses)
- 2) Mark the sample (tag the carcass)
- 3) Return and mix the marked sample back into the population (throw the marked carcass into fast moving water so it distributes randomly)
- 4) Re-sample the population (subsequent surveys, recaptured carcasses) to determine the ratio of marked to unmarked carcasses.

For streams where only redd counts occurred, or where the mark recapture technique recovered less than 25 tags, the redd counts were used to supplement the population

estimate derived from the above models. To estimate the population from redd counts, the number of redds was multiplied by 2. In addition, the live fish counts per reach on the last survey date were added to the redd derived population estimate.

In addition to tagging, salmon carcasses were sampled for fork length, sex, and scales. The scale samples were collected and sent to the Yurok Tribe to be analyzed for age class distribution. The heads from all adipose clipped fish were collected, frozen, and delivered to the CDFG.

RESULTS

Safety of personnel remains the highest priority during all stream surveys. Crews walked approximately 750 miles (630 cooperatively) of stream over the survey period. The counts were completed without serious injury.

Salmon River

The highest redd counts were found in the first two weeks of surveys and tapered gradually throughout the season (Figure 1). Week six (November 20 - 24, 2000) the crews were unable to survey due to high water. Those reaches that were safe and still had good visibility were surveyed. The lower two reaches on the South Fork Salmon (5 and 6, Matthews Creek Campground to the confluence) and the lowest reach on the North Fork Salmon (9, mile 4 to confluence) had the highest spawning occurrence (62% of the total, 26%, 17%, and 19% respectively) (Table 3, Figure 3). The mainstem reach (3) from Forks to Nordheimer had 13% of the total redds. However, the greatest density of redds (redds per stream mile) was found in reaches 5a (53/mi.), 9 (41.5/mi.), 5b (36/mi.), and 6b (36.4/mi.). The least redds observed were in Wooley Creek (2.9/mi.). This pattern has been the same throughout the nine years of cooperative spawning ground counts and for several years prior to the cooperative effort. The high use salmon spawning reaches were surveyed a minimum of 10 days. The fish return estimated by the mark/recapture method for the Salmon River was 1,772 fish.

Scott River

The Scott River redd counts peaked during the second and third weeks of the survey season and dropped off dramatically by week five (November 13 – 17)(Figure 2). Week six (November 20 - 24, 2000) the crews were unable to survey due to high water. Those reaches that were safe and still had good visibility were surveyed. Reach 8 (Meamber to USGS gage) and 10 (Highway 3 to Dunlap) had the highest spawning occurrence (51% of the total, 38% and 14% respectively) (Table 3, Figure 4). The distribution of spawning occurring in the Scott River is related to flow. During low flow years, spawning may not occur in the valley, but be concentrated in the canyon. However, when spawning does occur in the valley, Reach 8 has historically been the most utilized reach. The fish return estimated by the mark/recapture method for the Scott River was 6,253 fish.

Mid-Klamath River Tributaries

Ten mid-Klamath tributaries were surveyed during the fall chinook salmon spawning season (Table 3). The fish return estimated by the redd survey method for miscellaneous mid-Klamath River tributaries (all tributaries surveyed) was 2,312 fish.

DISCUSSION

The cooperative effort in gathering carcass and redd data was extremely successful. Without the help of the USDI-Fish and Wildlife Service, this effort would not have occurred. The USDA-Forest Service would not have been able to participate at the level needed to make this project successful. The tribal participation also would not have been at the level needed. Collecting the carcass and survey data at this intensity has greatly reduced the confidence interval width around the population estimates in the "Mega-Table" (Appendix B) that is submitted to the KFMC, PFMC, and the California Fish and Game Commission.

The Salmon River reaches that are currently surveyed were determined from a regression analysis completed in the early 1990's. Although 10 years old, the current surveys still verify the results. If there was a need to eliminate reaches from the surveys due to funding reductions, those that could be dropped without great effect would be those that currently have only redd surveys, namely Wooley Creek and the mainstem Salmon from Nordheimer Ck to the confluence. Reaches 4, 5a, 5b, 6a, 6b, and 9 still need continued surveys to determine the Salmon River fall chinook population.

The Scott River is complicated in that flows determine which reaches will be done. If low flows, only those reaches below flow barriers will be surveyed. However during higher flows, where no flow barriers exist, Reaches 8a, 8b, and 10, at a minimum need to be surveyed. It would be helpful, and is recommended, that the last 10 years of data be analyzed in a similar manner as was done on the Salmon River to determine the "core" reaches needed for the population estimator. This will help prioritize reaches in the event of budget shortfalls.

