

Ocean Abundance Projections and Prospective Harvest Levels for Klamath River Fall Chinook, 2012 Season

Klamath River Technical Team
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The 2012 KRTT reports are dedicated to our memory of Jerry Barnes, who recently passed away. Jerry was a member of the KRTT for more than 25 years, since its inception in the late 1980's, and was Team Chairman for much of the 1990's and early 2000's. Jerry's commitment to the Klamath Basin fishery resources and their rational management was unquestionable. His knowledge of the resources, the Basin's fisheries, and its management institutions was encyclopedic and incredibly valuable to the KRTT work and its members. He cared deeply about fishery resources, and devoted his professional life and much of his free time toward improving the scientific and biological basis of their management. His contribution to the KRTT cannot be replaced, and we will miss him greatly.

Summary

Predictor performance for 2011 and forecasts for 2012 are:

	Age	2011			2012 Forecast
		Preseason	Postseason	Pre/Post	
Ocean Abundance	3	304,600	232,700	1.31	1,567,600
	4	61,600	65,700	0.94	79,600
	5	5,000	2,800	1.79	4,600
Proportion Natural	3	0.61	0.57	1.07	0.62
	4	0.67	0.85	0.79	0.64
	5	0.78	0.94	0.83	0.84
Ocean Harvest Rate	4	0.160	0.078	2.05	---
Ocean Fall Harvest	3	---	0	---	---
	4	---	70	---	---
	5	---	74	---	---

The implications of the 2012 forecast ocean abundances, proportions natural, and the 2011 ocean fall harvest for fisheries management in 2012 were explored with the Klamath Ocean Harvest Model (KOHM) under two hypothetical management scenarios: (A) no additional ocean fisheries (commercial and recreational) from Jan–Aug 2012 between Cape Falcon and Point Sur (144 Klamath River fall Chinook were estimated to be harvested in the ocean during the Sept–Nov 2011 period) and no Klamath River fisheries (tribal and recreational) in 2012, and (B) the 2011 ocean fishery seasons and quotas, the 2011 river recreational quota of 7,900 adults, and a tribal allocation of 50% (of total harvest). The results are:

Sector	KOHM Forecasts	
	(A) No-fishing in 2012	(B) 2011 Regulations
Adult Spawners		
Natural Areas	269,600	179,000
Hatcheries	159,900	106,800
Adult Harvest		
Ocean Commercial	20	63,800
Ocean Recreational	130	15,300
River Recreational	0	7,900
Tribal	0	87,000
Age-4 Ocean Harvest Rate	0.00	0.13
Spawner Reduction Rate	0.00	0.34

With no further fishing in 2012 on the current stock, the expected number of natural area adult spawners would be 269,600, with an expected age-4 ocean harvest rate of 0% (144 KRFC were harvested in the Sept–Nov 2011 period). Applying 2011 fishery regulations resulted in 179,000 natural area adult spawners and an age-4 ocean harvest rate of 13%. These forecasts are provided for informational purposes only; the Pacific Fishery Management Council (PFMC) will adopt 2012 ocean salmon fishery management regulations in April 2012.

Introduction

The PFMC's fishery management plan for Klamath River fall Chinook (PFMC 1988; Amendment 9) allowed 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). In 2011, Amendment 16 to the salmon fishery

management plan established a new conservation objective for Klamath River fall Chinook, which specifies a natural spawner reduction rate via fisheries of no more than 68%, and a minimum escapement of 40,700 natural area adult spawners. 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 2012 management year. For informational purposes, KOHM forecasts of harvest and spawner escapement are also presented under two hypothetical management scenarios: (A) no ocean or river fisheries in 2012, and (B) the 2011 ocean fishery seasons and quotas, the 2011 river recreational quota of 7,900 adults, 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 2011 river run of Klamath River fall Chinook salmon used in this report is from the KRTT (2012).

Ocean Abundance Forecast

The age-specific ocean abundance predictors are based on the use of a sibling regression. The age *a* September 1 ocean abundance estimates for brood years 1979-2007 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 2010 (age-three) and 2011 (age-three, age-four) are preliminary, as their respective cohorts are incomplete (Table 1).

The 2011 age-three ocean abundance forecast was 1.31 times its postseason estimate (Table 2); the age-three predictor has overestimated abundance in 13 of the 27 previous years. The 2011 age-four ocean abundance forecast was 0.94 times its postseason estimate (Table 2); the age-four predictor has overestimated abundance in 17 of the 27 previous years. The 2011 age-five ocean abundance forecast was 1.79 times its postseason estimate (Table 2); the age-five predictor has underestimated abundance in 15 of the 25 previous years.

Proportion of Natural Spawners Forecast

The age-specific proportion of natural area spawners is also forecast using sibling regression. In this case, the age *a* observed proportion natural for calendar years 1997-2011 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 2011 proportion natural forecast for age-three, -four, and -five fish was 0.61, 0.67, and 0.78, respectively, and the corresponding post-season estimates are 0.57, 0.85, and 0.94, respectively (Table 4).

Historical Harvest Levels and Rates

Historical (1986-2011) ocean and river harvest levels and rates of age-three and age-four Klamath River fall Chinook are listed in Table 5. The 2011 age-four ocean harvest rate (preliminary) postseason estimate of 7.8 percent is less than the preseason forecast of 16.0 percent (PFMC 2011).

2010 Ocean Fishery Fall Harvest

Klamath River fall Chinook ocean harvests during the 2011 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). In 2011, 144 Klamath River fall Chinook were estimated to have been harvested.

2012 Forecasts

The 2012 forecasts of ocean stock abundance and proportion natural area spawners are (Figures 1 and 2):

<i>Age</i>	<i>Abundance</i>	<i>Proportion Natural</i>
3	1,567,600	0.62
4	79,600	0.64
5	4,600	0.77

For the 2011 ocean fall fisheries, the natural production multipliers for the coded-wire tag recoveries are:

<i>Age (a)</i>	<i>Total Escapement (a-1)</i>	<i>Hatchery-origin Escapement (a-1)</i>	<i>Natural-production Multiplier (a)</i>
3	85,860	16,685	5.15
4	59,713	41,897	1.43
5	41,286	7,779	5.31

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

KOHM principal forecast results under two management scenarios: (A) no additional ocean fisheries (commercial and recreational) from Jan–Aug 2012 between Cape Falcon and Point Sur (144 Klamath River fall Chinook were estimated to be harvested in the ocean during the Sept–Nov 2011 period) and no Klamath River fisheries (tribal and recreational) in 2012, and (B) the 2011 ocean fishery seasons and quotas, the 2011 river recreational quota of 7,900 adults, and a tribal allocation of 50% (of total harvest); are provided in Appendices A and B respectively.

