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March 27, 1989

TO: Klamath Fisheries Management Council Members
FROM: Ron Iverson
SUBJECT: Draft Management Council notes for the March 5-6, 1989 meeting

Enclosed for your review are minutes of the Millbrae meeting of March 5-6, 1989, along with several attachments. I have followed each motion passed, assignmet made, or other decision point with a line of asterisks.

DRAFT

KLAMATH FISHERY MANAGEMENT COUNCIL

PROCEEDINGS OF THE MEETING HELD 5-6 MARCH 1989

IN MILLBRAE, CALIFORNIA

The meeting was convened at 6:30 p.m. by vice chair Sue Masten, with a quorum present (see attendance roster, Attachment 1).

Report of the Technical Advisory Team (Boley)

o 1989 ocean stock size projection Scott said the PFMC salmon technical team has elected to drop the 1983 data point for the regression of age 3 ocean/age 2 river numbers of Klamath chinook. This has the effect of raising the predicted age 3 ocean stock size for 1989 from 206,200 to 225,000. This estimate is higher than the predicted value for 1988, but below the postseason estimate.

o Klamath chinook contribution rates, 1988 ocean fisheries are displayed in Attachment 2. Figures shown are for age 3 and 4 only. Contribution rate estimates for 1987 and 1986 are provided for comparison in Attachment 2.

o Allowable harvest rate combinations to meet an overall harvest rate of .65 have been recalculated. The table of allowable harvest rate combinations provided at the February 22 meeting (see Attachment 3 to minutes of that meeting) should be replaced with values close to those used in the allocation formula of the Five-Year Agreement. For example, the .38/.39 harvest rate combination of the ODFW proposal may be replaced with a .42/.42 combination for ocean and inriver harvest rates.

o Impacts of harvest management options proposed by KFMC are displayed on the first page of Attachment 2, and in more detail in Attachment 3. The column titled, "EQUIL. TERMINAL SHARE" (p.1 of Att. 2) refers to the river harvest share resulting from the indicated management option, with the indicated harvest rate combination applied over many years.

the "TOTAL OCEAN CATCH" column estimates are scaled for projected size of Sacramento and Rogue chinook ocean stocks.

o Redline/greenline concept, as applied to Klamath stocks would probably involve two catch curves (cumulative catch/time): one for the early KMZ and Fort Bragg fisheries, and one for the later KMZ and Coos Bay fisheries. Dampening/liberalizing measures would be applied to an underlying seasonal management scheme if actual cumulative catches deviated markedly from the catch curves. The band of acceptable cumulative

catches around the catch curves would be wider early - maybe +/- 30%, narrowing with time.

Scott said the KOHModel will estimate the exploitation rate per time/area cell that is needed to achieve various desired total ocean harvest rates, but the Tech Team has not yet translated this into the combinations of seasonal openings/closings, plus other possible actions, that would achieve those exploitation rates...but this will be done soon.

o Comments

o Note that the PCFFA proposal would yield an overall harvest rate of about .8

o If management is effective, there will be a shift of fishing effort out of the ocean areas where Klamath contribution rate is high...a reversal of the buildup of effort in recent years. Can the Tech Team predict this effort shift, to give the Council some idea of the impact on effort of the several options?

Answer: Setting the Fort Bragg effort level of recent years at 1, most of the KFMC options would reduce it to .5 or less.

o To directly track effort, could the redline/greenline variable be cumulative troll-days, instead of cumulative catch?

Answer: Tracking vessel days would indicate effort shifts, but am not sure dampening regulations could legitimately be applied on the basis of cumulative effort.

o Besides catch and effort, why not track catch/effort...possibly an indicator of abundance.

o Effort will be driven down by the uncertainty of redline management...no way to know how many days per week can be fished from one week to the next.

Answer: Dampening measures would not have to be shifted very frequently i.e. week-to-week, because catch rates don't change that fast.