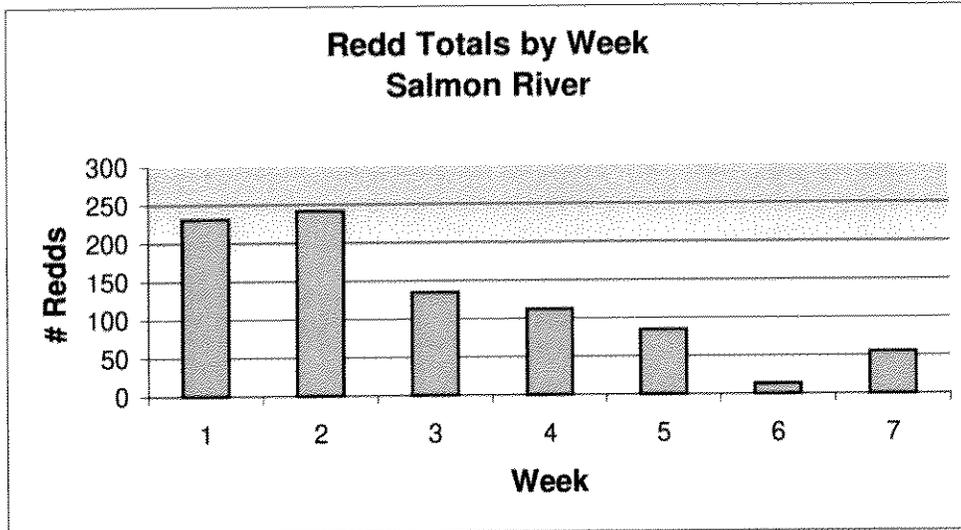


Figure 1. Redd Totals for the Salmon River by Survey Week

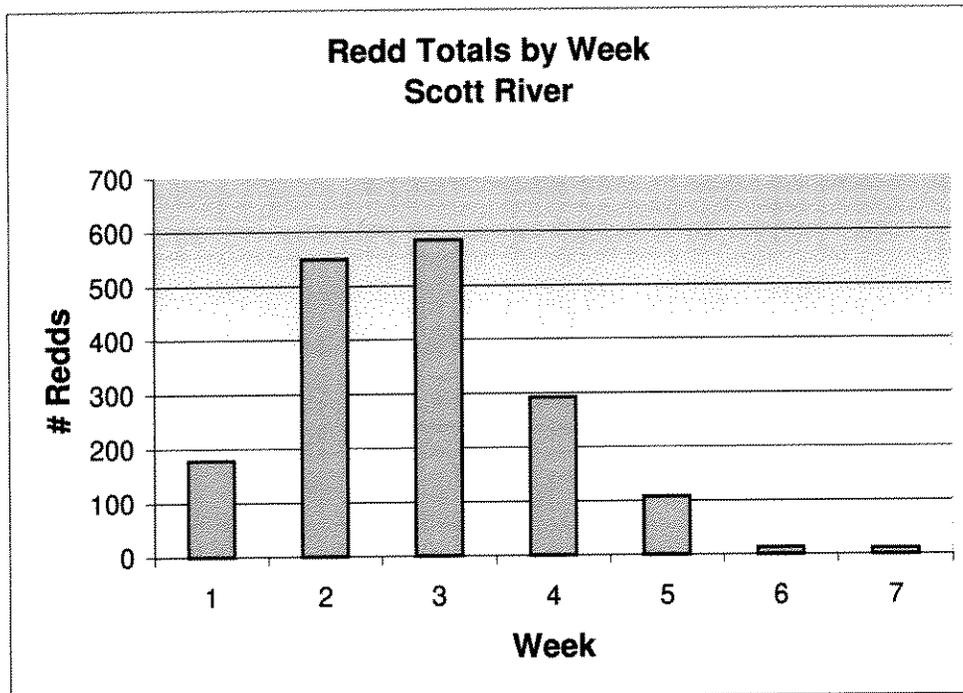


Figure 2. Redd Totals for the Scott River by Survey Week

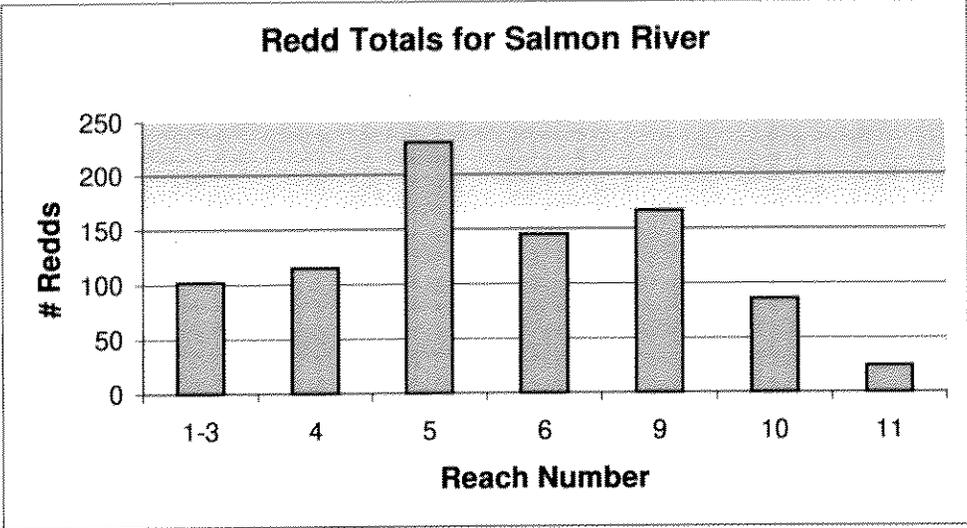


Figure 3. Total Redd Counts for the Salmon River by Reach

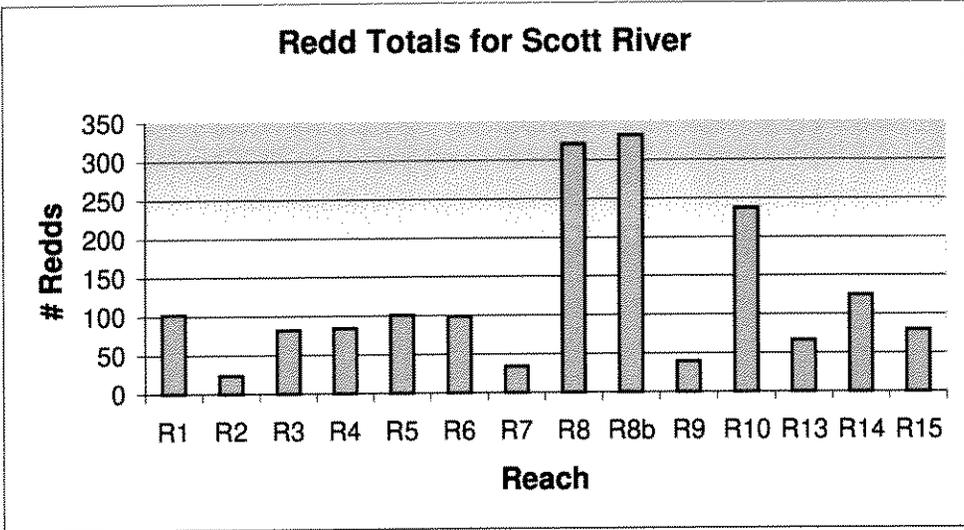


Figure 4. Total Redd Counts for the Scott River by Reach

Table 3. 2000 Fall Spawning Survey Results

Klamath River Tributaries Fall Chinook Spawning Surveys 2000					
Stream Name	Reach Name	Reach Number	Miles	# Times Surveyed	Redd Numbers
Salmon River					
Mainstem	Nordhimer Ck to Mouth	1 thru 3	13	7	102
Mainstem	Forks to Nordheimer	4	4	10	115
North Fork	4 mile to Forks	9	4	12	166
North Fork	8 mile to 4 mile	10	4	9	86
North Fork	12 mile to 8 mile	11	4	3	24
South Fork	Henry Bell to Forks	5a	3	11	159
South Fork	1C02 bridge to Henry Bell	5b	2	12	72
South Fork	Indian Ck to 1C02 bridge	6a	3	10	65
South Fork	Matthews Ck to Indian Ck	6b	2.2	12	80
Wooley Ck	North Fork Wooley to Mouth		12.6	1	36
Total					905
Scott River					
	Midpoint to Confluence	1		5	102
	Pat Ford to Midpoint	2		3	24
	George Allen to Pat Ford	3		6	82
	Townsend Gulch to George Allen	4		7	84
	Kelsey Ck to Townsend Gulch	5		7	101
	Jones Beach to Kelsey Ck	6		6	99
	USGS gauge to Jones Beach	7		6	34
	Wilhite's to USGS gauge	8a		10	321
	Meamber Bridge to Duvall	8b		12	332
	Dunlap to Duvall	9		5	40
	Hwy. 3 to Dunlap	10		9	237
	Eller Ln. to Hwy. 3	11		Not Surveyed	
	Sweezy to Eller Ln.	12		Not Surveyed	
	Horn Ln. to Sweezy	13		4	67
	Young's Dam to Horn Ln.	14		6	125
	Fay Ln. to Young's Dam	15		6	80
	East Fork to Fay Ln.	16		Not Surveyed	
Total					1728
Mid-Klamath Tributaries					
Dillon Ck	Mile 3 to Mouth			4	29
Clear Ck	Slippery Ck to Mouth			6	54
Elk Ck	Bear Ck to Mouth			5	58

Table 3. 2000 Fall Spawning Survey Results (continued)

Mid-Klamath Tributaries (continued)					
Stream Name	Reach Name	Reach Number	Miles	# Times Surveyed	Redd Numbers
Grider Ck	Bark Shanty to Campground			5	220
Thompson Ck				3	75
Ti Ck				1	1
Irving Ck				1	0
Independence Ck				1	4
Beaver Ck	Campground to Mouth			1	84
Horse Ck				1	10

