Ocean Abundance Projections and Prospective Harvest Levels for Klamath River Fall Chinook, 2005 Season

Klamath River Technical Advisory Team
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Executive Summary

Predictor performance for 2004 and forecasts for 2005 are:

		2004			
	Age	*Preseason*	*Postseason*	*Pre/Post*	*2005 Forecast*
Ocean Abundance	3	72,100	178,900	0.40	185,700
	4	134,500	169,400	0.79	48,900
	5	9,700	30,200	0.32	5,200
Proportion Natural	3	0.55	0.44	1.25	0.54
	4	0.61	0.59	1.03	0.55
	5	0.71	0.79	0.90	0.72
Ocean Harvest Rate	4	0.15	0.52	0.29	---
Ocean Fall Harvest	3	---	30	---	---
	4	---	1,582	---	---
	5	---	362	---	---

The implications of the 2005 forecast ocean abundances, proportions natural, and the 2004 ocean fall harvest for fisheries management in 2005 were explored with the Klamath Ocean Harvest Model (KOHM) under two hypothetical management scenarios: (A) no ocean or river fisheries in 2005, and (B) status quo regulations: the 2004 ocean fishery seasons and quotas, the 2004 river recreational allocation of 15% (of nontribal harvest), and a tribal allocation of 50% (of total harvest). The results are:

	KOHM Forecasts	
Sector	*(A) No-fishing in 2005*	*(B) 2004 Regulations*
Adult Spawners		
Natural Areas	42,600	22,700
Hatcheries	34,900	19,100
Adult Harvest		
Ocean Commercial	1,800	13,800
Ocean Recreational	200	3,900
River Recreational	0	3,100
Tribal	0	20,700
Age-4 Ocean Harvest Rate	0.03	0.17
Spawner Reduction Rate	0.02	0.48

The spawner reduction rate must be less than 0.20 to yield at least 35,000 natural area adult spawners in 2005. These forecasts are provided for informational purposes only; the Pacific Fishery Management Council (PFMC) will adopt 2005 ocean salmon fishery management regulations in April 2005.

Introduction

The PFMC's (1988) fishery management plan for Klamath River fall chinook (Amendment 9) permits a natural spawner reduction rate via fisheries of no more than 2/3, with a minimum escapement of 35,000 natural area adult spawners (Prager and Mohr 2001). Natural area adult spawners are defined as age-three or older fall chinook that spawn outside of the hatchery environment, regardless of their origin. The KOHM is used by the PFMC to forecast the impacts of ocean and river fisheries on Klamath River fall chinook, and to evaluate whether a given management option is expected to meet the fishery management plan's biological goals for Klamath River fall chinook. The KOHM requires forecasts of Klamath River fall chinook ocean abundance and proportion of natural spawners by age, along with the estimated harvest of these fish in the previous calendar year's September through December (fall) ocean fisheries. This report presents these forecasts and estimates for the 2005 management year. For informational purposes, KOHM forecasts of harvest and spawner escapement also are presented under two hypothetical management scenarios: (A) no ocean or river fisheries, and (B) status quo regulations: the 2004 ocean fishery seasons and quotas, the 2004 river recreational allocation of 15% (of nontribal harvest), and a tribal allocation of 50% (of total harvest). Historical records of ocean abundance, harvest, harvest rates, river escapement, and predictor performance are also compiled. These records differ from those presented in KRTAT reports issued prior to 2002 for reasons described in KRTAT (2002) and Goldwasser et al. (2001).

Data and Analytical Methods

The age-composition of the 2004 river run of Klamath River fall chinook salmon used in this report is from the KRTAT (2005).

Ocean Abundance Forecast

The age-specific ocean abundance predictors are based on the use of "sibling regression". The age *a* September 1 ocean abundance estimates for brood years 1979–2000 were regressed against the age *a-1* river run-size estimates of their respective cohorts (Table 1, Figure 1). By convention, September 1 is the date that immature Klamath River fall chinook remaining in the ocean are incremented one year in age. The regressions were fit using least-squares with the y-intercept constrained to zero, which gives the biologically reasonable expectation that an age *a-1* river run-size of zero predicts an age *a* ocean abundance of zero. This procedure is consistent with recommendations of the PFMC's Salmon Technical Team, and Scientific and Statistical Committee.

Ocean abundance has been forecast preseason since 1985 using methods similar to those described above (Tables 2 and 3). Postseason ocean abundance estimates were calculated using cohort reconstruction methods that accommodate spatial and/or temporal variations in maturity, straying, and fishery impact rates applied separately to the hatchery and natural components of the stock. The postseason estimates for 2003 (age-three) and 2004 (age-three, age-four) are preliminary, as their respective cohorts are incomplete (Table 1).

The 2004 age-three ocean abundance forecast was 0.40 times its postseason estimate (Table 2); the age-three predictor has underestimated abundance in 11 of the 20 previous years. The 2004 age-four ocean abundance forecast was 0.79 times its postseason estimate (Table 2); the age-four predictor has underestimated abundance in 9 of the 20 previous years. The 2004 age-five ocean abundance forecast was 0.32 times its postseason estimate (Table 2); the age-five predictor has underestimated abundance in 11 of the 18 previous years.

Proportion of Natural Spawners Forecast

The age-specific proportion of natural area spawners also is forecast using "sibling regression". In this case, the age *a* observed proportion natural for calendar years 1996–2004 were regressed against the age *a-1* observed proportion natural of their respective cohorts (Table 4, Figure 2). Data for calendar years prior to 1996 were not used because: (1) at this time the hatcheries did not always have an "open-door" policy (some fish were denied entry into the hatcheries and presumably spawned in natural areas); and (2) the proportion natural time-series (Figure 2a) indicates a "shift-point" near 1995–1996. The regressions were fit using

ordinary least-squares for age-three and age-four. For age-five, the slope of the relationship was insignificant, and the arithmetic mean was used as the predictor.

The 2004 proportion natural forecast for age-three, -four, and -five fish was 0.55, 0.61, 0.71, respectively, and the corresponding post-season estimates are 0.44, 0.59, 0.79, respectively (Table 4).

Historical Harvest Levels and Rates

Historical (1986-2004) ocean and river harvest levels and rates of age-three and age-four Klamath River fall chinook are listed in Table 5. The 2004 age-four ocean harvest rate was forecasted to be 15.0% (PFMC 2004); its (preliminary) postseason estimate of 52.4% is substantially higher than that.

2004 Ocean Fishery Fall Harvest

Klamath River fall chinook ocean harvests during the 2004 fall period are estimated postseason through expansion of the coded-wire tags (all release types) recovered in those fisheries. Each coded-wire tag recovery is expanded for sampling and mark-rate, and then to account for the harvest of natural-origin fish, further expanded by the estimated basin-wide escapement (hatchery- plus natural-origin) per hatchery-origin fish observed in the river run just prior to these fall fisheries (same brood and calendar year).