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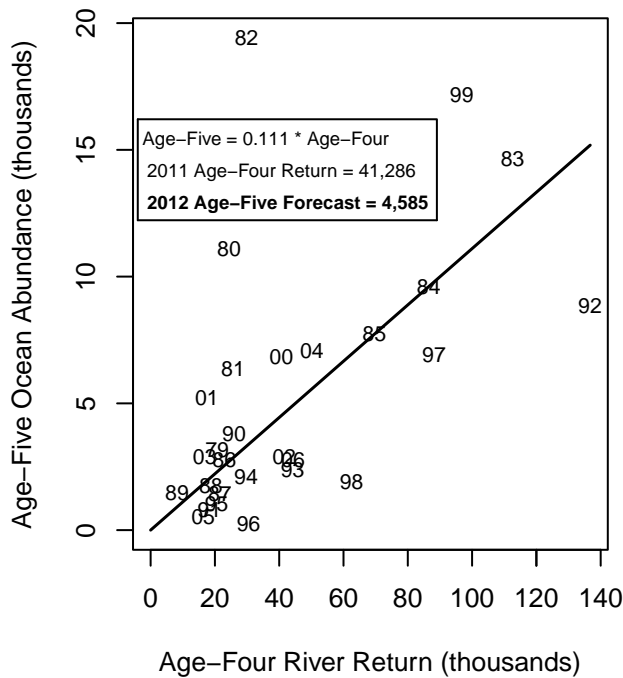
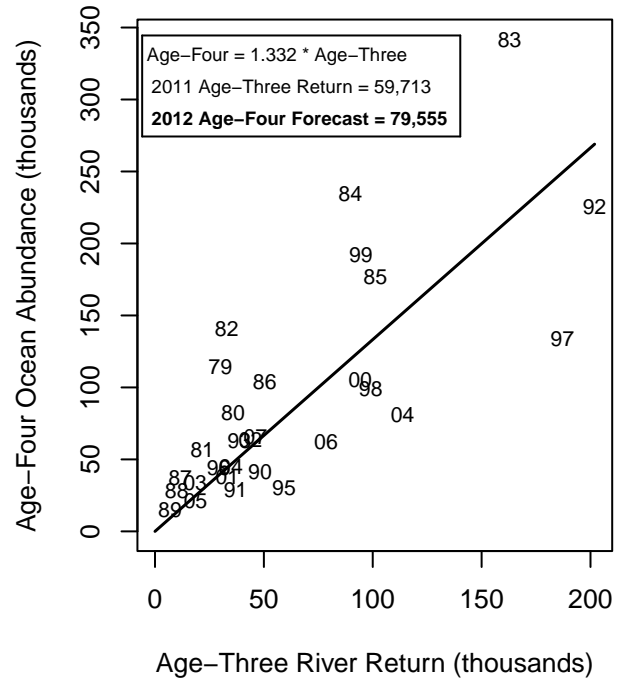
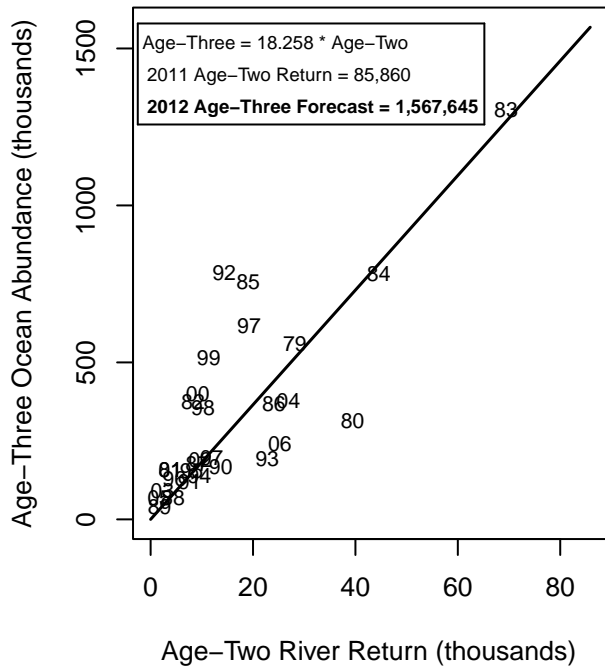
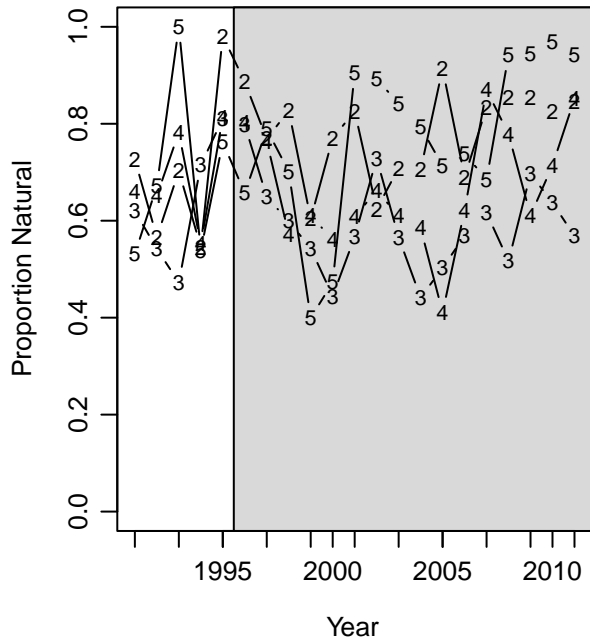
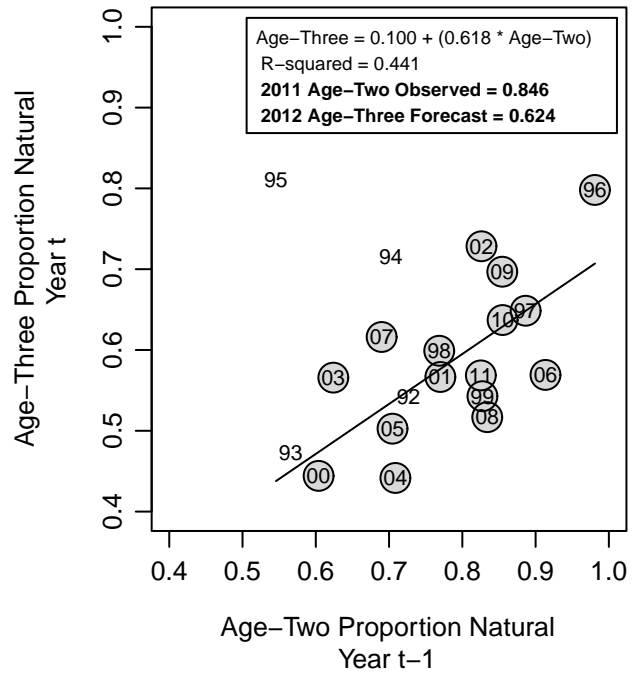


Figure 1. Regression estimators for Klamath River fall Chinook ocean abundance (Sept. 1) based on that year's river return of same cohort. Numbers in plots denote brood years.