Literature Cited

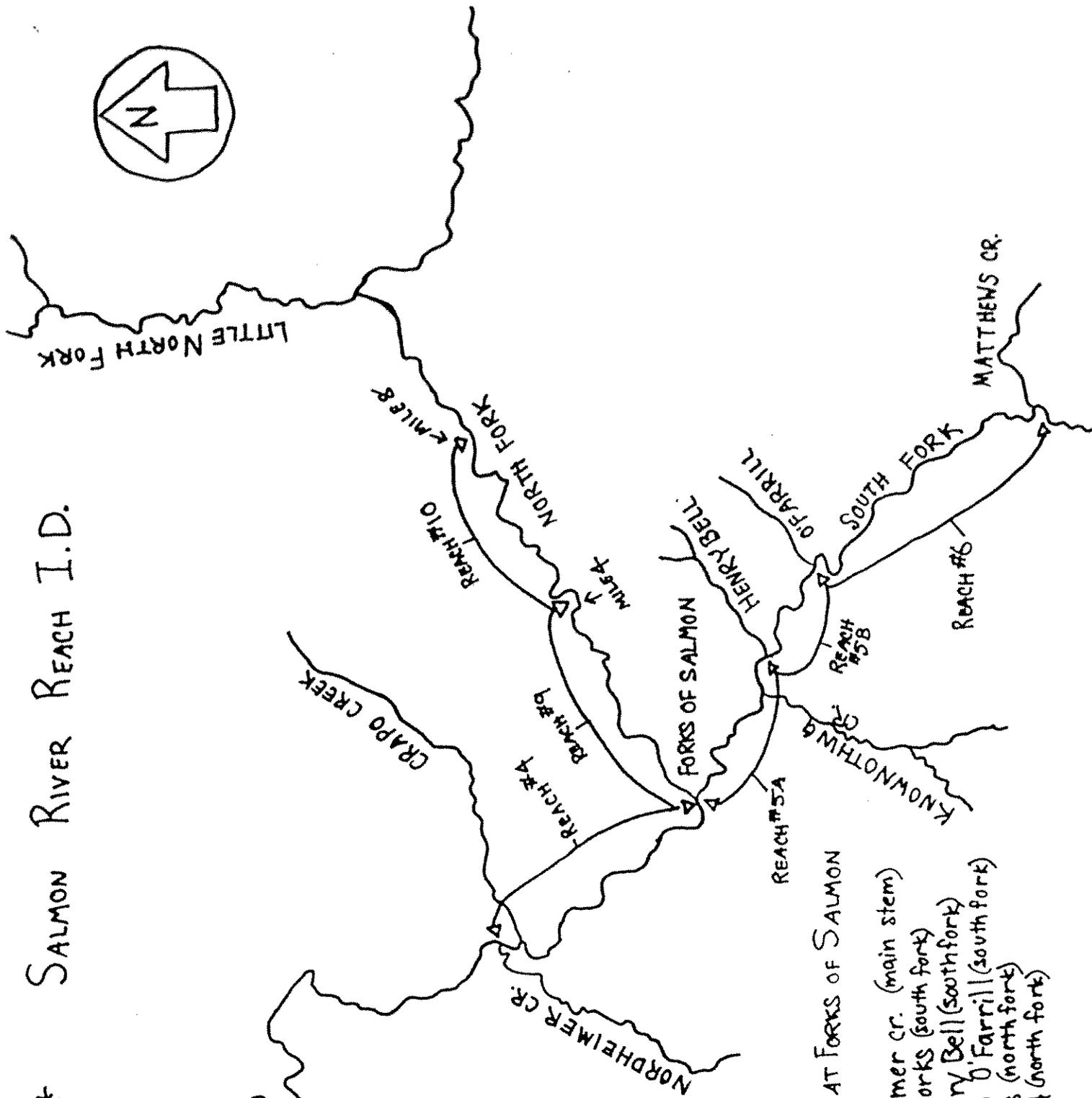
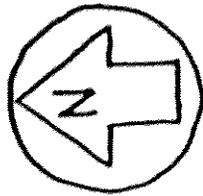
California Department of Fish and Game. 2000. Klamath Basin Cooperative Spawning Ground Survey Training Manual. 63p.

APPENDIX A

Klamath River

Woolly Creek

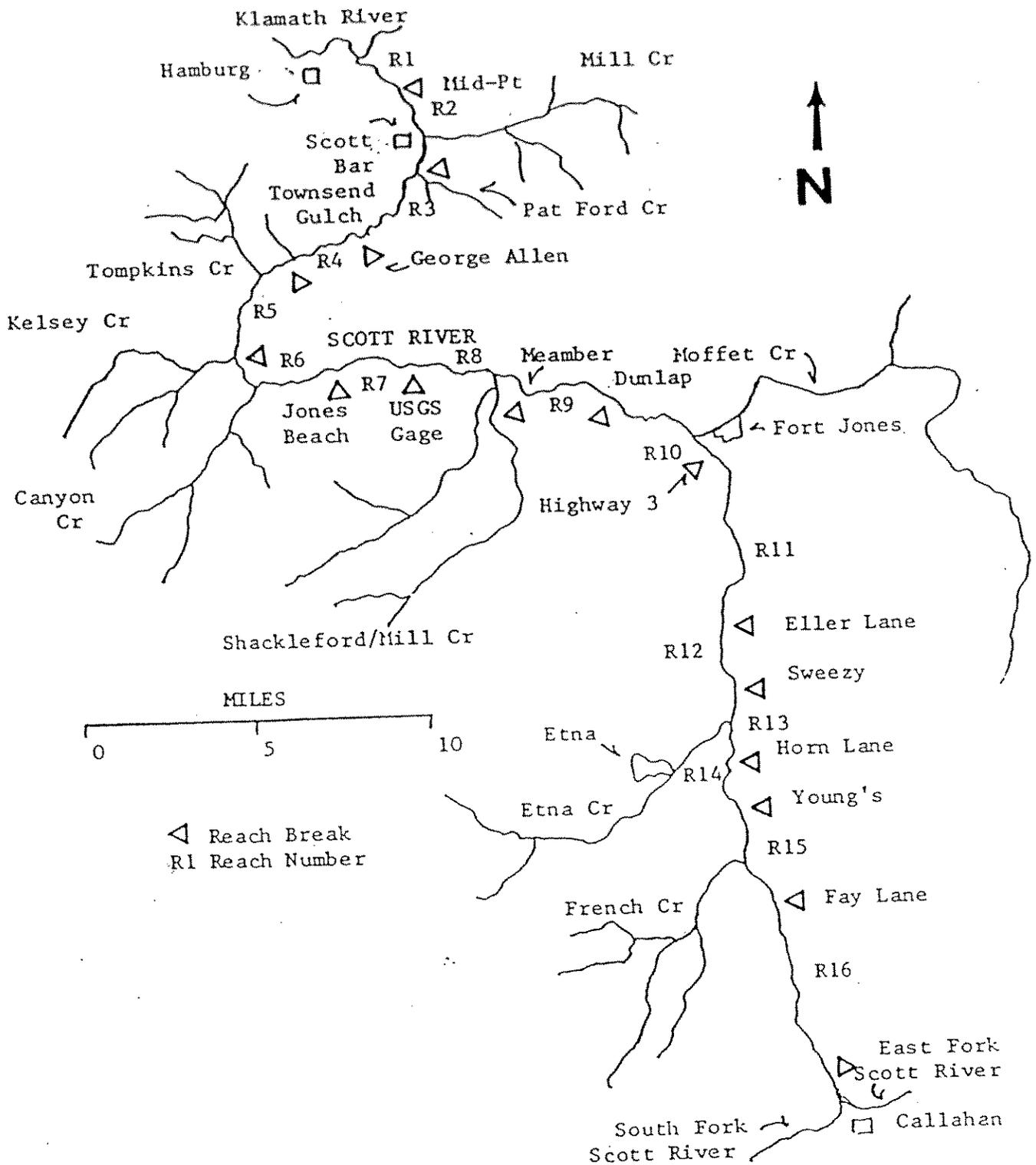
SALMON RIVER REACH I.D.