2005 Forecasts

The 2005 forecasts of ocean stock abundance and proportion natural area spawners are (Figures 1 and 2):

Age	*Abundance*	*Proportion Natural*
3	185,700	0.54
4	48,900	0.55
5	5,200	0.72

For the 2004 ocean fall fisheries, the natural production multipliers for the coded-wire tag recoveries are:

Age (a)	*Total Escapement (a-1)*	*Hatchery-origin Escapement (a-1)*	*Natural-production Multiplier (a)*
3	9,712	3,639	2.67
4	33,182	29,463	1.13
5	40,589	21,715	1.87

The fishery-area-month-age-specific estimated harvests are presented in Table 6. These estimated fall landings will be accounted for in ocean fisheries harvest allocation in 2005, and the associated harvest impacts will be deducted from the September 1 ocean abundance forecasts.

KOHM principal forecast results under two management scenarios: (A) no ocean or river fisheries in 2005, and (B) status quo regulations: the 2004 ocean fishery seasons and quotas, the 2004 river recreational allocation of 15% (of nontribal harvest), and a tribal allocation of 50% (of total harvest); are provided in Appendices A and B, respectively.

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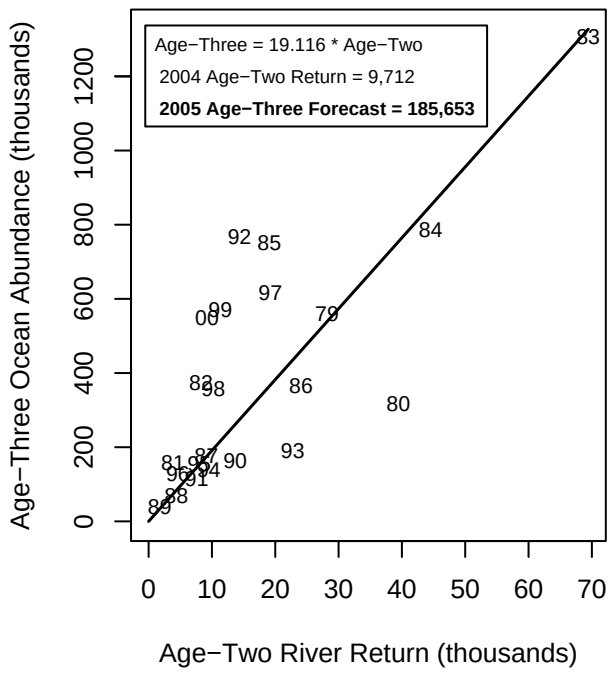

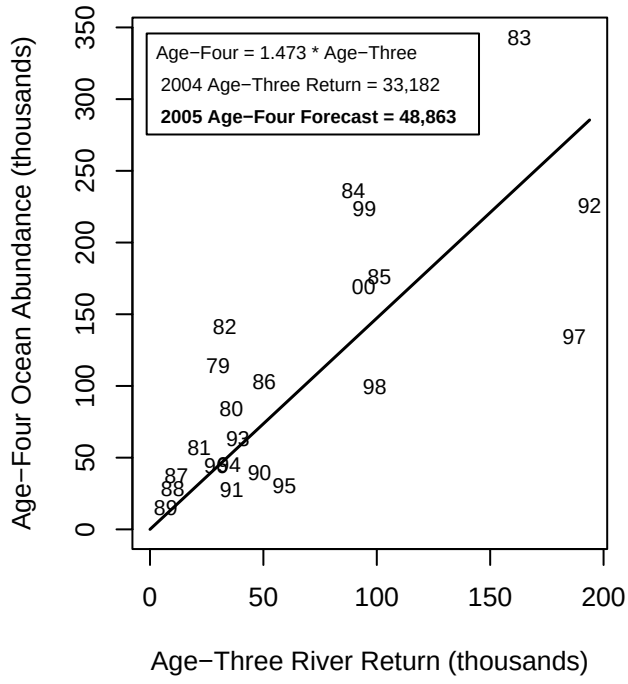

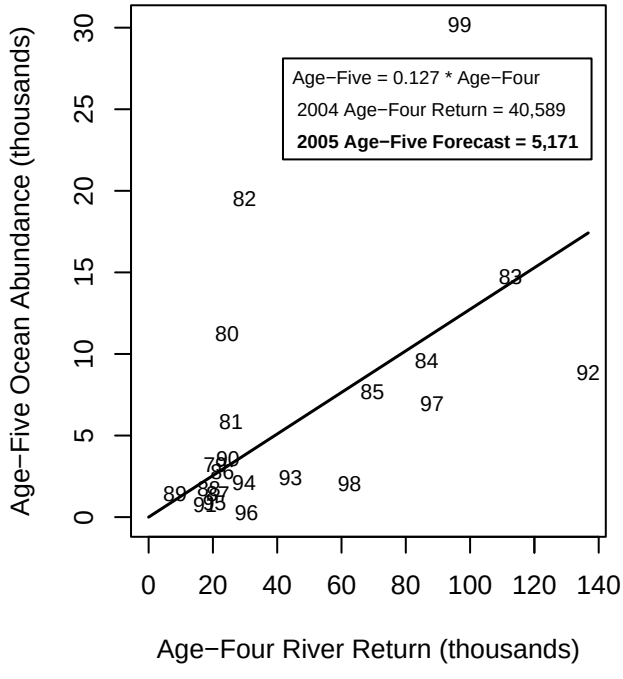

Figure 1. Regression estimators for Klamath River fall chinook ocean abundance (Sept. 1) based on that year's river return of same cohort. Numbers in plots denote brood years.