Report on ocean harvesters' meeting (Bingham)

Principal objective of this meeting, held 23 February in Eureka, was to recommend management measures for the KMZ sport salmon fishery. Basic needs of the fishery were identified as a season from Memorial Day to Labor Day, with a two-salmon bag. Further recommendation's of the harvesters were:

o A sport chinook harvest target of 80,000 fish, derived by:
(Target for Klamath chinook impact=10,000 fish) x .12 contrib.
rate = 80,000

o Initial bag limit of two chinook, with a decision to be made on 15 July on whether to dampen harvest by changing to a two salmon, one chinook bag. This regulation change would go into effect 1 August.

o A 1 May opening of the KMZ sport fishery, with catch anticipated to be small. Klamath contribution rate may, however, be high, based on evidence of early troll catch. Oregon sport interests consider the early sport opening to be a lower-priority objective than a full Memorial Day-Labor Day season. Jim Martin said he would like to see the FFMC salmon subpanel develop management options with and without the early sport opening.

o A rollback of unused harvest target from the sport to the troll fishery...and vice versa.

Comments

o (Boley): Tech Team should review these recommendations...the expected KMZ sport harvest, based on 1989 projected stock size, is only 26,000 chinook...so it seems illogical to set a sport target of 80,000...could impact special late fisheries if so many fish are set aside for sport.

(Bingham): Agree the Tech Team should review this week.

(Martin): Suppose the target impact is 10,000 Klamath fish and sport anglers only take 6000. The difference is small relative to the big confidence intervals we are working with...not a big problem.

(Hayden): As I understand it, the purpose of the Tech Team review of the proposed sport regs is to refine the estimate of the expected harvest rollover from sport to troll.

1989 harvest allocation options

Jim Martin said that a sufficient task for the Council would be to provide a reasonable range of management options for consideration by the salmon subpanel and the salmon team...agreement on one option is not necessary today..

Jim proposed that the subpanel and technical staff show the Council what kinds of fishing seasons would correspond to a range of Klamath ocean impacts of 130,000-155,000, which he considers a reasonable range of impacts, assuming an escapement rate target of .35.

Nat Bingham disagreed with the "reasonable range" and the escapement target, and asked that the PCFFA proposal (181,400 ocean impact, 67,900 spawning escapement) remain under consideration. Some tradeoff of harvest to the inriver fishery

could be negotiated. Responding to a question as to whether PFMC could even consider an option that does not provide a .35 escapement rate, Nat argued they can do so by considering the socioeconomic needs of the two major Klamath fisheries. Objective of the PCFFA proposal is to maintain all Klamath harvests at 1988 levels or higher in 1989.

Agency representatives agreed PFMC could legally set ocean harvest targets so high that inriver fisheries would have to take from the .35 escapement in order to maintain current-level harvest, but this would put the allocation issue into Federal courts, indicating failure of KFMC...

Discussion of inseason adjustments.

Bob Hayden noted that we have a history of 3 years of underestimated ocean stock size, and a means of adjusting abundance estimates would be helpful in permitting harvest of excess fish. Bob again suggested catch/effort as an abundance indicator, and it was agreed the Tech Team should analyze cpue data - including that for 1989 - and report to the Council next fall on its efficacy as an indicator of Klamath stock abundance.

KFMC comments on Trinity flows and water marketing EIS

A March 5 newspaper article noted the Bureau of Reclamation is proposing Trinity flows of slightly more than the "critically dry" level of 140,000 cfs...Fish and Wildlife Service is recommending 179,000 cfs...

Lyle Marshall said that, based on the Hoopa Tribe's experience, the Bureau's process for appealing flow decisions is ineffective and slow. He recommended a strongly-worded letter from KFMC...Learning that the letter requested by the Council from FWS and CDFG had not yet been drafted, the Council requested Bill Yeates and Steve Suagee to draft such a letter.

Bob Hayden suggested that the spawning escapement rate target be adjusted for anticipated stream flows. Consensus was that data is lacking to justify such a change.

Lisle Reed said that fishery interests are asking the Bureau to deviate from the Andrus Decision in increasing Trinity flows in 1989, and any letter arguing for such a policy change would have to persuade the Assistant Secretary of Interior for Fish, Wildlife, and Parks, and other officials at a policymaking level. Similarly, an argument that the water marketing draft EIS is deficient will have to convince the assistant secretaries, and the Interior Solicitor, in order to have an effect.