STAGING WILL TAKE PLACE AT FORKS OF SALMON

- REACH #4 Forks to Nordheimer cr. (main stem)
- REACH #5A Henry Bell to Forks (south fork)
- REACH #5B O'Farrell to Henry Bell (south fork)
- REACH #6 Matthews cr. to O'Farrell (south fork)
- REACH #9 Mile 4 to Forks (north fork)
- REACH #10 Mile 8 to Mile 4 (north fork)

SCOTT RIVER SUBBASIN



APPENDIX B

**KLAMATH RIVER BASIN FALL CHINOOK SALMON RUN-SIZE,
IN-RIVER HARVEST AND SPAWNER ESCAPEMENT -- 2000 SEASON^{1/}**

The 2000 adult fall-run chinook salmon run into the Klamath River system was estimated at 217,369 fish, about 233% of the 1978-1999 average of 93,276 adults. The grilse run was estimated at 10,198 fish, about 53% of the 1978-1999 average of 19,220 fish.

Fisheries scientists projected that 85,000 adult fall chinook would return to the Klamath River this fall^{2/}. Using this figure, they projected an in-river harvest of 35,000 fish (including 2,600 unlanded mortalities), leaving 50,000 adults to spawn naturally or in the hatcheries. The following table presents, in abbreviated form, 2000 preseason adult harvest and spawner escapement projections and corresponding postseason estimates.

	Preseason Projection ^{2/}	Postseason Estimate	Percent of Projected
<i>Harvest</i>			
Indian net	28,200	29,415	104.3%
Angler	4,200	5,337	127.1%
Net and angler mortalities (unlanded)	2,600	2,460	94.6%
Subtotals	35,000	37,212	106.3%
<i>Spawner Escapement</i>			
Natural	35,000	82,544	235.8%
Hatchery	15,000	97,613	650.8%
Subtotals	50,000	180,157	360.3%
Totals	85,000	217,369	255.7%

Complete run-size, harvest and spawner-escapement estimates for both adults and grilse for years 1978-2000 are presented in the accompanying table.

^{1/} Prepared March 9, 2001, by the California Department of Fish and Game.

^{2/} From "Preseason Report III, Analysis of Council Adopted Management Measures for 2000 Ocean Salmon Fisheries". Prepared by the Salmon Technical Team and Council Staff - Pacific Fisheries Management Council.

Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates, 1978-2000*

SPAWNER ESCAPEMENT

	1978			1979			1980		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	915	6,925	7,840	257	2,301	2,558	451	2,412	2,863
Trinity River Hatchery (TRH)	1,325	6,034	7,359	964	1,335	2,299	2,256	4,099	6,355
Subtotals	2,240	12,959	15,199	1,221	3,636	4,857	2,707	6,511	9,218
Natural Spawners									
Trinity River basin	4,712	31,052	35,764	3,936	8,028	11,964	16,837	7,700	24,537
(above Willow Creek, excluding TRH)	1,400	2,600	4,000	150	1,000	1,150	200	800	1,000
Salmon River basin	1,909	3,423	5,332	428	3,396	3,824	2,245	2,032	4,277
Scott River basin	6,707	12,024	18,731	1,040	7,111	8,151	4,334	3,762	8,096
Phasta River basin	651	4,928	5,579	494	5,444	5,938	1,749	3,321	5,070
Bogus Creek basin	300	1,700	2,000	466	4,190	4,656	867	2,468	3,335
Main Stem Klamath River									
(excluding IGH)									
Misc. Klamath tributaries	735	2,765	3,500	147	1,068	1,215	500	1,000	1,500
(above Hoopa and Yurok Reservations)	--	--	--	100 ^c	400 ^c	500 ^c	250 ^c	400 ^c	650 ^c
Hoopa and Yurok Reservation tribs.									
Subtotals	16,414	58,492	74,906	6,761	30,637	37,398	26,982	21,483	48,465
Total Spawner Escapement	18,654	71,451	90,105	7,982	34,273	42,255	29,689	27,994	57,683

IN-RIVER HARVEST

	1978			1979			1980		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	122	854	976	216	484	700	835	727	1,562
Trinity River basin (above Willow Creek)	-- ^d	-- ^d	-- ^d	765	1,157	1,922	2,456	998	3,454
Balance of Klamath system	1,960	840	2,800	1,200	500	1,700	2,600	2,771	5,371
Subtotals	2,082	1,694	3,776	2,181	2,141	4,322	5,891	4,496	10,387
Indian Net Harvest									
Klamath River (below Hwy 101 bridge)	--	--	--	--	--	--	495	9,605	10,100
Klamath River (Hwy 101 to Trinity mouth)	--	--	--	--	--	--	272	1,528	1,800
Trinity River (Hoopa Reservation)	--	--	--	--	--	--	220	880	1,100
Subtotals	1,800	18,200	20,000	1,350	13,650	15,000	987	12,013	13,000
Total In-river Harvest	3,882	19,894	23,776	3,531	15,791	19,322	6,878	16,509	23,387

IN-RIVER RUN

	1978			1979			1980		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	22,536	91,345	113,881	11,513	50,064	61,577	36,567	44,503	81,070
Angling Mortality (2% of harvest)	42	34	76	44	43	87	118	90	208
Net Mortality (8% of harvest)	144	1,456	1,600	108	1,092	1,200	79	961	1,040
Total In-river Run	22,722	92,835	115,557	11,665	51,199	62,864	36,764	45,554	82,318

**Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates,
1978-2000***

SPAWNER ESCAPEMENT

	1981			1982			1983		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	540	2,055	2,595	1,833	8,353	10,186	514	8,371	8,885
Trinity River Hatchery (TRH)	1,004	2,370	3,374	4,235	2,058	6,293	271	5,494	5,765
Subtotals	1,544	4,425	5,969	6,068	10,411	16,479	785	13,865	14,650
Natural Spawners									
Trinity River basin	5,906	15,340	21,246	8,149	9,274	17,423	853	17,284	18,137
(above Willow Creek, excluding TRH)	450	750	1,200	300	1,000	1,300	75	1,200	1,275
Salmon River basin	3,409	3,147	6,556	4,350	5,826	10,176	170	3,398	3,568
Scott River basin	4,330	7,890	12,220	1,922	6,533	8,455	753	3,119	3,872
Shasta River basin	912	2,730	3,642	2,325	4,818	7,143	335	2,713	3,048
Bogus Creek basin									
Main Stem Klamath River	1,000	3,000	4,000	1,000	3,000	4,000	200	1,800	2,000
(excluding IGH)									
Misc. Klamath tributaries	500	1,000	1,500	600	1,500	2,100	140	1,270	1,410
(above Hoopa and Yurok Reservations)									
Hoopa and Yurok Reservation tribs.	-- ^b								
Subtotals	16,507	33,857	50,364	18,646	31,951	50,597	2,526	30,784	33,310
Total Spawner Escapement	18,051	38,282	56,333	24,714	42,362	67,076	3,311	44,649	47,960