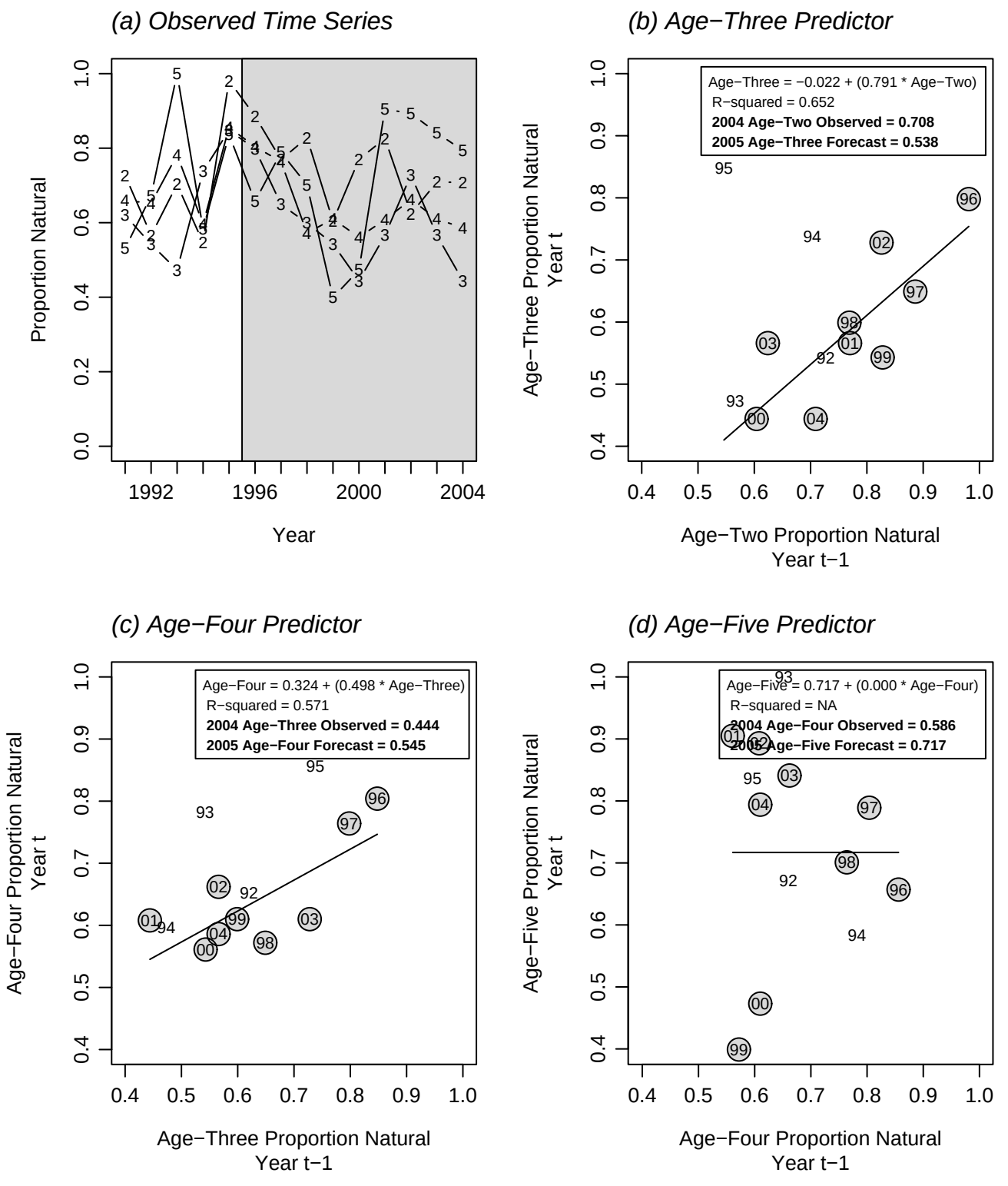

Figure 2. Age−specific proportion of natural area spawners. Panel (a): observed time−series; numbers in plot denote age; shaded area depicts data used for predictor. Panels (b)−(d): age−specific predictor based on previous−year observed proportion for same cohort; numbers in plots denote years 1992−2004; shaded circles indicate years used for predictor; age−three and age−four are regression predictors; age−5 predictor is arithmetic mean.

Table 1. Klamath River fall chinook ocean abundance (thousands), ocean harvest rate, and river-run size estimates (thousands) by age.

Calendar Year(t)	Ocean Abundance Sept1(t-1)			Annual Ocean Harvest Rate Sept1(t-1) thru Aug31(t)		Klamath Basin River Run (t)				Total Adults
	Age 3	Age 4	Total	Age 3	Age 4	Age 2	Age 3	Age 4	Age 5	
1981	493.2	57.0	550.2	0.21	0.53	28.2	64.1	14.4	1.8	80.3
1982	559.1	133.4	692.5	0.30	0.52	39.4	30.1	33.9	2.6	66.6
1983	317.9	114.4	432.3	0.19	0.60	3.8	35.9	20.7	0.9	57.5
1984	157.5	84.1	241.6	0.08	0.38	8.3	21.7	24.4	1.1	47.2
1985	374.6	56.9	431.5	0.11	0.25	69.4	32.9	25.7	5.8	64.4
1986	1,307.9	141.1	1,448.9	0.18	0.46	44.6	162.9	29.8	2.3	195.0
1987	786.2	343.2	1,129.4	0.16	0.43	19.1	89.7	112.6	6.8	209.1
1988	750.4	236.2	986.6	0.20	0.39	24.1	101.2	86.5	3.9	191.6
1989	367.2	176.3	543.5	0.15	0.36	9.1	50.4	69.6	4.3	124.3
1990	177.7	103.1	280.8	0.30	0.55	4.4	11.6	22.9	1.3	35.9
1991	69.7	37.3	107.0	0.03	0.18	1.8	10.0	21.6	1.1	32.7
1992	39.5	28.3	67.7	0.02	0.07	13.7	6.9	18.8	1.0	26.7
1993	164.8	15.0	179.8	0.05	0.16	7.6	48.3	8.2	0.7	57.2
1994	116.2	39.6	155.8	0.03	0.09	14.4	36.0	24.7	1.0	61.7
1995	768.3	27.6	796.0	0.04	0.13	22.8	193.8	17.5	2.4	213.8
1996	190.5	225.6	416.1	0.05	0.16	9.5	38.8	136.7	0.3	175.8
1997	140.4	62.9	203.3	0.01	0.06	8.0	35.0	44.2	4.6	83.7
1998	154.6	44.9	199.4	0.00	0.09	4.6	59.2	29.7	1.7	90.6
1999	129.2	30.2	159.5	0.01	0.09	19.2	29.2	20.5	1.3	51.0
2000	617.0	44.2	661.3	0.06	0.10	10.2	187.1	30.5	0.5	218.1
2001	357.4	134.0	491.4	0.03	0.09	11.3	99.1	88.2	0.2	187.4
2002	571.4	99.8	671.1	0.03	0.15	9.2	94.6	62.5	3.7	160.8
2003	548.2 [a/]	223.3	771.6	0.10 [a/]	0.23	3.8	94.3	96.8	0.9	191.9
2004	178.9 [b/]	169.4 [a/]	348.3	---- [c/]	0.52 [a/]	9.7	33.2	40.6	5.3	79.1

a/ Preliminary: incomplete cohort data (age-5 data unavailable).

b/ Preliminary: incomplete cohort data (age-4 and age-5 data unavailable).

c/ Not estimated: incomplete cohort data (age-4 and age-5 data unavailable).

Table 2. Comparisons of preseason forecast and postseason estimates for ocean abundance of adult Klamath River fall chinook (Page 1 of 2).

Year (t)	Preseason Forecast [a/] Sept 1 (t-1)	Postseason Estimate Sept 1 (t-1)	Pre/Postseason
	Age-Three		
1985	113,000	276,000	0.41
1986	426,000 [b/]	1,307,875	0.33
1987	511,800	786,245	0.65
1988	370,800	750,440	0.49
1989	450,600	367,173	1.23
1990	479,000	177,718	2.70
1991	176,200	69,654	2.53
1992	50,000	39,466	1.27
1993	294,400	164,847	1.79
1994	138,000	116,194	1.19
1995	269,000	768,346	0.35
1996	479,800	190,497	2.52
1997	224,600	140,383	1.60
1998	176,000	154,589	1.14
1999	84,800	129,235	0.66
2000	349,600	617,048	0.57
2001	187,200	357,365	0.52
2002	209,000	571,354	0.37
2003 [c/]	171,300	548,223	0.31
2004 [c/]	72,100	178,902	0.40
	Age-Four		
1985	56,875	57,500	0.99
1986	66,250	141,062	0.47
1987	206,125	343,163	0.60
1988	186,375	236,204	0.79
1989	215,500	176,327	1.22
1990	50,125	103,110	0.49
1991	44,625	37,323	1.20
1992	44,750	28,264	1.58
1993	39,125	15,002	2.61
1994	86,125	39,624	2.17
1995	47,000	27,608	1.70
1996	268,500	225,581	1.19
1997	53,875	62,897	0.86
1998	46,000	44,856	1.03
1999	78,750	30,244	2.60
2000	38,875	44,239	0.88
2001	247,000	134,015	1.84
2002	143,800	99,754	1.44
2003	132,400	223,330	0.59
2004 [c/]	134,500	169,387	0.79

Table 2. Comparisons of preseason forecast and postseason estimates for ocean abundance of adult Klamath River fall chinook (Page 2 of 2).