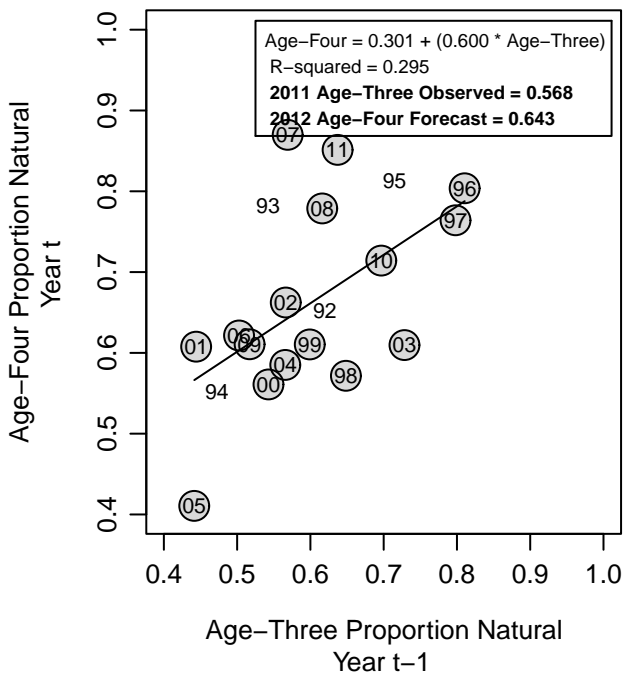
(a) Observed Time Series



(b) Age-Three Predictor



(c) Age-Four Predictor



(d) Age-Five Predictor

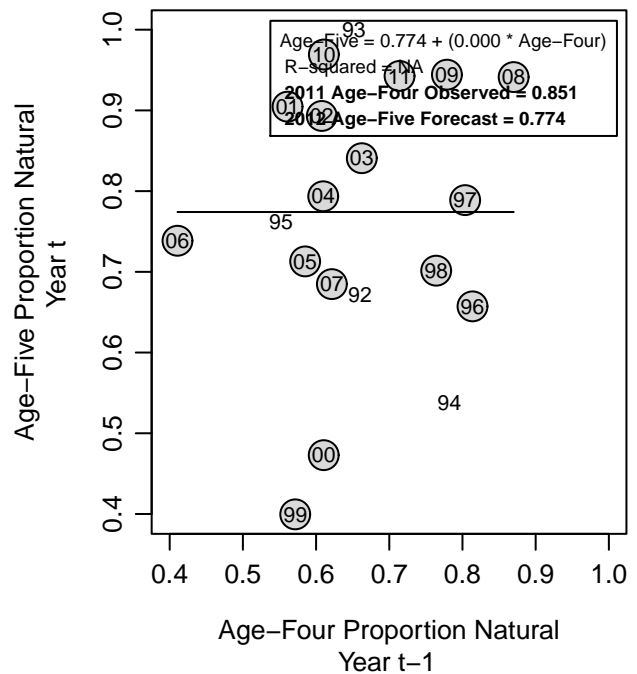


Figure 2. Age-specific proportion of natural area spawners. Panel (a): observed time-series; numbers in plot denote age; shaded area depicts data used for predictor. Panels (b)-(d): age-specific predictor based on previous-year observed proportion for same cohort; numbers in plots denote years 1992-2011; shaded circles indicate years used for predictor; age-three and age-four are regression predictors; age-five 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			Annual Ocean Harvest Rate		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	561.1	133.4	694.5	0.30	0.52	39.4	30.1	33.9	2.6	66.6
1983	313.3	114.2	427.5	0.19	0.60	3.8	35.9	20.7	0.9	57.5
1984	157.3	82.8	240.1	0.08	0.38	8.3	21.7	24.4	1.1	47.2
1985	374.8	56.9	431.7	0.11	0.24	69.4	32.9	25.7	5.8	64.4
1986	1,304.4	140.8	1,445.2	0.18	0.46	44.6	162.9	29.8	2.3	195.0
1987	781.2	341.9	1,123.1	0.16	0.43	19.1	89.7	112.6	6.8	209.1
1988	756.3	234.8	991.0	0.20	0.39	24.1	101.2	86.5	3.9	191.6
1989	369.8	177.2	547.1	0.15	0.36	9.1	50.4	69.6	4.3	124.3
1990	176.1	104.0	280.1	0.30	0.55	4.4	11.6	22.9	1.3	35.9
1991	69.4	37.2	106.6	0.03	0.18	1.8	10.0	21.6	1.1	32.7
1992	39.5	28.2	67.7	0.02	0.07	13.7	6.9	18.8	1.0	26.7
1993	168.5	15.0	183.5	0.05	0.16	7.6	48.3	8.2	0.7	57.2
1994	119.9	41.7	161.6	0.03	0.09	14.4	37.0	26.0	1.0	64.0
1995	784.3	28.7	813.0	0.04	0.14	22.8	201.9	18.3	2.6	222.8
1996	192.3	225.5	417.8	0.05	0.16	9.5	38.8	136.7	0.3	175.8
1997	140.2	62.8	203.0	0.01	0.06	8.0	35.0	44.2	4.6	83.7
1998	154.8	44.7	199.5	0.00	0.09	4.6	59.2	29.7	1.7	90.6
1999	129.1	30.5	159.5	0.02	0.09	19.2	29.2	20.5	1.3	51.0
2000	617.1	44.2	661.3	0.06	0.10	10.2	187.1	30.5	0.5	218.1
2001	356.1	133.8	489.9	0.03	0.09	11.3	99.1	88.2	0.2	187.4
2002	513.6	98.9	612.5	0.02	0.15	9.2	94.6	62.5	3.7	160.8
2003	400.2	192.2	592.4	0.08	0.21	3.8	94.3	96.8	0.9	191.9
2004	159.6	105.1	264.6	0.12	0.34	9.7	33.2	40.7	5.3	79.2
2005	190.0	38.1	228.1	0.02	0.20	2.3	43.8	17.5	3.9	65.2
2006	90.6	63.4	154.0	0.01	0.10	26.9	18.5	41.6	1.3	61.4
2007	376.8	33.6	410.5	0.06	0.21	1.7	113.7	16.8	1.6	132.1
2008	68.0	81.4	149.4	0.00	0.10	25.2	18.6	50.2	1.7	70.6
2009	240.8	21.1	261.9	0.00	0.00	11.9	78.6	16.4	5.6	100.6
2010	194.7 ^{a/}	62.1	256.8	0.01 ^{a/}	0.04	16.6	46.1	44.3	0.4	90.9
2011	232.7 ^{b/}	65.7 ^{a/}	298.5	---- ^{c/}	0.08 ^{a/}	85.9	59.7	41.3	2.0	103.0