IN-RIVER HARVEST

	1981			1982			1983		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	536	1,714	2,250	1,252	3,539	4,791	60	750	810
Trinity River basin (above Willow Creek)	1,456	3,174	4,630	2,554	2,321	4,875	116	2,360	2,476
Balance of Klamath system	5,260	1,095	6,355	8,678	2,479	11,157	175	1,125	1,300
Subtotals	7,252	5,983	13,235	12,484	8,339	20,823	351	4,235	4,586
Indian Net Harvest									
Klamath River (below Hwy 101 bridge)	912	23,097	24,009	290	4,547	4,837	12	800	812
Klamath River (Hwy 101 to Trinity mouth)	1,104	8,405	9,509	1,195	8,424	9,619	121	5,700	5,821
Trinity River (Hoopa Reservation)	449	1,531	1,980	314	1,511	1,825	30	1,390	1,420
Subtotals	2,465	33,033	35,498	1,799	14,482	16,281	163	7,890	8,053
Total In-river Harvest	9,717	39,016	48,733	14,283	22,821	37,104	514	12,125	12,639

IN-RIVER RUN

	1981			1982			1983		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	27,768	77,298	105,066	38,997	65,183	104,180	3,825	56,774	60,599
Angling Mortality (2% of harvest)	145	120	265	250	167	417	7	85	92
Net Mortality (8% of harvest)	197	2,643	2,840	144	1,159	1,303	13	631	644
Total In-river Run	28,110	80,061	108,171	39,391	66,509	105,900	3,845	57,490	61,335

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Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates, 1978-2000*

SPAWNER ESCAPEMENT

	1984			1985			1986		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
on Gate Hatchery (IGH)	764	5,330	6,094	2,159	19,951	22,110	1,461	17,096	18,557
Trinity River Hatchery (TRH)	766	2,166	2,932	18,166	2,583	20,749	3,609	15,795	19,404
Subtotals	1,530	7,496	9,026	20,325	22,534	42,859	5,070	32,891	37,961
Natural Spawners									
Trinity River basin									
above Willow Creek, excluding TRH	3,416	5,654	9,070	29,454	9,217	38,671	20,459	92,548	113,007
Salmon River basin	216 ^g	1,226 ^g	1,442 ^g	905	2,259	3,164	949	2,716	3,665
Cott River basin	358	1,443	1,801	1,357	3,051	4,408	4,865	3,176	8,041
Hasta River basin	480	2,362	2,842	2,227	2,897	5,124	683	3,274	3,957
Dogus Creek basin	465	3,039	3,504	1,156	3,491	4,647	1,184	6,124	7,308
Main Stem Klamath River									
(excluding IGH)	200	1,350	1,550	156	468	624	196	603	799
Disc. Klamath tributaries									
(above Hoopa and Yurok Reservations)	150	990	1,140	646	4,214	4,860	606	4,919	5,525
Hoopa and Yurok Reservation tribs.	-- ^b	-- ^b	-- ^b	50 ⁿ	80 ⁿ	130 ⁿ	-- ^b	-- ^b	-- ^b
Subtotals	5,285	16,064	21,349	35,951	25,677	61,628	28,942	113,360	142,302
Total Spawner Escapement	6,815	23,560	30,375	56,276	48,211	104,487	34,012	146,251	180,263

IN-RIVER HARVEST

	1984			1985			1986		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	175	548	723	1,479	2,427 ⁱ	3,906	704	2,456	3,160
Trinity River basin (above Willow Creek)	393	736	1,129	5,442	154 ⁱ	5,596	3,438	12,039	15,477
Balance of Klamath system	384	2,056	2,440	4,274	1,001 ⁱ	5,275	5,266	6,532	11,798
Subtotals	952	3,340	4,292	11,195	3,582ⁱ	14,777	9,408	21,027	30,435
Indian Net Harvest									
Klamath River (below Hwy 101 bridge)	132	11,878	12,010	132	5,700	5,832	191	15,286	15,477
Klamath River (Hwy 101 to Trinity mouth)	183	5,622	5,805	476	3,925	4,401	377	5,053	5,410
Trinity River (Hoopa Reservation)	140	1,170	1,310	947 ^j	1,941 ^j	2,888 ^j	286	4,808	5,094
Subtotals	455	18,670	19,125	1,555	11,566	13,121	854	25,127	25,981
Total In-river Harvest	1,407	22,010	23,417	12,750	15,148	27,898	10,262	46,154	56,416

IN-RIVER RUN

	1984			1985			1986		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	8,222	45,570	53,792	69,026	63,359	132,385	44,274	192,405	236,679
Angling Mortality (2% of harvest)	19	67	86	224	72	296	188	421	609
Net Mortality (8% of harvest)	36	1,494	1,530	124	925	1,049	68	2,010	2,078
Total In-river Run	8,277	47,131	55,408	69,374	64,356	133,730	44,530	194,836	239,366

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**Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates,
1978-2000***

SPAWNER ESCAPEMENT

	1987			1988			1989		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	1,825	15,189	17,014	609	16,106	16,715	831	10,859	11,690
Trinity River Hatchery (TRH)	2,453	13,934	16,387	4,752	17,352	22,104	239	11,132	11,371
Subtotals	4,278	29,123	33,401	5,361	33,458	38,819	1,070	21,991	23,061
Natural Spawners									
Trinity River basin	5,949	71,920	77,869	10,626	44,616	55,242	2,543	29,445	31,988
(above Willow Creek, excluding TRH)	118	3,832	3,950	327	3,273	3,600	695	2,915	3,610
Salmon River basin	797	7,769	8,566	473	4,727	5,200	1,188	3,000	4,188
Scott River basin	398	4,299	4,697	256	2,586	2,842	137	1,440	1,577
Shasta River basin	1,208	9,748	10,956	225	16,215	16,440	444	2,218	2,662
Bogus Creek basin									
Main Stem Klamath River	65	863	928	164	2,982	3,146	214	1,011	1,225
(excluding IGH)									
Misc. Klamath tributaries	237	3,286	3,523	418	4,167	4,585	248	3,239	3,487
(above Hoopa and Yurok Reservations)									
Hoopa and Yurok Reservation tribs.	-- ^b	-- ^b	-- ^b	55 ^k	820 ^k	875 ^k	40 ^k	600 ^k	640
Subtotals	8,772	101,717	110,489	12,544	79,386	91,930	5,509	43,868	49,377
Total Spawner Escapement	13,050	130,840	143,890	17,905	112,844	130,749	6,579	65,859	72,438

IN-RIVER HARVEST

	1987			1988			1989		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	146	2,455	2,601	124	3,367	3,491	137	1,328	1,465
Trinity River basin (above Willow Creek)	923	9,433	10,356	2,735	9,341	12,076	209	3,054	3,263
Balance of Klamath system	4,367	8,281	12,648	2,552	9,495	12,047	1,921	4,393	6,314
Subtotals	5,436	20,169	25,605	5,411	22,203	27,614	2,267	8,775	11,042
Indian Net Harvest									
Klamath River (below Hwy 101 bridge)	36	39,978	40,014	138	36,914	37,052	0	37,130	37,130
Klamath River (Hwy 101 to Trinity mouth)	117	8,136	8,253	173	9,667	9,840	120	4,961	5,081
Trinity River (Hoopa Reservation)	262	4,982	5,244	267	5,070	5,337	71	3,474	3,545
Subtotals	415	53,096	53,511	578	51,651	52,229	191	45,565	45,756
Total In-river Harvest	5,851	73,265	79,116	5,989	73,854	79,843	2,458	54,340	56,798