Year (t)	Preseason Forecast [a/] Sept 1 (t-1)	Postseason Estimate Sept 1 (t-1)	Pre/Postseason
	Age-Five		
1985 [d/]	--	11,272	--
1986 [d/]	--	5,877	--
1987	5,250	19,521	0.27
1988	13,250	14,707	0.90
1989	10,125	9,595	1.06
1990	7,625	7,710	0.99
1991	1,500	2,780	0.54
1992	1,250	1,448	0.86
1993	1,125	1,770	0.64
1994	500	1,423	0.35
1995	2,000	3,577	0.56
1996	1,125	788	1.43
1997	7,875	8,875	0.89
1998	3,250	2,390	1.36
1999	2,000	2,103	0.95
2000	1,375	859	1.60
2001	1,250	259	4.83
2002	9,700	6,933	1.40
2003	6,500	2,062	3.15
2004	9,700	30,166	0.32
	Total Adults		
1985 [d/]	169,875	344,772	0.49
1986 [d/]	492,250	1,454,814	0.34
1987	723,175	1,148,929	0.63
1988	570,425	1,001,351	0.57
1989	676,225	553,095	1.22
1990	536,750	288,538	1.86
1991	222,325	109,757	2.03
1992	96,000	69,178	1.39
1993	334,650	181,619	1.84
1994	224,625	157,241	1.43
1995	318,000	799,531	0.40
1996	749,425	416,866	1.80
1997	286,350	212,155	1.35
1998	225,250	201,835	1.12
1999	165,550	161,582	1.02
2000	389,850	662,146	0.59
2001	435,450	491,639	0.89
2002	362,500	678,041	0.53
2003 [c/]	310,200	773,615	0.40
2004 [c/]	216,300	378,455	0.57

a/ Original preseason forecasts for years 1985-2001 were for May 1(t); converted to Sept 1(t-1) forecasts by dividing the May 1(t) number by the Sept 1(t-1) through May 1(t) survival rate presumed by modelers in those years: 0.5 age-three, 0.8 age-four, 0.8 age-5.

b/ A scalar of 0.75 was applied to the jack count because 1) most jacks returned to the Trinity River and 2) the jack count was outside the database range.

c/ Preliminary.

d/ Age-5 preseason ocean abundance forecast unavailable.

Table 3. Summary of management objectives and predictor performance for Klamath River fall chinook.

	Preseason Stock Abundance Forecast [a/] Sept 1 (t-1)		Postseason Stock Abundance Estimate Sept 1 (t-1)		Preseason Harvest Rate Forecast on Age-four Fish[b/]		Postseason Harvest Rate Forecast on Age-four Fish[c/]		Preseason Adult Harvest Forecast		Postseason Adult Harvest Estimate	
Year (t)	Age-3	Age-4	Age-3	Age-4	Ocean	River	Ocean	River	Ocean	River	Ocean	River
1986	426,000	66,250	1,307,875	141,062	0.28	0.50	0.46	0.67	72,000	37,700	304,888	46,154
1987	511,800	206,125	786,245	343,163	0.28	0.53	0.43	0.44	121,200	78,200	279,309	73,265
1988	370,800	186,375	750,440	236,204	0.31	0.53	0.39	0.52	114,100	65,400	252,559	73,854
1989	450,600	215,500	367,173	176,327	0.30	0.49	0.36	0.70	128,100	67,600	123,829	54,340
1990	479,000	50,125	177,718	103,110	0.30	0.49	0.55	0.36	85,100	31,200	114,950	11,459
1991	176,200	44,625	69,654	37,323	0.13	0.28	0.18	0.45	16,700	12,800	9,962	13,581
1992	50,000	44,750	39,466	28,264	0.06	0.15	0.07	0.27	4,200	4,200	3,160	6,787
1993	294,400	39,125	164,847	15,002	0.12	0.43	0.16	0.49	20,100	22,500	11,266	12,808
1994	138,000	86,125	116,194	39,624	0.07	0.20	0.09	0.30	10,400	14,300	8,527	13,524
1995	269,000	47,000	768,346	27,608	0.07	0.32	0.13	0.20	13,500	18,500	31,303	21,638
1996	479,800	268,500	190,497	225,581	0.17	0.66	0.16	0.39	88,400	129,100	44,928	69,241
1997	224,600	53,875	140,383	62,897	0.10	0.43	0.06	0.26	17,600	26,500	8,623	17,764
1998	176,000	46,000	154,589	44,856	0.07	0.29	0.09	0.30	10,200	14,800	4,916	17,897
1999	84,800	78,750	129,235	30,244	0.10	0.28	0.09	0.45	12,300	18,100	5,083	16,942
2000	349,600	38,875	617,048	44,239	0.11	0.53	0.10	0.25	24,000	32,400	41,908	35,066
2001	187,200	247,000	357,365	134,015	0.14	0.61	0.09	0.29	45,600	105,300	21,638	50,780
2002	209,000	143,800	571,354	99,754	0.13	0.57	0.15	0.26	30,000	70,900	31,851	35,069
2003	171,300	132,400	548,223	223,330	0.16	0.50	0.23	0.28	30,600	52,200	104,877	39,715
2004[d/]	72,100	134,500	178,902	169,387	0.15	0.38	0.52	0.47	26,454	35,791	127,685	29,534

a/ Original preseason forecast for years 1986-2001 were for May 1(t); converted to Sept 1 (t-1) forecasts by dividing the May 1(t) number by the Sept 1(t-1) through May 1(t) survival rate presumed by modelers in those years: 0.5 age-three, 0.8 age-four, 0.8 age-five.

b/ Ocean harvest rate forecast is the fraction of the predicted ocean abundance expected to be harvested Sept 1 (t-1) through Aug 31 (t). River harvest rate forecast is the fraction of the predicted river run expected to be harvested in river fisheries. Original ocean harvest rate forecasts for year(t), 1986-2001, were based on a May 1(t) ocean abundance denominator; converted to Sept 1(t-1) abundance denominator by multiplying former values by 0.8 (the age-four survival rate between Sept 1 (t-1) and May (t) presumed by modelers in those years.

c/ Ocean harvest rate is the fraction of the postseason ocean abundance harvested Sept 1(t-1) through Aug 31(t). River harvest rate is the fraction of the river run harvested by river fisheries.

d/ Preliminary.