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/}	1,304,409	0.33
1987	511,800	781,198	0.66
1988	370,800	756,261	0.49
1989	450,600	369,828	1.22
1990	479,000	176,133	2.72
1991	176,200	69,424	2.54
1992	50,000	39,502	1.27
1993	294,400	168,473	1.75
1994	138,000	119,913	1.15
1995	269,000	784,260	0.34
1996	479,800	192,272	2.50
1997	224,600	140,153	1.60
1998	176,000	154,799	1.14
1999	84,800	129,066	0.66
2000	349,600	617,098	0.57
2001	187,200	356,128	0.53
2002	209,000	513,561	0.41
2003	171,300	400,242	0.43
2004	72,100	159,560	0.45
2005	185,700	189,976	0.98
2006	44,100	90,606	0.49
2007	515,400	376,841	1.37
2008	31,600	68,003	0.46
2009	474,900	240,760	1.97
2010	223,400	194,655	1.15
2011 ^{c/}	304,600	232,749	1.31
Age-Four			
1985	56,875	57,500	0.99
1986	66,250	140,823	0.47
1987	206,125	341,875	0.60
1988	186,375	234,772	0.79
1989	215,500	177,245	1.22
1990	50,125	103,951	0.48
1991	44,625	37,172	1.20
1992	44,750	28,169	1.59
1993	39,125	15,037	2.60
1994	86,125	41,736	2.06
1995	47,000	28,725	1.64
1996	268,500	225,521	1.19
1997	53,875	62,820	0.86
1998	46,000	44,733	1.03
1999	78,750	30,456	2.59
2000	38,875	44,176	0.88
2001	247,000	133,801	1.85
2002	143,800	98,928	1.45
2003	132,400	192,156	0.69
2004	134,500	105,051	1.28
2005	48,900	38,079	1.28
2006	63,700	63,383	1.00
2007	26,100	33,615	0.78
2008	157,200	81,366	1.93
2009	25,200	21,124	1.19
2010	106,300	62,119	1.71
2011 ^{c/}	61,600	65,714	0.94

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/}	--	11,113	--
1986 ^{d/}	--	6,376	--
1987	5,250	19,414	0.27
1988	13,250	14,632	0.91
1989	10,125	9,612	1.05
1990	7,625	7,767	0.98
1991	1,500	2,774	0.54
1992	1,250	1,444	0.87
1993	1,125	1,759	0.64
1994	500	1,468	0.34
1995	2,000	3,805	0.53
1996	1,125	787	1.43
1997	7,875	8,859	0.89
1998	3,250	2,382	1.36
1999	2,000	2,106	0.95
2000	1,375	1,051	1.31
2001	1,250	258	4.84
2002	9,700	6,933	1.40
2003	6,500	1,915	3.39
2004	9,700	17,170	0.56
2005	5,200	6,857	0.76
2006	2,200	5,236	0.42
2007	4,700	2,911	1.61
2008	1,900	2,900	0.66
2009	5,600	7,059	0.79
2010	1,800	518	3.47
2011 ^{c/}	5,000	2,772	1.80
Total Adults			
1985 ^{d/}	169,875	344,613	0.49
1986 ^{d/}	492,250	1,451,608	0.34
1987	723,175	1,142,487	0.63
1988	570,425	1,005,665	0.57
1989	676,225	556,685	1.21
1990	536,750	287,851	1.86
1991	222,325	109,370	2.03
1992	96,000	69,115	1.39
1993	334,650	185,269	1.81
1994	224,625	163,117	1.38
1995	318,000	816,790	0.39
1996	749,425	418,580	1.79
1997	286,350	211,832	1.35
1998	225,250	201,914	1.12
1999	165,550	161,628	1.02
2000	389,850	662,325	0.59
2001	435,450	490,187	0.89
2002	362,500	619,422	0.59
2003	310,200	594,313	0.52
2004	216,300	281,781	0.77
2005	239,800	234,912	1.02
2006	110,000	159,225	0.69
2007	546,200	413,367	1.32
2008	190,700	152,269	1.25
2009	505,700	268,943	1.88
2010	331,500	257,292	1.29
2011 ^{c/}	371,200	301,235	1.23

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.

Year (t)	Preseason Ocean Abundance Forecast ^{a/}		Postseason Ocean Abundance Estimate		Preseason Age-4 Harvest Rate Forecast ^{b/}		Postseason Age-4 Harvest Rate Estimate ^{c/}		Preseason Adult Harvest Forecast		Postseason Adult Harvest Estimate	
	Sept 1 (t-1)		Sept 1 (t-1)									
	Age-3	Age-4	Age-3	Age-4	Ocean	River	Ocean	River	Ocean	River	Ocean	River
1986	426,000	66,250	1,304,409	140,823	0.28	0.50	0.46	0.67	72,000	37,700	301,999	46,154
1987	511,800	206,125	781,198	341,875	0.28	0.53	0.43	0.44	121,200	78,200	277,224	73,265
1988	370,800	186,375	756,261	234,772	0.31	0.53	0.39	0.52	114,100	65,400	253,905	73,854
1989	450,600	215,500	369,828	177,245	0.30	0.49	0.36	0.70	128,100	67,600	125,117	54,340
1990	479,000	50,125	176,133	103,951	0.30	0.49	0.55	0.36	85,100	31,200	114,786	11,459
1991	176,200	44,625	69,424	37,172	0.13	0.28	0.18	0.45	16,700	12,800	9,872	13,581
1992	50,000	44,750	39,502	28,169	0.06	0.15	0.07	0.27	4,200	4,200	3,142	6,787
1993	294,400	39,125	168,473	15,037	0.12	0.43	0.16	0.49	20,100	22,500	11,355	12,808
1994	138,000	86,125	119,913	41,736	0.07	0.20	0.09	0.29	10,400	14,300	7,961	13,524
1995	269,000	47,000	784,260	28,725	0.07	0.32	0.14	0.19	13,500	18,500	32,233	21,637
1996	479,800	268,500	192,272	225,521	0.17	0.66	0.16	0.39	88,400	129,100	45,155	69,241
1997	224,600	53,875	140,153	62,820	0.10	0.43	0.06	0.26	17,600	26,500	8,656	17,764
1998	176,000	46,000	154,799	44,733	0.07	0.29	0.09	0.30	10,200	14,800	4,891	17,897
1999	84,800	78,750	129,066	30,456	0.10	0.28	0.09	0.45	12,300	18,100	5,116	16,942
2000	349,600	38,875	617,098	44,176	0.11	0.53	0.10	0.25	24,000	32,400	42,050	35,066
2001	187,200	247,000	356,128	133,801	0.14	0.61	0.09	0.29	45,600	105,300	21,747	50,780
2002	209,000	143,800	513,561	98,928	0.13	0.57	0.15	0.26	30,000	70,900	28,895	35,069
2003	171,300	132,400	400,242	192,156	0.16	0.50	0.21	0.28	30,600	52,200	70,684	39,715
2004	72,100	134,500	159,560	105,051	0.15	0.38	0.34	0.48	26,500	35,800	63,885	29,807
2005	185,700	48,900	189,976	38,079	0.08	0.16	0.20	0.19	7,100	9,600	12,826	10,001
2006	44,100	63,700	90,606	63,383	0.11	0.23	0.10	0.18	10,000	10,000	10,401	10,345
2007	515,400	26,100	376,841	33,615	0.16	0.63	0.21	0.56	30,200	51,400	30,244	33,884
2008	31,600	157,200	68,003	81,366	0.02	0.43	0.10	0.38	4,500	49,500	8,679	24,180
2009	474,900	25,200	240,760	21,124	0.00	0.57	0.00	0.40	100	61,700	51	34,040
2010	223,400	106,300	194,655	62,119	0.12	0.49	0.04	0.40	22,600	46,600	4,467	32,920
2011 ^{d/}	304,600	61,600	232,749	65,714	0.16	0.54	0.08	0.34	26,900	42,700	10,151	30,518