Mel Odemar relayed a request from Dick Schwarz that KFMC try to agree on a Klamath chinook ocean stock size, as a basis for PFMC options. Conclusion: no consensus on ocean stock size - ocean harvesters do not accept the estimate provided by the Tech Team.

At this point Sue Masten adjourned the meeting, to reconvene at 2 p.m. on March 6.

The Council reconvened on March 6 with Fullerton and Bostwick absent - Masten holding Bostwick's proxy.

Further discussion of Trinity water issues

A letter was distributed, drafted by Bill Yeates, commenting on the draft water marketing EIS. The letter was approved by consensus, subject to removal of comments about opinions or positions of CDFG. It was agreed to request chairman Fullerton to sign on behalf of the Council, with a target transmittal date of Friday, March 17.

A lengthy discussion ensued of what to do about anticipated "critical dry year" Trinity flow regimen proposed by the Bureau for 1989. Points made included:

- o The difference - in Shasta inflow - between "critically dry" and "dry" water years is small...maybe the current rainy spell will take care of it.

- o The present situation i.e. frequent dry years, bigger salmon runs, and an expanded inriver fishery, was not foreseen at the time of the Andrus Decision...we should ask the Secretary to make a policy change, go outside Andrus to put more flow in the Trinity. A decision will be needed by about June.

- o Such a policy change would have to be defended by Assistant Secretaries for FW&P and Indian Affairs...there would be plenty of powerful opposition to it.

- o The water year should begin in March rather than October

- o Asking for more Trinity flows means asking to have CVP reservoirs pulled down further...fishery interests should think about whether they really want this.

- o Hoopa Tribe's appeal of 1988 flows is more than a year old and still has not been replied to by BR...so maybe a letter alone won't be effective

Sue Masten said that harvester group representatives would draft a letter on Trinity flows, and provide a review copy to each

Klamath Council member.

Tech Team report

A draft letter from Steve Jacobs of the Tech Team was distributed...addressing the issue of whether the spawning escapement goal should be reduced in a dry year. The draft argues that, since fall rains cannot be predicted with any reliability early in the year, there is no basis for predicting a reduced amount of spawning habitat.

Scott Boley distributed Attachment 3. Among points made in explaining this complex material were:

- o "EXPLOITATION RATE CHANGE FROM BASE PERIOD"...a value of 1.00 in a time/area cell indicates no predicted change, in 1989, in impacts on Klamath stock in that cell.
- o Harvest figures in Attachment 3 are for ages 3 and 4 only...Attachment 2 figures include 5s.
- o PCFFA option would cut Coos Bay and Fort Bragg Klamath impacts by about half...and would reduce total chinook harvest from 276,000 last year to 105,000 this year for Coos Bay, from 418,000 last year to 219,000 this year for Fort Bragg
- o Some errors in this handout...Tech Team will try to correct

Discussion turned to what to do with the options analyzed by the Tech Team...concern was expressed at the wide range of ocean harvest, inriver harvest, and escapement...no indication the Klamath Council is moving toward a consensus option.

A 67,000 fish floor on inriver harvest was suggested as a point of consensus. A motion on this point failed to carry, owing to concerns about protecting ocean harvest...maintaining it not below current levels. Jim Martin said that, lack of KFMC consensus on this point notwithstanding, Oregon will seek - at PFMC - to maintain inriver harvest at current level.

Lisle Reed said he understood the ocean harvester's concern for maintaining harvest in a year of predicted abundance, and would support seasonal management and the greatest biologically supportable flexibility around the .65 total harvest rate.

It was left that the range of options displayed in Attachment 2 will be provided to PFMC, with no one option endorsed by the Klamath Council.

Discussion of next meeting

Jim Martin suggested meeting in April conjointly with PFMC...when PFMC ocean harvest options, and public comment on them, will be available. KFMC could then be part of the final decision process. A motion to do this was passed by consensus...Klamath Field Office to arrange date and time.

Del Robinson said inriver gillnet regulations would be set by about June, based on actions by PFMC.