Table 4. Numbers of hatchery and natural adult fall chinook spawners in the Klamath Basin by age. [a/]

	Hatchery Spawners					Natural Area Spawners					Proportion Natural				
Year	Age 2	Age 3	Age 4	Age 5	Adults	Age 2	Age 3	Age 4	Age 5	Adults	Age 2	Age 3	Age 4	Age 5	Adults
1985					22,500					25,700					0.53
1986					32,900					113,400					0.78
1987					29,100					101,700					0.78
1988					33,500					79,400					0.70
1989					22,000					43,900					0.67
1990					8,100					15,600					0.66
1991	270	2,426	3,827	232	6,485	718	3,956	7,430	263	11,649	0.73	0.62	0.66	0.53	0.64
1992	3,948	2,576	4,627	157	7,360	5,143	3,051	8,657	321	12,029	0.57	0.54	0.65	0.67	0.62
1993	1,619	20,797	846	0	21,643	3,825	18,629	3,039	190	21,858	0.70	0.47	0.78	1.00	0.50
1994	5,200	7,877	6,702	160	14,739	6,245	22,230	9,879	224	32,333	0.55	0.74	0.60	0.58	0.69
1995	335	26,685	1,987	255	28,927	17,324	148,639	11,856	1,298	161,793	0.98	0.85	0.86	0.84	0.85
1996	792	4,360	15,649	24	20,033	6,174	17,232	64,048	46	81,326	0.89	0.80	0.80	0.66	0.80
1997	1,272	10,484	7,560	618	18,662	4,225	19,343	24,493	2,308	46,144	0.77	0.65	0.76	0.79	0.71
1998	595	20,411	8,588	220	29,219	2,855	30,509	11,462	517	42,488	0.83	0.60	0.57	0.70	0.59
1999	6,857	10,046	4,081	200	14,327	10,447	11,927	6,396	133	18,456	0.60	0.54	0.61	0.40	0.56
2000	1,909	87,643	9,833	136	97,612	6,394	70,042	12,565	122	82,729	0.77	0.44	0.56	0.47	0.46
2001	1,631	31,306	23,802	4	55,112	7,747	40,908	36,889	38	77,835	0.83	0.57	0.61	0.90	0.59
2002	2,331	15,867	11,177	137	27,181	3,867	42,557	21,932	1,146	65,635	0.62	0.73	0.66	0.89	0.71
2003	864	35,403	26,295	84	61,782	2,102	46,116	41,084	444	87,644	0.71	0.57	0.61	0.84	0.59
2004	1,981	14,505	8,205	271	22,981	4,807	11,596	11,603	1,047	24,246	0.71	0.44	0.59	0.79	0.51

a/ Age structure of hatchery and natural area spawners not available prior to 1991.

Table 5. Harvest levels and rates of age-three and age-four Klamath River fall chinook. (Page 1 of 2)

	Ocean Fisheries (Sept 1(t-1) through Aug 31(t))							River Fisheries (t)		
	KMZ			North of	South of		Ocean			
Year(t)	Troll	Sport	Subtotal	KMZ	KMZ	Subtotal	Total	Net	Sport	Total
					HARVEST (numbers of fish)					
Age-Three										
1986	35,753	4,884	40,637	74,118	123,212	197,330	237,967	8,100	18,100	26,200
1987	17,555	5,158	22,713	43,459	57,348	100,807	123,520	11,400	11,400	22,800
1988	15,687	5,065	20,752	23,730	106,606	130,336	151,088	12,500	15,600	28,100
1989	6,308	11,770	18,078	15,272	23,450	38,722	56,800	2,700	900	3,600
1990	81	4,441	4,522	37,056	11,159	48,215	52,737	1,300	1,400	2,700
1991	0	1,032	1,032	350	824	1,174	2,206	2,123	1,277	3,400
1992	0	0	0	971	0	971	971	970	251	1,221
1993	0	812	812	819	6,360	7,179	7,991	5,426	2,917	8,343
1994	41	572	613	0	3,266	3,266	3,879	4,543	971	5,514
1995	0	985	985	11,857	14,478	26,335	27,320	11,840	5,536	17,376
1996	0	0	0	0	9,141	9,141	9,141	12,363	3,661	16,024
1997	0	233	233	611	1,211	1,822	2,055	2,166	2,736	4,902
1998	0	6	6	296	466	762	768	2,231	5,781	8,012
1999	61	174	235	1,252	435	1,687	1,922	4,981	1,748	6,729
2000	404	3,245	3,649	8,735	24,894	33,629	37,278	22,458	4,893	27,351
2001	115	105	220	2,738	6,016	8,754	8,974	17,885	7,294	25,179
2002	266	945	1,211	1,954	11,898	13,852	15,063	11,734	6,258	17,992
2003 [a/]	297	1,322	1,619	3,439	47,133	50,572	52,191	6,996	5,061	12,057
2004 [a/]	419	1,001	1,420	10,261	7,622	17,883	19,303	4,616	2,023	6,639
Age-Four										
1986	7,762	1,117	8,879	23,407	31,993	55,400	64,279	17,000	2,900	19,900
1987	21,753	4,432	26,185	71,218	48,907	120,125	146,310	41,000	8,500	49,500
1988	11,920	3,628	15,548	27,088	50,492	77,580	93,128	38,600	6,200	44,800
1989	5,924	9,608	15,532	31,915	16,268	48,183	63,715	41,000	7,700	48,700
1990	3,955	2,864	6,819	39,375	10,498	49,873	56,692	6,000	2,200	8,200
1991	0	1,006	1,006	1,529	4,172	5,701	6,707	7,593	2,016	9,609
1992	172	55	227	1,799	12	1,811	2,038	4,360	723	5,083
1993	0	0	0	850	1,605	2,455	2,455	3,786	243	4,029
1994	0	1,073	1,073	1,117	1,419	2,536	3,609	6,666	812	7,478
1995	0	224	224	1,757	1,702	3,459	3,683	2,957	481	3,438
1996	769	3,451	4,220	10,277	20,765	31,042	35,262	43,959	9,080	53,039
1997	3	170	173	460	2,974	3,434	3,607	8,734	2,586	11,320
1998	0	101	101	3,973	0	3,973	4,074	7,164	1,822	8,986
1999	15	378	393	1,655	693	2,348	2,741	8,789	494	9,283
2000	116	892	1,008	2,453	1,052	3,505	4,513	6,733	756	7,489
2001	1,303	1,593	2,896	5,813	3,916	9,729	12,625	20,759	4,819	25,578
2002	1,932	822	2,754	3,266	9,320	12,586	15,340	11,929	4,063	15,992
2003	1,078	1,188	2,266	10,623	38,520	49,143	51,409	22,754	4,592	27,346
2004 [a/]	3,494	2,968	6,462	28,728	53,584	82,312	88,774	17,487	1,738	19,225

Table 5. Harvest levels and rates of age-three and age-four Klamath River fall chinook. (Page 2 of 2)