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/}

Year	Hatchery Spawners					Natural Area Spawners					Proportion Natural				
	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	8,864	8,016	192	17,072	6,245	22,230	9,879	224	32,333	0.55	0.71	0.55	0.54	0.65
1995	335	34,737	2,716	406	37,859	17,324	148,639	11,856	1,298	161,793	0.98	0.81	0.81	0.76	0.81
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	4,730	11,469	11,567	1,043	24,079	0.70	0.44	0.59	0.79	0.51
2005	101	18,583	8,187	929	27,699	1,068	18,778	5,705	2,307	26,790	0.91	0.50	0.41	0.71	0.49
2006	6,462	6,791	12,495	235	19,521	14,382	8,969	20,528	664	30,161	0.69	0.57	0.62	0.74	0.61
2007	213	34,073	854	122	35,049	1,071	54,693	5,712	265	60,670	0.83	0.62	0.87	0.68	0.63
2008	2,931	7,015	6,512	26	13,553	17,223	7,504	22,928	417	30,849	0.85	0.52	0.78	0.94	0.69
2009	1,372	15,849	3,628	136	19,613	8,090	36,417	5,691	2,303	44,411	0.85	0.70	0.61	0.94	0.69
2010	2,501	10,866	7,179	7	18,052	11,806	19,067	17,937	221	37,225	0.83	0.64	0.71	0.97	0.67
2011	11,421	18,374	3,882	81	22,337	62,801	24,207	22,217	1,330	47,754	0.85	0.57	0.85	0.94	0.68

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)

Year(t)	Ocean Fisheries (Sept 1(t-1) through Aug 31(t))						River Fisheries (t)			
	KMZ			North of	South of	Ocean	Net	Sport	Total	
	Troll	Sport	Subtotal	KMZ	KMZ	Subtotal				Total
HARVEST (numbers of fish)										
Age-Three										
1986	35,632	4,876	40,508	73,777	122,913	196,690	237,198	8,100	18,100	26,200
1987	17,240	5,083	22,323	43,439	56,378	99,817	122,140	11,400	11,400	22,800
1988	15,999	5,165	21,164	24,317	107,971	132,288	153,452	12,500	15,600	28,100
1989	6,456	11,783	18,239	15,315	23,729	39,044	57,283	2,700	900	3,600
1990	81	4,357	4,438	36,579	11,006	47,585	52,023	1,300	1,400	2,700
1991	0	1,022	1,022	344	810	1,154	2,176	2,123	1,277	3,400
1992	0	0	0	972	0	972	972	970	251	1,221
1993	0	822	822	833	6,424	7,257	8,079	5,426	2,917	8,343
1994	42	604	646	0	3,387	3,387	4,033	4,543	965	5,508
1995	0	999	999	12,213	14,810	27,023	28,022	11,840	5,536	17,376
1996	0	0	0	0	9,314	9,314	9,314	12,363	3,661	16,024
1997	0	232	232	620	1,215	1,835	2,067	2,166	2,736	4,902
1998	0	6	6	298	466	764	770	2,231	5,781	8,012
1999	63	180	243	1,262	433	1,695	1,938	4,981	1,748	6,729
2000	404	3,282	3,686	8,604	25,203	33,807	37,493	22,458	4,893	27,351
2001	113	105	218	2,749	6,082	8,831	9,049	17,885	7,294	25,179
2002	220	784	1,004	1,501	9,915	11,416	12,420	11,734	6,258	17,992
2003	173	679	852	1,885	27,309	29,194	30,046	6,996	5,061	12,057
2004	402	971	1,373	9,719	7,331	17,050	18,423	4,679	2,051	6,730
2005	0	568	568	619	2,381	3,000	3,568	4,394	1,641	6,035
2006	0	477	477	32	341	373	850	2,388	13	2,401
2007	770	8,099	8,869	4,193	9,365	13,558	22,427	17,543	5,734	23,277
2008	0	0	0	0	0	0	0	3,225	608	3,833
2009	0	51	51	0	0	0	51	19,820	4,715	24,535
2010 ^{a/}	104	28	132	0	1,638	1,638	1,770	13,132	1,884	15,016
2011 ^{a/}	245	845	1,090	25	3,620	3,645	4,735	13,286	2,637	15,923
Age-Four										
1986	7,745	1,113	8,858	23,486	31,913	55,399	64,257	17,000	2,900	19,900
1987	21,736	4,427	26,163	70,645	48,832	119,477	145,640	41,000	8,500	49,500
1988	11,870	3,596	15,466	26,381	50,296	76,677	92,143	38,600	6,200	44,800
1989	6,064	9,735	15,799	32,116	16,608	48,724	64,523	41,000	7,700	48,700
1990	3,997	2,919	6,916	39,627	10,624	50,251	57,167	6,000	2,200	8,200
1991	0	1,001	1,001	1,513	4,135	5,648	6,649	7,593	2,016	9,609
1992	171	55	226	1,783	12	1,795	2,021	4,360	723	5,083
1993	0	0	0	849	1,616	2,465	2,465	3,786	243	4,029
1994	0	1,124	1,124	1,168	1,499	2,667	3,791	6,666	818	7,484
1995	0	242	242	1,879	1,771	3,650	3,892	2,957	480	3,437
1996	773	3,464	4,237	10,337	20,741	31,078	35,315	43,959	9,080	53,039
1997	3	172	175	463	2,994	3,457	3,632	8,734	2,586	11,320
1998	0	105	105	3,942	0	3,942	4,047	7,164	1,822	8,986
1999	15	381	396	1,657	696	2,353	2,749	8,789	494	9,283
2000	117	895	1,012	2,327	1,076	3,403	4,415	6,733	756	7,489
2001	1,312	1,604	2,916	5,819	3,926	9,745	12,661	20,759	4,819	25,578
2002	1,938	827	2,765	2,811	9,416	12,227	14,992	11,929	4,063	15,992
2003	834	918	1,752	7,855	30,007	37,862	39,614	22,754	4,592	27,346
2004	1,421	1,215	2,636	11,504	21,949	33,453	36,089	17,623	1,751	19,374
2005	247	317	564	5,243	1,909	7,152	7,716	3,048	304	3,352
2006	196	725	921	4,192	985	5,177	6,098	7,569	42	7,611
2007	270	2,336	2,606	1,991	2,472	4,463	7,069	8,987	502	9,489
2008	6,376	1,105	7,481	546	113	659	8,140	17,891	1,260	19,151
2009	0	0	0	0	0	0	0	5,831	706	6,537
2010	36	111	147	892	1,487	2,379	2,526	16,630	1,134	17,764
2011 ^{a/}	397	166	563	992	3,592	4,584	5,147	12,587	1,475	14,062