IN-RIVER RUN

	1987			1988			1989		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	18,901	204,105	223,006	23,894	186,698	210,592	9,037	120,199	129,236
Angling Mortality (2% of harvest)	109	403	512	108	444	552	45	176	221
Net Mortality (8% of harvest)	33	4,248	4,281	46	4,132	4,178	15	3,645	3,660
Total In-river Run	19,043	208,756	227,799	24,048	191,274	215,322	9,097	124,020	133,117

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Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates, 1978-2000*

SPAWNER ESCAPEMENT

	1990			1991			1992		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Trinity Gate Hatchery (IGH)	321	6,704	7,025	65	4,002	4,067	3,737	3,581	7,318
Trinity River Hatchery (TRH)	371	1,348	1,719	205	2,482	2,687	211	3,779	3,990
Subtotals	692	8,052	8,744	270	6,484	6,754	3,948	7,360	11,308
Natural Spawners									
Trinity River basin	241	7,682	7,923	382	4,867	5,249	2,563	7,139	9,702
above Willow Creek, excluding TRH	596	4,071	4,667	143	1,337	1,480	547	778	1,325
Imon River basin	236	1,379	1,615	146	2,019	2,165	965	1,873	2,838
Scott River basin	118	415	533	10	716	726	66	520	586
Wasta River basin	53	732	785	20	1,261	1,281	556	598	1,154
Main Stem Klamath River (excluding IGH)	59	505	564	8	572	580	234	366	600
disc. Klamath tributaries (above Hoopa and Yurok Reservations)	30	694	724	9	495	504	153	280	433
Hoopa and Yurok Reservation tribs.	17	118	135	0	382	382	59	474	533
Subtotals	1,350	15,596	16,946	718	11,649	12,367	5,143	12,028	17,171
Total Spawner Escapement	2,042	23,648	25,690	988	18,133	19,121	9,091	19,388	28,479

IN-RIVER HARVEST

	1990			1991			1992		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	58	291	349	19	314	333	13	20	33
Trinity River basin (above Willow Creek)	22	328	350	94	1,177	1,271	158	314	472
Balance of Klamath system	2,020	2,934	4,954	573	1,892	2,465	3,949	668	4,617
Subtotals	2,100	3,553	5,653	686	3,383	4,069	4,120	1,002	5,122
Indian Net Harvest									
Klamath River (below Hwy 101 bridge)	13	3,648	3,661	7	3,902	3,909	124	1,152	1,276
Klamath River (Hwy 101 to Trinity mouth)	141	3,447	3,588	25	5,016	5,041	200	3,687	3,887
Trinity River (Hoopa Reservation)	36	811	847	30	1,280	1,310	42	946	988
Subtotals	190	7,906	8,096	62	10,198	10,260	366	5,785	6,151
Total In-river Harvest	2,290	11,459	13,749	748	13,581	14,329	4,486	6,787	11,273

IN-RIVER RUN

	1990			1991			1992		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Subtotals									
In-river Harvest and Escapement	4,332	35,107	39,439	1,736	31,714	33,450	13,577	26,175	39,752
angling Mortality (2% of harvest)	42	71	113	14	68	82	82	20	102
Net Mortality (8% of harvest)	15	632	647	5	816	821	29	463	492
Total In-river Run	4,389	35,810	40,199	1,755	32,598	34,353	13,688	26,658	40,346

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**Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates,
1978-2000***

SPAWNER ESCAPEMENT

	1993			1994			1995		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Iron Gate Hatchery (IGH)	883	20,828	21,711	758	11,475 ^m	12,233	259	13,749 ^m	14,008
Trinity River Hatchery (TRH)	736	815	1,551	4,442	3,264	7,706	76	15,178	15,254
Subtotals	1,619	21,643	23,262	5,200	14,739	19,939	335	28,927	29,262
Natural Spawners									
Trinity River basin	2,465	5,905	8,370	2,505	10,906	13,411	9,262	77,876	87,138
(above Willow Creek, excluding TRH)	456	3,077	3,533	277	3,216	3,493	1,335	4,140	5,475
Salmon River basin	265	5,035	5,300	505	2,358	2,863	3,279	11,198	14,477
Scott River basin	85	1,341	1,426	1,840	3,363	5,203	695	12,816	13,511
Shasta River basin	431	3,285	3,716	443	7,817	8,260	1,207	45,225	46,432
Bogus Creek basin									
Main Stem Klamath River	31 ⁿ	647 ⁿ	678 ⁿ	625 ⁿ	3,249 ⁿ	3,874 ⁿ	768 ⁿ	6,472 ⁿ	7,240 ⁿ
(excluding IGH)									
Misc. Klamath tributaries	92	2,470	2,562	50	1,202	1,252	744 ^o	3,654 ^o	4,398 ^o
(above Hoopa and Yurok Reservations)	0 ⁿ	98 ⁿ	98 ⁿ	0 ⁿ	222 ⁿ	222 ⁿ	34 ^p	413 ^p	447 ^p
Hoopa and Yurok Reservation tribs.									
Subtotals	3,825	21,858	25,683	6,245	32,333	38,578	17,324	161,794	179,118
Total Spawner Escapement	5,444	43,501	48,945	11,445	47,072	58,517	17,659	190,721	208,380

IN-RIVER HARVEST

	1993			1994			1995		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	23	669	692	246	662	908	323	956	1,279
Trinity River basin (above Willow Creek)	172	391	563	547	260	807	554	2,779	3,333
Balance of Klamath system	1,730	2,112	3,842	1,763	910	2,673	3,543	2,346 ^q	5,889
Subtotals	1,925	3,172	5,097	2,556	1,832	4,388	4,420	6,081	10,501
Indian Net Harvest									
Klamath River (below Hwy 101 bridge)	62	3,017	3,079	81	4,362	4,443	137	5,119	5,256
Klamath River (Hwy 101 to Trinity mouth)	80	5,127	5,207	118	5,064	5,182	152	7,055	7,207
Trinity River (Hoopa Reservation)	33	1,492	1,525	94	2,266	2,360	268	3,383	3,651
Subtotals	175	9,636	9,811	293	11,692	11,985	557	15,557	16,114
Total In-river Harvest	2,100	12,808	14,908	2,849	13,524	16,373	4,977	21,638	26,615

IN-RIVER RUN

	1993			1994			1995		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	7,544	56,309	63,853	14,294	60,596	74,890	22,636	212,359	234,995
Angling Mortality (2% of harvest)	39	63	102	51	37	88	88	122	210
Net Mortality (8% of harvest)	14	771	785	23	935	958	45	1,245	1,290
Total In-river Run	7,597	57,143	64,740	14,368	61,568	75,936	22,769	213,726	236,495

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**Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates,
1978-2000***