	Ocean Fisheries (Sept 1(t-1) through Aug 31(t))							River Fisheries (t)		
	KMZ			North of	South of		Ocean			
Year(t)	Troll	Sport	Subtotal	KMZ	KMZ	Subtotal	Total	Net	Sport	Total
					HARVEST RATE [b/]					
Age-Three										
1986	0.03	0.00	0.03	0.06	0.09	0.15	0.18	0.05	0.11	0.16
1987	0.02	0.01	0.03	0.06	0.07	0.13	0.16	0.13	0.13	0.25
1988	0.02	0.01	0.03	0.03	0.14	0.17	0.20	0.12	0.15	0.28
1989	0.02	0.03	0.05	0.04	0.06	0.11	0.15	0.05	0.02	0.07
1990	0.00	0.02	0.03	0.21	0.06	0.27	0.30	0.11	0.12	0.23
1991	0.00	0.01	0.01	0.01	0.01	0.02	0.03	0.21	0.13	0.34
1992	0.00	0.00	0.00	0.02	0.00	0.02	0.02	0.14	0.04	0.18
1993	0.00	0.00	0.00	0.00	0.04	0.04	0.05	0.11	0.06	0.17
1994	0.00	0.00	0.01	0.00	0.03	0.03	0.03	0.13	0.03	0.15
1995	0.00	0.00	0.00	0.02	0.02	0.03	0.04	0.06	0.03	0.09
1996	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.32	0.09	0.41
1997	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.06	0.08	0.14
1998	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.10	0.14
1999	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.17	0.06	0.23
2000	0.00	0.01	0.01	0.01	0.04	0.05	0.06	0.12	0.03	0.15
2001	0.00	0.00	0.00	0.01	0.02	0.02	0.03	0.18	0.07	0.25
2002	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.12	0.07	0.19
2003 [a/]	0.00	0.00	0.00	0.01	0.09	0.09	0.10	0.07	0.05	0.13
2004 [a/]	0.00	0.01	0.01	0.06	0.04	0.10	0.11	0.14	0.06	0.20
Age-Four										
1986	0.06	0.01	0.06	0.17	0.23	0.39	0.46	0.57	0.10	0.67
1987	0.06	0.01	0.08	0.21	0.14	0.35	0.43	0.36	0.08	0.44
1988	0.05	0.02	0.07	0.11	0.21	0.33	0.39	0.45	0.07	0.52
1989	0.03	0.05	0.09	0.18	0.09	0.27	0.36	0.59	0.11	0.70
1990	0.04	0.03	0.07	0.38	0.10	0.48	0.55	0.26	0.10	0.36
1991	0.00	0.03	0.03	0.04	0.11	0.15	0.18	0.35	0.09	0.45
1992	0.01	0.00	0.01	0.06	0.00	0.06	0.07	0.23	0.04	0.27
1993	0.00	0.00	0.00	0.06	0.11	0.16	0.16	0.46	0.03	0.49
1994	0.00	0.03	0.03	0.03	0.04	0.06	0.09	0.27	0.03	0.30
1995	0.00	0.01	0.01	0.06	0.06	0.13	0.13	0.17	0.03	0.20
1996	0.00	0.02	0.02	0.05	0.09	0.14	0.16	0.32	0.07	0.39
1997	0.00	0.00	0.00	0.01	0.05	0.05	0.06	0.20	0.06	0.26
1998	0.00	0.00	0.00	0.09	0.00	0.09	0.09	0.24	0.06	0.30
1999	0.00	0.01	0.01	0.05	0.02	0.08	0.09	0.43	0.02	0.45
2000	0.00	0.02	0.02	0.06	0.02	0.08	0.10	0.22	0.02	0.25
2001	0.01	0.01	0.02	0.04	0.03	0.07	0.09	0.24	0.05	0.29
2002	0.02	0.01	0.03	0.03	0.09	0.13	0.15	0.19	0.06	0.26
2003	0.00	0.01	0.01	0.05	0.17	0.22	0.23	0.24	0.05	0.28
2004 [a/]	0.02	0.02	0.04	0.17	0.32	0.49	0.52	0.43	0.04	0.47

a/ Preliminary data (incomplete cohort).

b/ Ocean harvest rates are the fraction of Sept 1(t-1) ocean abundance harvested in these fisheries. River harvest rates are the fraction of the river run (t) harvested in these fisheries.

Table 6. Fall 2004 (September - November) ocean landings of Klamath River fall chinook by fishery, age, and KOHM area.[a/]

COMMERCIAL FISHERY

KOHM	Age 3			Age 4			Age 5			
area	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	Total
NO	--	--	--	612	20	--	83	--	--	715
CO	--	--	--	506	63	--	73	118	--	760
KO	--	--	--	--	--	--	8	--	--	8
KC	--	--	--	135	--	--	15	--	--	150
FB	--	--	--	53	--	--	65	--	--	118
SF	--	--	--	27	--	--	--	--	--	27
MO	--	--	--	--	--	--	--	--	--	0
Total	0	0	0	1,333	83	0	244	118	0	1,778

SPORT FISHERY

KOHM	Age 3			Age 4			Age 5			
area	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	Total
NO	--	--	--	--	26	--	--	--	--	26
CO	30	--	--	25	--	--	--	--	--	55
KO	--	--	--	--	--	--	--	--	--	0
KC	--	--	--	115	--	--	--	--	--	115
FB	--	--	--	--	--	--	--	--	--	0
SF	--	--	--	--	--	--	--	--	--	0
MO	--	--	--	--	--	--	--	--	--	0
Total	30	0	0	140	26	0	0	0	0	196

a/ KOHM areas are as follows: NO=Newport & Tillamook: CO=Coos Bay; KO=Klamath Management Zone in Oregon; KC=Klamath Management Zone in California; FB=Fort Bragg; SF=San Francisco; and MO=Monterey.

Appendix A. KOHM: Summary Output. Wed Feb 23 23:04:59 2005
2005 stock projections; no 2005 fishing.

Klamath Escapement

Absent fishing:	79298	
Hatcheries:	35661	
Natural areas:	43637	
With fishing		
Mature adults:	77908	
Strays:	369	
Klamath Basin:	77540	
Spawners:	77540	
Hatcheries:	34914	
Natural areas:	42625	(objective: >= 35000)
Reduction rate:	0.023	(objective: <= 0.198)

Klamath Harvest

Total:	1974		
River:	0		
Ocean:	1974		
Tribal:	0	0.000	(objective: 0.000)
Non-tribal:	1974		
River:	0	0.000	
Ocean troll:	1778		
CA / OR:	0.166 / 0.834		
Ocean sport:	196		
KMZ:	115	0.058	
Age-four o.harv.rate:	0.032		(objective: <= 0.16)

Klamath Harvest: ocean troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	694	20	0	0	0	0	0	0	0	0	0	0	715
CO	580	181	0	0	0	0	0	0	0	0	0	0	761
KO	8	0	0	0	0	0	0	0	0	0	0	0	8
KC	150	0	0	0	0	0	0	0	0	0	0	0	150
FB	118	0	0	0	0	0	0	0	0	0	0	0	118
SF	27	0	0	0	0	0	0	0	0	0	0	0	27
MO	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1577	201	0	0	0	0	0	0	0	0	0	0	1778

Klamath Harvest: ocean sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	0	26	0	0	0	0	0	0	0	0	0	0	26
CO	55	0	0	0	0	0	0	0	0	0	0	0	55
KO	0	0	0	0	0	0	0	0	0	0	0	0	0
KC	115	0	0	0	0	0	0	0	0	0	0	0	115
FB	0	0	0	0	0	0	0	0	0	0	0	0	0
SF	0	0	0	0	0	0	0	0	0	0	0	0	0
MO	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	170	26	0	0	0	0	0	0	0	0	0	0	196

Chinook Harvest (All Stocks): Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	12500	1600	100	NA	NA	NA	0	0	0	0	0	0	14200
CO	11200	6600	2100	200	NA	NA	0	0	0	0	0	0	20100
KO	300	200	40	NA	NA	NA	0	0	0	0	0	0	540
KC	6200	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	6200
FB	11000	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	11000
SF	4300	1000	NA	NA	NA	NA	NA	NA	0	0	0	0	5300
MO	300	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	300
Total	45800	9400	2240	200	NA	NA	0	0	0	0	0	0	57640