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

Year(t)	Ocean Fisheries (Sept 1(t-1) through Aug 31(t))						River Fisheries (t)			
	KMZ			North of	South of	Ocean	Net	Sport	Total	
	Troll	Sport	Subtotal	KMZ	KMZ	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	0.00	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	0.01	0.01	0.00	0.03	0.03	0.03	0.12	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	0.02	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	0.02	0.12	0.07	0.19
2003	0.00	0.00	0.00	0.00	0.07	0.07	0.08	0.07	0.05	0.13
2004	0.00	0.01	0.01	0.06	0.05	0.11	0.12	0.14	0.06	0.20
2005	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.10	0.04	0.14
2006	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.13	0.00	0.13
2007	0.00	0.02	0.02	0.01	0.02	0.04	0.06	0.15	0.05	0.20
2008	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.03	0.21
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.06	0.31
2010 ^{a/}	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.28	0.04	0.33
2011 ^{a/}	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.22	0.04	0.27
Age-Four										
1986	0.05	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	0.26	0.03	0.29
1995	0.00	0.01	0.01	0.07	0.06	0.13	0.14	0.16	0.03	0.19
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	0.06	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	0.05	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	0.10	0.12	0.15	0.19	0.06	0.26
2003	0.00	0.00	0.01	0.04	0.16	0.20	0.21	0.24	0.05	0.28
2004	0.01	0.01	0.03	0.11	0.21	0.32	0.34	0.43	0.04	0.48
2005	0.01	0.01	0.01	0.14	0.05	0.19	0.20	0.17	0.02	0.19
2006	0.00	0.01	0.01	0.07	0.02	0.08	0.10	0.18	0.00	0.18
2007	0.01	0.07	0.08	0.06	0.07	0.13	0.21	0.53	0.03	0.56
2008	0.08	0.01	0.09	0.01	0.00	0.01	0.10	0.36	0.03	0.38
2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.04	0.40
2010	0.00	0.00	0.00	0.01	0.02	0.04	0.04	0.37	0.03	0.40
2011 ^{a/}	0.01	0.00	0.01	0.02	0.05	0.07	0.08	0.30	0.04	0.34

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 2011 (September - November) ocean landings of Klamath River fall Chinook by fishery, age, and KOHM area.^{a1}

COMMERCIAL FISHERY										
KOHM area	Age 3			Age 4			Age 5			Total
	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	
NO	--	--	--	--	--	--	--	--	--	0
CO	--	--	--	--	--	--	--	--	--	0
KO	--	--	--	--	--	--	--	--	--	0
KC	--	--	--	--	--	--	--	--	--	0
FB	--	--	--	16	--	--	--	--	--	16
SF	--	--	--	--	--	--	--	--	--	0
MO	--	--	--	--	--	--	--	--	--	0
Total	0	0	0	16	0	0	0	0	0	16

SPORT FISHERY										
KOHM area	Age 3			Age 4			Age 5			Total
	Sept	Oct	Nov	Sept	Oct	Nov	Sept	Oct	Nov	
NO	--	--	--	--	--	--	--	--	--	0
CO	--	--	--	--	--	--	--	--	--	0
KO	--	--	--	36	17	--	--	--	--	54
KC	--	--	--	--	--	--	74	--	--	74
FB	--	--	--	--	--	--	--	--	--	0
SF	--	--	--	--	--	--	--	--	--	0
MO	--	--	--	--	--	--	--	--	--	0
Total	0	0	0	36	17	0	74	0	0	128

a1 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.

Klamath Escapement

Absent fishing: 429547
Hatcheries: 159898
Natural areas: 269649

With fishing
Mature adults: 431519
Strays: 2089
Klamath Basin: 429430
Spawners: 429430
Hatcheries: 159865
Natural areas: 269565
Reduction rate: 0.000

Klamath Harvest

Total: 144
River: 0
Ocean: 144

Tribal: 0 0.000 (objective: 0.000)

Non-tribal: 144
River: 0 0.000 (objective: 0)
Ocean troll: 16
CA / OR: 1.000 / 0.000
Ocean sport: 128
KMZ: 128 0.888
Age-four o.harv.rate: 0.001 (objective: <= 0.16)

Klamath Harvest: ocean troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	%CA
NO	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
KO	0	0	0	0	0	0	0	0	0	0	0	0	0	NA
KC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
FB	16	0	0	0	0	0	0	0	0	0	0	0	16	17.9
SF	0	0	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	0.0
Total	16	0	0	0	0	0	0	0	0	0	0	0	16	NA

Klamath Harvest: ocean sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	%CA	%CA.rec
NO	0	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
CO	0	0	0	0	0	0	0	0	0	0	0	0	0	NA	NA
KO	36	17	0	0	0	0	0	0	0	0	0	0	54	NA	NA
KC	74	0	0	0	0	0	0	0	0	0	0	0	74	82.1	100
FB	0	0	0	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	0.0	0
MO	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0
Total	110	17	0	0	0	0	0	0	0	0	0	0	128	NA	NA