SPAWNER ESCAPEMENT

	1996			1997			1998		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners									
Coon Gate Hatchery (IGH)	543	13,622	14,165	452	13,275	13,727	403	14,923	15,326
Trinity River Hatchery (TRH)	249	6,411	6,660	820	5,387	6,207	192	14,296	14,488
Subtotals	792	20,033	20,825	1,272	18,662	19,934	595	29,219	29,814
Natural Spawners									
Trinity River basin	4,478	42,646	47,124	2,845	11,507	14,352	1,974	24,460	26,434
(above Willow Creek, excluding TRH)									
Salmon River basin	274	5,189	5,463	217	5,783	6,000	116	1,337	1,453
Scott River basin	145	11,952	12,097	277	8,284	8,561	266	3,061	3,327
Shasta River basin	46	1,404	1,450	334	1,667	2,001	76	2,466	2,542
Bogus Creek basin	377	10,420	10,797	221	9,809	10,030	205	6,630	6,835
Main Stem Klamath River	218 ⁿ	2,790 ⁿ	3,008 ⁿ	104 ⁿ	3,472 ⁿ	3,576 ⁿ	109 ⁿ	2,913 ⁿ	3,022 ⁿ
(excluding IGH)									
Misc. Klamath-Trinity tributaries	581 ^o	5,804 ^o	6,385 ^o	174 ^o	5,174 ^o	5,348 ^o	83 ^o	1,232 ^o	1,315 ^o
(above Hoopa and Yurok Reservations)									
Hoopa and Yurok Reservation tribs.	55 ^p	1,121 ^p	1,176 ^p	53 ^p	448 ^p	501 ^p	26 ^p	389 ^p	415 ^p
Subtotals	6,174	81,326	87,500	4,225	46,144	50,369	2,855	42,488	45,343
Total Spawner Escapement	6,966	101,359	108,325	5,497	64,806	70,303	3,450	71,707	75,157

IN-RIVER HARVEST

	1996			1997			1998		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest									
Klamath River (below Hwy 101 bridge)	100	3,110	3,210	49	2,182	2,231	124	1,603	1,727
Klamath River (Hwy 101 to Coon Cr Falls)	1,128	4,052	5,180	1,226	512	1,738	406	1,270	1,676
Trinity River basin (above Willow Creek)	331	1,214	1,545	353	1,331	1,684 [*]	275	3,262	3,537 ^u
Balance of Klamath system	753	4,390	5,143	781	1,651	2,432 ^t	303	1,575	1,878 ^v
Subtotals	2,312	12,766	15,078	2,409	5,676	8,085	1,108	7,710[*]	8,818
Indian Net Harvest^e									
Klamath River (below Hwy 101 bridge)	163	49,113	49,276	21	5,374	5,395	16	3,454	3,470
Klamath River (Hwy 101 to Trinity mouth)	19	4,593	4,612	8	5,275	5,283	32	5,198	5,230
Trinity River (Hoopa Reservation)	8	2,770	2,778	6	1,238	1,244	5	1,535	1,540
Subtotals	190	56,476	56,666	35	12,087	12,122	53	10,187	10,240
Total In-river Harvest	2,502	69,242	71,744	2,444	17,763	20,207	1,161	17,897	19,058

IN-RIVER RUN

	1996			1997			1998		
	Grilse	Adults	Totals	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals									
In-river Harvest and Escapement	9,468	170,601	180,069	7,941	82,569	90,510	4,611	89,604	94,215
Angling Mortality (2% of harvest) ^f	46	255	301	48	114	162	22	154	176
Net Mortality (8% of harvest) ^f	15	4,518	4,533	3	967	970	4	815	819
Total In-river Run	9,529	175,374	184,903	7,992	83,650	91,642	4,637	90,573	95,210

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Klamath River Basin Fall Chinook Salmon Spawner Escapement, In-river Harvest and Run-size Estimates, 1978-2000*

SPAWNER ESCAPEMENT

	1999			2000		
	Grilse	Adults	Totals	Grilse	Adults	Totals
Hatchery Spawners						
on Gate Hatchery (IGH)	4,830	9,290	14,120	839	71,635	72,474
Trinity River Hatchery (TRH)	2,027	5,037	7,064	1,071	25,978	27,049
Subtotals	6,857	14,327	21,184	1,910	97,613	99,523
Natural Spawners						
Trinity River basin	4,154	6,753	10,907	3,395	23,304	26,699
(above Willow Creek, excluding TRH)	110	670	780	228	1,544	1,772
Salmon River basin	563	3,021	3,584	524	5,729	6,253
Scott River basin	1,901	1,296	3,197	1,271	11,025	12,296
Wasta River basin	2,628	3,537	6,165	373	34,678	35,051
Logus Creek basin						
Main Stem Klamath River ^a	630	1,978	2,608	184	3,271	3,455
(excluding IGH)						
Disc. Klamath-Trinity tributaries ^b	251	777	1,028	261	2,051	2,312
(above Hoopa and Yurok Reservations)	210	425	635	176	942	1,118
Hoopa and Yurok Reservation tribs ^c	10,447	18,457	28,904	6,412	82,544	88,956
Subtotals	17,304	32,784	50,088	8,322	180,157	188,479
Total Spawner Escapement	17,304	32,784	50,088	8,322	180,157	188,479

IN-RIVER HARVEST

	1999			2000		
	Grilse	Adults	Totals	Grilse	Adults	Totals
Angler Harvest						
Klamath River (below Hwy 101 bridge)	37	177	214	108	1,190	1,298
Klamath River (Hwy 101 to Coon Cr Falls)	869 ^y	1,112 ^y	1,981 ^y	972	1,006	1,978
Klamath River (Coon Cr Falls to IGH)	138 ^z	571 ^z	709 ^z	117	1,549	1,666 ^{bb}
Trinity River basin above Weitchpec ^{aa}	572	422	994	322	1,592	1,914
Subtotals	1,616	2,282	3,898	1,519	5,337	6,856
Indian Net Harvest^c						
Klamath River (below Hwy 101 bridge)	126	4,387	4,513	35	17,278	17,313
Klamath River (Hwy 101 to Trinity mouth)	49	7,295	7,344	140	6,175	6,315
Trinity River (Hoopa Reservation)	96	2,978 ^d	3,074	128	5,962	6,090
Subtotals	271	14,660	14,931	303	29,415	29,718
Total In-river Harvest	1,887	16,942	18,829	1,822	34,752	36,574