Chinook Harvest (All Stocks): Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	2400	1900	100	NA	NA	NA	NA	NA	0	0	0	0	4400
CO	2600	10	NA	NA	NA	NA	NA	NA	0	0	0	0	2610
KO	600	200	NA	NA	NA	NA	NA	NA	0	0	0	0	800
KC	2600	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	2600
FB	700	100	0	NA	NA	NA	NA	0	0	0	0	0	800
SF	7700	2600	300	NA	NA	0	0	0	0	0	0	0	10600
MO	100	0	NA	NA	NA	NA	0	0	0	0	0	0	100
Total	16700	4810	400	NA	NA	0	0	0	0	0	0	0	21910

Klamath Contribution Rates: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	0.056	0.013	0	NA	NA	NA	0.061	0.024	0.016	0.008	0.021	0.036
CO	0.052	0.027	0	0	NA	NA	0.017	0.015	0.025	0.026	0.070	0.108
KO	0.028	0.000	0	NA	NA	NA	0.112	0.112	0.112	0.140	0.205	0.153
KC	0.024	NA	NA	NA	NA	NA	NA	NA	0.262	0.213	0.091	0.084
FB	0.011	NA	NA	NA	NA	NA	NA	NA	0.069	0.074	0.063	0.024
SF	0.006	0.000	NA	NA	NA	NA	NA	NA	0.021	0.019	0.018	0.010
MO	0.000	NA	NA	NA	NA	NA	NA	NA	0.004	0.005	0.018	0.002

Klamath Contribution Rates: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	0.000	0.014	0	NA	NA	NA	NA	NA	0.022	0.006	0.021	0.020
CO	0.021	0.000	NA	NA	NA	NA	NA	NA	0.111	0.047	0.032	0.016
KO	0.000	0.000	NA	NA	NA	NA	NA	NA	0.032	0.045	0.076	0.103
KC	0.044	NA	NA	NA	NA	NA	NA	NA	0.068	0.050	0.050	0.092
FB	0.000	0.000	NaN	NA	NA	NA	NA	0.012	0.022	0.021	0.024	0.028
SF	0.000	0.000	0	NA	NA	0.002	0.003	0.008	0.004	0.020	0.006	0.003
MO	0.000	NaN	NA	NA	NA	NA	0.016	0.005	0.003	0.002	0.005	0.012

Season Effort: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
Total	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0

Season Effort: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
Total	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0

Quota Effort: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Quota Effort: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Total Effort: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
Total	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0

Total Effort: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
Total	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0

Days open: ocean troll, type 0

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0

Days open: ocean troll, type 1

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0

Days open: ocean sport, type 0

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0

Days open: ocean sport, type 1

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0

Chinook Quotas (All Stocks): ocean troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Chinook Quotas (All Stocks): ocean sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Size limits: ocean

	fishery	month	area	limit
1	10	9	NO	27
2	10	10	NO	28
3	10	5	NO	27
4	10	6	NO	27
5	10	7	NO	27
6	10	8	NO	27
7	10	9	CO	27
8	10	10	CO	28
9	10	5	CO	27
10	10	6	CO	27
11	10	7	CO	27
12	10	8	CO	27
13	10	9	KO	28
14	10	5	KO	27
15	10	6	KO	27
16	10	7	KO	27
17	10	8	KO	27
18	10	9	KC	28
19	10	9	FB	28
20	10	7	FB	27
21	10	8	FB	27
22	10	9	SF	27
23	10	7	SF	27
24	10	8	SF	27
25	10	7	MO	27
26	10	8	MO	27
27	40	2	FB	24
28	40	3	FB	24
29	40	4	FB	24
30	40	4	SF	24
31	40	4	MO	24

Allocation objective:
   River Sport: 0
     KMZ Sport: 0
        Tribes: 0

Klamath escapement buffer: 0

Appendix B. KOHM: Summary Output. Wed Feb 23 23:17:23 2005
2005 stock projections; 2004 regulations.

Klamath Escapement

Absent fishing:	79298		
Hatcheries:	35661		
Natural areas:	43637		
With fishing			
Mature adults:	67841		
Strays:	324		
Klamath Basin:	67518		
Spawners:	41805		
Hatcheries:	19088		
Natural areas:	22717		(objective: >= 35000)
Reduction rate:	0.479		(objective: <= 0.198)

Klamath Harvest

Total:	41472		
River:	23846		
Ocean:	17625		
Tribal:	20736	0.500	(objective: 0.500)
Non-tribal:	20736		
River:	3110	0.150	
Ocean troll:	13758		
CA / OR:	0.513 / 0.487		
Ocean sport:	3867		
KMZ:	2393	0.136	
Age-four o.harv.rate:	0.167		(objective: <= 0.16)

Klamath Harvest: ocean troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	694	20	0	0	0	0	301	136	256	104	161	472	2143
CO	580	181	0	0	0	0	107	256	183	296	674	1159	3437
KO	8	0	0	0	0	0	0	0	37	364	328	382	1120
KC	150	0	0	0	0	0	0	0	0	0	0	0	150
FB	118	0	0	0	0	0	0	0	0	0	1887	818	2822
SF	27	0	0	0	0	0	0	0	705	1561	886	158	3336
MO	0	0	0	0	0	0	0	0	268	265	214	2	749
Total	1577	201	0	0	0	0	408	392	1450	2589	4150	2991	13758

Klamath Harvest: ocean sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	0	26	0	0	0	0	0	0	1	2	38	92	160
CO	55	0	0	0	0	0	0	0	4	41	81	37	218
KO	0	0	0	0	0	0	0	0	10	118	342	353	823
KC	115	0	0	0	0	0	0	0	153	378	608	316	1570
FB	0	0	0	0	0	0	0	8	61	226	248	29	572
SF	0	0	0	0	0	0	0	40	30	141	172	7	390
MO	0	0	0	0	0	0	0	45	15	13	55	7	135
Total	170	26	0	0	0	0	0	93	275	918	1544	841	3867

Chinook Harvest (All Stocks): Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	12500	1600	100	NA	NA	NA	4895	5781	16283	13192	7548	13167	75064
CO	11200	6600	2100	200	NA	NA	6410	17047	7298	11316	9631	10716	82518
KO	300	200	40	NA	NA	NA	0	0	335	2600	1600	2500	7575
KC	6200	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	6200
FB	11000	NA	NA	NA	NA	NA	NA	NA	0	0	29876	34470	75346
SF	4300	1000	NA	NA	NA	NA	NA	NA	32806	81363	49137	15291	183898
MO	300	NA	NA	NA	NA	NA	NA	NA	61485	51066	12199	1078	126128
Total	45800	9400	2240	200	NA	NA	11305	22828	118206	159537	109992	77221	556729

Chinook Harvest (All Stocks): Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	2400	1900	100	NA	NA	NA	NA	NA	47	360	1838	4628	11274
CO	2600	10	NA	NA	NA	NA	NA	NA	39	867	2545	2381	8442
KO	600	200	NA	NA	NA	NA	NA	NA	318	2643	4511	3436	11707
KC	2600	NA	NA	NA	NA	NA	NA	NA	2258	7489	12247	3439	28033
FB	700	100	0	NA	NA	NA	NA	670	2753	10883	10527	1005	26638
SF	7700	2600	300	NA	NA	0	0	4932	8117	6973	27244	2163	60030
MO	100	0	NA	NA	NA	NA	0	8549	4932	5791	10272	636	30279
Total	16700	4810	400	NA	NA	0	0	14151	18465	35005	69183	17688	176402