Days open: recreational, retention

	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

Quotas: recreational, retention

	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: recreational, retention

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	24	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CO	24	NA	24	NA	NA	NA	NA	NA	NA	NA	NA	NA
KO	24	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
KC	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FB	24	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SF	24	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MO	24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Days open: recreational, non-retention

	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

Quotas: recreational, non-retention

	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

Mgt.Input.Files/river.dat

parameter value
1 pi.t 0.00

2	pi.r	NA
3	H.r.tot	0.00
4	CR.r	0.00
5	c.r	0.07
6	s.r	0.10
7	E.nat.tot	NA

Klamath Escapement

Absent fishing: 429547
Hatcheries: 159898
Natural areas: 269649

With fishing

Mature adults: 390353
Strays: 1901
Klamath Basin: 388453
Spawners: 285752
Hatcheries: 106769
Natural areas: 178983
Reduction rate: 0.336

Klamath Harvest

Total: 174094
River: 94970
Ocean: 79124

Tribal: 87047 0.500 (objective: 0.500)

Non-tribal: 87047
River: 7923 0.091 (objective: 7923)
Ocean troll: 63802
CA / OR: 0.704 / 0.296
Ocean sport: 15322
KMZ: 8589 0.109
Age-four o.harv.rate: 0.132 (objective: <= 0.16)

Klamath Harvest: ocean troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	%CA
NO	0	0	0	0	0	0	0	107	331	160	369	1984	2951	NA
CO	0	0	0	0	0	0	0	221	641	754	2439	10662	14717	NA
KO	0	0	0	0	0	0	0	0	71	333	444	397	1244	NA
KC	0	0	0	0	0	0	0	0	0	0	559	462	1022	1.8
FB	16	0	0	0	0	0	0	0	0	0	6947	14156	21120	37.2
SF	0	0	0	0	0	0	0	0	3914	2721	11679	1992	20306	35.8
MO	0	0	0	0	0	0	0	0	488	697	1249	9	2443	4.3
Total	16	0	0	0	0	0	0	328	5445	4664	23686	29663	63802	NA

Klamath Harvest: ocean sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total	%CA	%CA.rec
NO	0	0	0	0	0	0	0	0	1	0	151	82	235	NA	NA
CO	0	0	0	0	0	0	0	0	27	65	414	203	708	NA	NA
KO	36	17	0	0	0	0	0	0	29	353	743	1325	2504	NA	NA
KC	74	0	0	0	0	0	0	0	936	1869	1705	1500	6085	10.7	51.2
FB	0	0	0	0	0	0	0	43	361	894	1247	301	2846	5.0	24.0
SF	0	0	0	0	0	0	0	393	197	820	838	37	2285	4.0	19.2
MO	0	0	0	0	0	0	0	286	54	102	194	24	660	1.2	5.6
Total	110	17	0	0	0	0	0	723	1604	4103	5293	3471	15322	NA	NA

 Chinook Harvest (All Stocks): Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	100	100	NA	NA	NA	NA	0	9987	17748	12238	6349	13894	60415
CO	200	1100	2000	NA	NA	NA	0	7328	17497	10847	11764	35626	86361
KO	NA	100	NA	NA	NA	NA	NaN	NaN	809	1500	1200	1000	4609
KC	NA	NA	NA	NA	NA	NA	NA	NA	0	0	1400	1000	2400
FB	500	NA	NA	NA	NA	NA	NA	0	0	0	21453	79535	101488
SF	1300	300	NA	NA	NA	NA	NA	NaN	40603	18913	80656	23488	165260
MO	50	NA	NA	NA	NA	NA	NA	NaN	17662	21815	18945	2537	61009
Total	2150	1600	2000	NA	NA	NA	0	17315	94319	65313	141766	157080	481544

Chinook Harvest (All Stocks): Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	800	200	NA	NA	NA	NA	NA	NaN	1003	29	2191	1518	5741
CO	200	NA	10	NA	NA	NA	NA	NaN	858	601	4077	2825	8571
KO	200	200	NA	NA	NA	NA	NA	NA	1178	3325	3175	4098	12175
KC	300	NA	NA	NA	NA	NA	NA	NA	4495	7199	8015	5529	25538
FB	200	100	NA	NA	NA	NaN	NaN	6029	10896	10367	8267	4379	40238
SF	5900	1100	NA	NA	NA	0	0	9682	8242	11942	20896	4091	61853
MO	700	NA	NA	NA	NA	NaN	0	29560	9404	15782	73533	13763	142741
Total	8300	1600	10	NA	NA	0	0	45270	36076	49245	120153	36202	296856

 Klamath Contribution Rates: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	0.000	0	NA	NA	NA	NA	0.121	0.011	0.019	0.013	0.058	0.143
CO	0.000	0	0	NA	NA	NA	0.035	0.030	0.037	0.070	0.207	0.299
KO	NA	0	NA	NA	NA	NA	0.000	0.000	0.087	0.222	0.370	0.397
KC	NA	NA	NA	NA	NA	NA	NA	NA	0.456	0.507	0.399	0.462
FB	0.032	NA	NA	NA	NA	NA	NA	0.033	0.182	0.362	0.324	0.178
SF	0.000	0	NA	NA	NA	NA	NA	0.000	0.096	0.144	0.145	0.085
MO	0.000	NA	NA	NA	NA	NA	NA	0.000	0.028	0.032	0.066	0.004

Klamath Contribution Rates: Sport

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	0.000	0.000	NA	NA	NA	NA	NA	0.000	0.001	0.007	0.069	0.054
CO	0.000	NA	0	NA	NA	NA	NA	0.000	0.031	0.107	0.102	0.072
KO	0.182	0.087	NA	NA	NA	NA	NA	NA	0.025	0.106	0.234	0.323
KC	0.247	NA	NA	NA	NA	NA	NA	NA	0.208	0.260	0.213	0.271
FB	0.000	0.000	NA	NA	NA	0.000	0.000	0.007	0.033	0.086	0.151	0.069
SF	0.000	0.000	NA	NA	NA	0.001	0.013	0.041	0.024	0.069	0.040	0.009
MO	0.000	NA	NA	NA	NA	0.000	0.012	0.010	0.006	0.006	0.003	0.002

 Total Effort: Troll

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
NO	NA	NA	NA	NA	0	0	0	247	957	770	519	752	3244
CO	NA	NA	NA	NA	0	0	0	274	702	670	430	793	2869
KO	NA	NA	NA	NA	0	0	0	0	42	44	38	26	149
KC	NA	NA	NA	NA	0	0	0	0	0	0	88	38	126
FB	NA	NA	NA	NA	0	0	0	0	0	0	533	1534	2067