IN-RIVER RUN

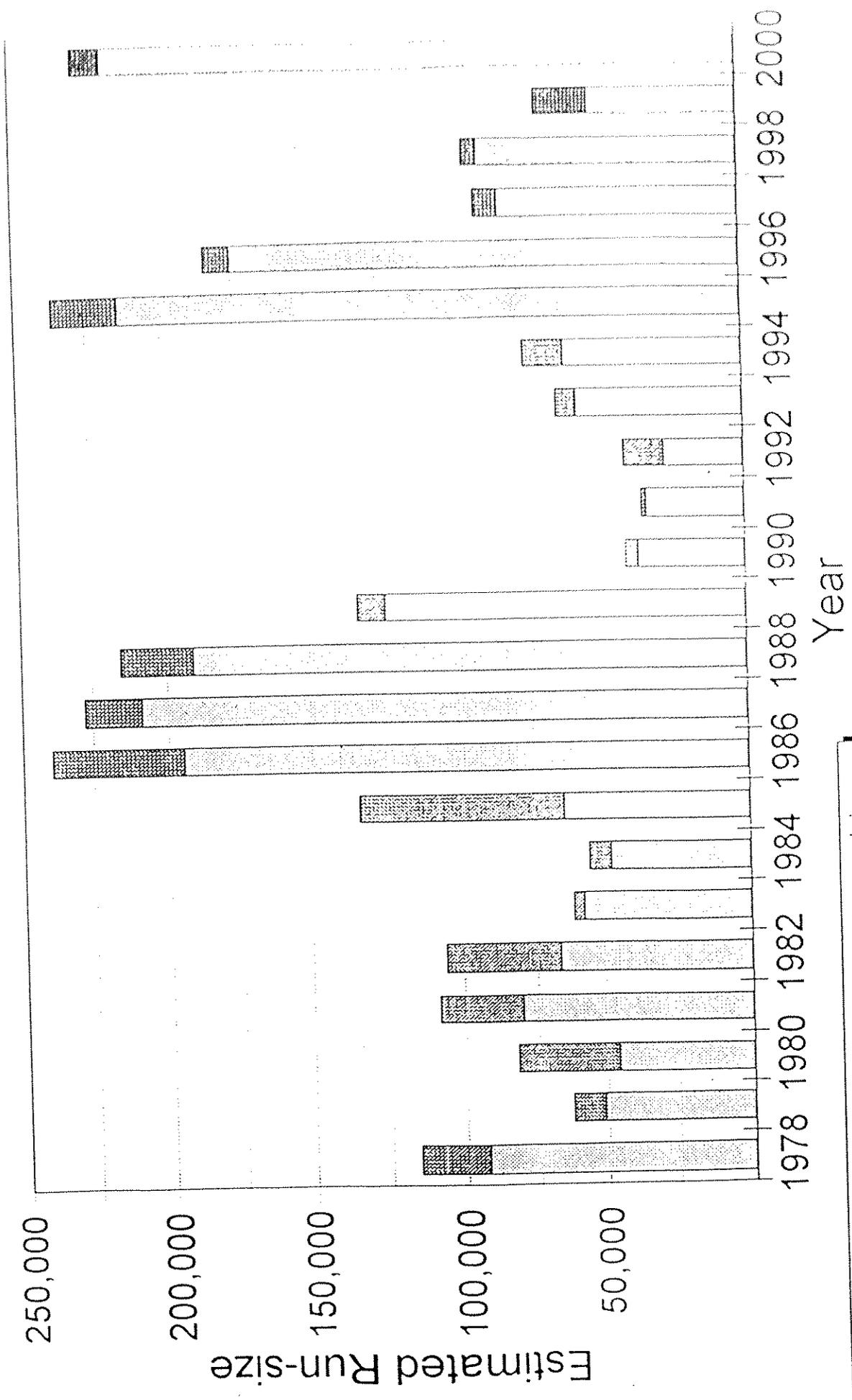
	1999			2000		
	Grilse	Adults	Totals	Grilse	Adults	Totals
Totals						
In-river Harvest and Escapement	19,191	49,726	68,917	10,144	214,909	225,053
Angling Mortality (2% of harvest) ^f	32	46	78	30	107	137
Net Mortality (8% of harvest) ^f	22	1,173	1,195	24	2,353	2,377
Total In-river Run	19,245	50,945	70,190	10,198	217,369	227,567

(continued next page)

- a/ Prepared March 9, 2001. All figures are California Department of Fish and Game (CDFG) counts/estimates unless otherwise indicated. All figures for Iron Gate and Trinity River hatcheries represent counts of fish entering those facilities. All spawner escapement figures for the Shasta River basin for 1978-1987 and 1989-2000, plus those for Bogus Creek basin for 1980-1991 are based on counts made at counting stations located near the mouths of those streams. All remaining spawner escapements and all harvest figures are estimates developed from data obtained through ongoing field investigations in the Klamath-Trinity system. Figures for years through 1999 are final; 2000 figures are preliminary, subject to revision.
- b/ Figure not available.
- c/ USFWS estimate.
- d/ In 1978, the Klamath River system sport salmon fishing season was closed August 25. There was essentially no sport harvest of fall chinook in the Trinity River basin in 1978.
- e/ USFWS estimates for years through 1982; 1983 through 1993 estimates jointly made by USFWS and Hoopa Valley Business Council Fisheries Department (HVBCFD); 1994 through 2000 estimates jointly made by HVBCFD for the Hoopa Reservation and Yurok Tribal Fisheries Department for the Yurok Reservation.
- f/ Factors for non-landed catch mortality calculated by the Klamath River Technical Advisory Team (KRTAT, 1986, "Recommended Spawning Escapement Policy for Klamath River Fall-run Chinook").
- g/ U.S. Forest Service estimate.
- h/ HVBCFD estimate. Estimate for streams in Hoopa Reservation only.
- i/ In 1985, the Klamath River system sport salmon fishing season was closed to the taking of all salmon below the U.S. Highway 101 bridge from September 9 through December 31; the Klamath from the U.S. Highway 101 bridge to Iron Gate Dam and the Trinity River from its mouth to Lewiston Dam were closed to the taking of salmon 22 inches and longer from September 23 through December 31, 1985.
- j/ Estimates for Hoopa Reservation portion of catch (= 947 grilse and 1,941 adults) are of catch occurring during open fishing periods only.
- k/ Estimates jointly made by USFWS and HVBCFD.
- l/ Final figures for Salmon River basin natural spawners shown in the December 11, 1991 table were incorrect. Corrected figures, plus necessary revisions to the 1990 totals, are presented here.
- m/ Figure does not include adults that, following entry into Iron Gate Hatchery, were returned to the river alive and un-spawned, and which are presumed to have spawned naturally. This includes 2,333 fish in 1994 and 8,932 fish in 1995.
- n/ CDFG estimate based on USFWS redd count data.
- o/ CDFG and USFS, estimates.
- p/ HVBCFD and YTFD estimates. YTFD fish count for Blue Creek is based on one survey conducted at peak of spawning and should not be construed as an escapement estimate.
- q/ 750 of these adults were harvested between I-5 and IGH after the river reopened to sport angling on 13 OCT. 1995
- r/ Includes 51 grilse and 178 adults harvested in the main stem Trinity River between Willow Creek weir and the mouth of the Trinity River. HVBCFD estimate.
- s/ Includes 251 grilse and 645 adults harvested in the main stem Trinity River between Willow Creek weir and the mouth of the Trinity River. HVBCFD estimate.
- t/ Additional, but unknown harvest occurred upstream of Interstate 5 for jacks between Oct.2-18 after the 28 day "window" and Oct.18-Nov.30th.for all chinook after Iron Gate Hatchery reached its' required 8,000 adult chinook spawning escapement.
- u/ Includes 298 grilse and 799 adults harvested in the main stem Trinity River between Willow Creek weir and the mouth of the Trinity River. HVBCFD estimate.
- v/ Additional, but unknown harvest occurred upstream of Interstate 5 for jacks between Oct.4-17 after the 28 day "window" and Oct.17-Nov.30th.for all chinook after Iron Gate Hatchery reached its' required 8,000 adult chinook spawning escapement.

- x/ Includes fish originally classified as grilse, based on the 24 inch TL specified in the 1998 sport angling regulations, which were re-classified as adult based on preliminary analysis of 1998 data.
- y/ Includes 21 Grilse and 42 adults harvested after the lower river reopened on Oct 15, 1999.
- z/ Harvest estimate based on creel census data and includes 54 grilse and 206 adults harvested during the secondary season allowed above the Interstate 5 bridge after IGH achieved 8,000 adult spawners.
- aa/ Harvest estimate based on HVTFD creel census below the Hawkins Bar Bridge and CDFG's estimate based on tag returns for the Trinity River above Willow Creek Weir.
- bb/ Harvest estimate based on creel census data and includes 113 grilse and 938 adults harvested during the secondary season allowed above the Interstate 5 bridge after IGH achieved 8,000 adult spawners.

Klamath River Basin Fall-Run Chinook Salmon Run-size Estimates, 1978-2000



2000 data are preliminary and subject to revision