Klamath Contribution Rates: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	0.056	0.013	0	NA	NA	NA	0.061	0.024	0.016	0.008	0.021	0.036
CO	0.052	0.027	0	0	NA	NA	0.017	0.015	0.025	0.026	0.070	0.108
KO	0.028	0.000	0	NA	NA	NA	0.112	0.112	0.112	0.140	0.205	0.153
KC	0.024	NA	NA	NA	NA	NA	NA	NA	0.262	0.213	0.091	0.084
FB	0.011	NA	NA	NA	NA	NA	NA	NA	0.069	0.074	0.063	0.024
SF	0.006	0.000	NA	NA	NA	NA	NA	NA	0.021	0.019	0.018	0.010
MO	0.000	NA	NA	NA	NA	NA	NA	NA	0.004	0.005	0.018	0.002

Klamath Contribution Rates: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	0.000	0.014	0	NA	NA	NA	NA	NA	0.022	0.006	0.021	0.020
CO	0.021	0.000	NA	NA	NA	NA	NA	NA	0.111	0.047	0.032	0.016
KO	0.000	0.000	NA	NA	NA	NA	NA	NA	0.032	0.045	0.076	0.103
KC	0.044	NA	NA	NA	NA	NA	NA	NA	0.068	0.050	0.050	0.092
FB	0.000	0.000	NaN	NA	NA	NA	NA	0.012	0.022	0.021	0.024	0.028
SF	0.000	0.000	0	NA	NA	0.002	0.003	0.008	0.004	0.020	0.006	0.003
MO	0.000	NaN	NA	NA	NA	NA	0.016	0.005	0.003	0.002	0.005	0.012

Season Effort: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	296	561	1107	1140	767	832	4702
CO	NA	NA	NA	NA	0	0	259	550	492	725	538	534	3098
KO	NA	NA	NA	NA	0	0	7	15	55	0	0	0	77
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	1653	1666	3319
SF	NA	NA	NA	NA	0	0	0	0	2492	2350	2003	1104	7950
MO	NA	NA	NA	NA	0	0	0	0	3392	2596	1282	287	7558
Total	NA	NA	NA	NA	0	0	562	1125	7538	6811	6243	4424	26703

Season Effort: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	45	55	636	5232	23553	22072	51593
CO	NA	NA	NA	NA	0	0	35	64	395	5000	17206	12400	35100
KO	NA	NA	NA	NA	0	0	0	0	2279	4718	10128	8185	25310
KC	NA	NA	NA	NA	0	0	0	0	3453	8427	15685	8609	36174
FB	NA	NA	NA	NA	0	128	475	982	2479	6829	10659	5285	26835
SF	NA	NA	NA	NA	0	0	0	4010	9136	12850	27493	17214	70703
MO	NA	NA	NA	NA	0	0	0	15956	10900	9507	12350	3354	52067
Total	NA	NA	NA	NA	0	128	555	21067	29277	52564	117073	77118	297781

Quota Effort: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	NA	NA	NA	NA	NA	NA	NA	NA	NA	170	124	143	436
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	170	124	143	436

Quota Effort: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Total Effort: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	296	561	1107	1140	767	832	4702
CO	NA	NA	NA	NA	0	0	259	550	492	725	538	534	3098
KO	NA	NA	NA	NA	0	0	7	15	55	170	124	143	513
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	1653	1666	3319
SF	NA	NA	NA	NA	0	0	0	0	2492	2350	2003	1104	7950
MO	NA	NA	NA	NA	0	0	0	0	3392	2596	1282	287	7558
Total	NA	NA	NA	NA	0	0	562	1125	7538	6980	6367	4567	27139

Total Effort: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	45	55	636	5232	23553	22072	51593
CO	NA	NA	NA	NA	0	0	35	64	395	5000	17206	12400	35100
KO	NA	NA	NA	NA	0	0	0	0	2279	4718	10128	8185	25310
KC	NA	NA	NA	NA	0	0	0	0	3453	8427	15685	8609	36174
FB	NA	NA	NA	NA	0	128	475	982	2479	6829	10659	5285	26835
SF	NA	NA	NA	NA	0	0	0	4010	9136	12850	27493	17214	70703
MO	NA	NA	NA	NA	0	0	0	15956	10900	9507	12350	3354	52067
Total	NA	NA	NA	NA	0	128	555	21067	29277	52564	117073	77118	297781

Days open: ocean troll, type 0

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	17	30	31	30	15	20
CO	NA	NA	NA	NA	0	0	17	30	31	30	16	20
KO	NA	NA	NA	NA	0	0	17	30	31	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	31	30	9	0
MO	NA	NA	NA	NA	0	0	0	0	31	30	9	0

Days open: ocean troll, type 1

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
CO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	22	29
SF	NA	NA	NA	NA	0	0	0	0	0	0	22	29
MO	NA	NA	NA	NA	0	0	0	0	0	0	22	29

Days open: ocean sport, type 0

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	17	30	31	18	0	0
CO	NA	NA	NA	NA	0	0	17	30	31	18	0	0
KO	NA	NA	NA	NA	0	0	0	0	17	30	31	31
KC	NA	NA	NA	NA	0	0	0	0	17	30	31	31
FB	NA	NA	NA	NA	0	16	31	30	31	30	31	31
SF	NA	NA	NA	NA	0	0	0	14	31	30	31	31
MO	NA	NA	NA	NA	0	0	0	28	31	30	31	31

Days open: ocean sport, type 1

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	0	0	0	12	31	31
CO	NA	NA	NA	NA	0	0	0	0	0	12	31	31
KO	NA	NA	NA	NA	0	0	0	0	0	0	0	0
KC	NA	NA	NA	NA	0	0	0	0	0	0	0	0
FB	NA	NA	NA	NA	0	0	0	0	0	0	0	0
SF	NA	NA	NA	NA	0	0	0	0	0	0	0	0
MO	NA	NA	NA	NA	0	0	0	0	0	0	0	0

Chinook Quotas (All Stocks): ocean troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	NA	NA	NA	NA	NA	NA	NA	NA	NA	2600	1600	2500
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Chinook Quotas (All Stocks): ocean sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Size limits: ocean

	fishery	month	area	limit
1	10	9	NO	27
2	10	10	NO	28
3	10	5	NO	27
4	10	6	NO	27
5	10	7	NO	27
6	10	8	NO	27
7	10	9	CO	27
8	10	10	CO	28
9	10	5	CO	27
10	10	6	CO	27
11	10	7	CO	27
12	10	8	CO	27
13	10	9	KO	28
14	10	5	KO	27
15	10	6	KO	27
16	10	7	KO	27
17	10	8	KO	27
18	10	9	KC	28
19	10	9	FB	28
20	10	7	FB	27
21	10	8	FB	27
22	10	9	SF	27
23	10	7	SF	27
24	10	8	SF	27
25	10	7	MO	27
26	10	8	MO	27
27	40	2	FB	24
28	40	3	FB	24
29	40	4	FB	24
30	40	4	SF	24
31	40	4	MO	24

Allocation objective:
   River Sport: 0.15
     KMZ Sport: NA
        Tribes: 0.5

Klamath escapement buffer: 0