Mgt.Input.Files/ocean.dat

	fishery	area	start.date	end.date	Q	ret	sl	coho
1	10	NO	apr-15-2012	jul-09-2012	NA	1	28	0
2	10	NO	jul-17-2012	aug-31-2012	NA	1	28	0
3	10	NO	oct-01-2012	oct-31-2012	NA	1	28	0
4	10	CO	apr-15-2012	jul-09-2012	NA	1	28	0
5	10	CO	jul-17-2012	aug-31-2012	NA	1	28	0
6	10	CO	oct-01-2012	oct-31-2012	NA	1	28	0
7	10	KO	may-01-2012	may-31-2012	NA	1	28	0
8	10	KO	jun-01-2012	jun-30-2012	1500	1	28	0
9	10	KO	jul-01-2012	jul-31-2012	1200	1	28	0
10	10	KO	aug-01-2012	aug-31-2012	1000	1	28	0
11	10	KC	jul-02-2012	jul-20-2012	1400	1	27	0
12	10	KC	aug-01-2012	aug-15-2012	1000	1	27	0
13	10	FB	jul-23-2012	jul-27-2012	NA	1	27	0
14	10	FB	jul-29-2012	aug-29-2012	NA	1	27	0
15	10	FB	sep-01-2012	sep-30-2012	NA	1	27	0
16	10	SF	may-01-2012	may-31-2012	NA	1	27	0
17	10	SF	jun-25-2012	jul-05-2012	NA	1	27	0
18	10	SF	jul-09-2012	jul-13-2012	NA	1	27	0
19	10	SF	jul-16-2012	jul-20-2012	NA	1	27	0
20	10	SF	jul-23-2012	jul-27-2012	NA	1	27	0
21	10	SF	jul-29-2012	aug-29-2012	NA	1	27	0
22	10	SF	sep-01-2012	sep-30-2012	NA	1	27	0
23	10	SF	oct-03-2012	oct-07-2012	NA	1	27	0
24	10	SF	oct-10-2012	oct-14-2012	NA	1	27	0
25	10	MO	may-01-2012	may-31-2012	NA	1	27	0
26	10	MO	jun-25-2012	jul-05-2012	NA	1	27	0
27	10	MO	jul-09-2012	jul-13-2012	NA	1	27	0
28	10	MO	jul-16-2012	jul-20-2012	NA	1	27	0
29	10	MO	jul-23-2012	jul-27-2012	NA	1	27	0
30	10	MO	jul-29-2012	aug-29-2012	NA	1	27	0
31	10	MO	sep-01-2012	sep-30-2012	NA	1	27	0
32	40	NO	mar-15-2012	jul-01-2012	NA	1	24	0
33	40	NO	jul-02-2012	aug-13-2012	NA	1	24	1
34	40	NO	aug-14-2012	aug-31-2012	NA	1	24	0
35	40	NO	sep-01-2012	sep-03-2012	NA	1	24	1
36	40	NO	sep-04-2012	sep-07-2012	NA	1	24	0
37	40	NO	sep-08-2012	sep-10-2012	NA	1	24	1
38	40	NO	sep-11-2012	sep-30-2012	NA	1	24	0
39	40	CO	mar-15-2012	jul-01-2012	NA	1	24	0
40	40	CO	jul-02-2012	aug-13-2012	NA	1	24	1
41	40	CO	aug-14-2012	aug-31-2012	NA	1	24	0
42	40	CO	sep-01-2012	sep-03-2012	NA	1	24	1
43	40	CO	sep-04-2012	sep-07-2012	NA	1	24	0
44	40	CO	sep-08-2012	sep-10-2012	NA	1	24	1
45	40	CO	sep-11-2012	sep-30-2012	NA	1	24	0
46	40	KO	may-14-2012	sep-05-2012	NA	1	24	0
47	40	KC	may-14-2012	sep-05-2012	NA	1	24	0
48	40	FB	apr-02-2012	oct-30-2012	NA	1	24	0
49	40	SF	apr-02-2012	oct-30-2012	NA	1	24	0
50	40	MO	apr-02-2012	sep-18-2012	NA	1	24	0

Days open: commercial, retention

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	0	16	31	30	24	31

CO	NA	NA	NA	NA	0	0	0	16	31	30	24	31
KO	NA	NA	NA	NA	0	0	0	0	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	8	29
SF	NA	NA	NA	NA	0	0	0	0	31	6	23	29
MO	NA	NA	NA	NA	0	0	0	0	31	6	23	29

Quotas: commercial, retention

	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	1500	1200	1000
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1400	1000
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: commercial, retention

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	28	28	NA	NA	NA	NA	NA	28	28	28	28	28
CO	28	28	24	NA	NA	NA	NA	28	28	28	28	28
KO	NA	28	NA	NA	NA	NA	NA	NA	28	28	28	28
KC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27	27
FB	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	27	27
SF	28	28	NA	NA	NA	NA	NA	NA	27	27	27	27
MO	28	NA	NA	NA	NA	NA	NA	NA	27	27	27	27

Days open: commercial, non-retention

	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

Quotas: commercial, non-retention

	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

Days open: recreational, retention

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	NA	NA	NA	NA	0	0	17	30	31	30	31	31
CO	NA	NA	NA	NA	0	0	17	30	31	30	31	31
KO	NA	NA	NA	NA	0	0	0	0	18	30	31	31
KC	NA	NA	NA	NA	0	0	0	0	18	30	31	31
FB	NA	NA	NA	NA	0	0	0	29	31	30	31	31
SF	NA	NA	NA	NA	0	0	0	29	31	30	31	31
MO	NA	NA	NA	NA	0	0	0	29	31	30	31	31

Quotas: recreational, retention

	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: recreational, retention

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
NO	24	24	NA	NA	NA	NA	24	24	24	24	24	24
CO	24	NA	24	NA	NA	NA	24	24	24	24	24	24
KO	24	24	NA	NA	NA	NA	NA	NA	24	24	24	24
KC	24	NA	NA	NA	NA	NA	NA	NA	24	24	24	24
FB	24	24	NA	NA	NA	NA	NA	24	24	24	24	24
SF	24	24	NA	NA	NA	NA	NA	24	24	24	24	24
MO	24	NA	NA	NA	NA	NA	NA	24	24	24	24	24

Days open: recreational, non-retention

	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

Quotas: recreational, non-retention

	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

Mgt.Input.Files/river.dat

	parameter	value
1	pi.t	0.50
2	pi.r	NA
3	H.r.tot	7923.00
4	CR.r	0.00
5	c.r	0.07
6	s.r	0.10
7	E.nat.tot	NA