Public comment

- o KMZ trollers are still waiting for equitable harvest
- o Klamath Council must acknowledge, do something about the continued excessive ocean impact on Klamath stocks

Meeting adjourned.

ATTACHMENT 1

KLAMATH FISHERY MANAGEMENT COUNCIL

Attendance Roster, March 5 and 6, 1989 meeting.

Management Council Members

Nat Bingham	California Commercial salmon fishing industry
Virginia Bostwick	In-river sport fishing community
Mel Odemar (Alternate)	California Department of Fish and Game
Robert Hayden	Offshore recreational fishing industry
Lyle Marshall	Hoopa Indian Tribe
James Martin	Oregon Department of Fish and Wildlife
Susan Masten	Non-Hoopa Indians residing in Klamath area
Lisle Reed	Department of Interior
Keith Wilkinson	Oregon commercial salmon fishing industry

Absent were: E.A. "Spike" Naylor, E.C. Fullerton, and Richard Schwarz

6 March 88

ATTACHMENT 2

1989 MANAGEMENT OPTIONS PROPOSED BY KFMC

OPTION	HAR. RATE COMBINAT.	89 OCEAN KLAMATH IMPACTS**	TOTAL OCEAN CATCH	89 RIVER HARVEST	EQUIL. TERMINAL SHARE	ADULT SPAWNING ESCAPEMENT
L. MARSHALL #1	0.50/0.65	181400	1009000	74400	-- *	62400*
PCFFA	0.50/0.49	181400	1009000	67700	-- *	67900*
J. MARTIN	0.42/0.42	155400	890000	54300	23.4%	102300
L. REED #1	0.41/0.44	151700	869000	57700	25.0%	101000
L. REED #2	0.375/0.49	138800	836000	67700	30.0%	98600
L. MARSHALL #2	0.35/0.52	129500	767000	74400	33.6%	97300
STATUS QUD	0.335/0.54	124000	764000	78800	35.9%	96100

* DOES NOT MEET MSY.

** ALL AGES, INCLUDES 1988 FALL HARVEST OF 2000 FISH.

1988 SUMMARY
 OCEAN FISHERIES AND KLAMATH IMPACTS

TOTAL CHINOOK LANDINGS (ALL STOCKS) - 1988

	FALL-87	MAY-88	JUN-88	JUL-88	AUG-88	TOTALS
NOR	31800	11577	25439	51674	42944	163434
CSB	45100	42787	52595	46409	89146	276037
KMZ-T	8381	8875	58904	0	0	76162
KMZ-S	9077	1674	25472	21081	4773	62077
FTB	2787	92034	113979	156832	52150	417782
SOC	11962	295917	226634	212572	58824	805909
TOTAL	109107	452864	503023	488569	247838	1801401

KLAMATH FALL CHINOOK CATCH CONTRIBUTIONS IN 1988 FISHERIES

	FALL-87	MAY-88	JUN-88	JUL-88	AUG-88	
BOTH AGES						
NORTHERN OREGON	4.2%	0.8%	2.4%	6.0%	7.0%	
COOS BAY	15.1%	7.0%	8.0%	7.2%	21.8%	
KMZ-TROLL	9.1%	30.1%	38.6%	0.0%	0.0%	
KMZ-SPORT	34.8%	16.7%	9.7%	11.1%	18.8%	
FORT BRAGG	10.0%	20.2%	17.8%	23.0%	3.6%	
SOUTHERN CAL.	0.0%	3.8%	10.5%	7.7%	0.0%	

KLAMATH LANDINGS - 1988

	FALL-87	MAY-88	JUN-88	JUL-88	AUG-88	SUM EQUIV
AGE 3						
NOR	0	0	232	1313	2086	3631
CSB	238	927	1777	1700	14369	18892
KMZ-T	0	927	14369	0	0	15296
KMZ-S	317	232	1622	1236	464	3713
FTB	0	9193	11124	25184	1854	47355
SOC	0	7339	14060	10274	0	31673
TOTAL	555	18618	43184	39707	18773	120560
AGE 4						
NOR	1320	93	388	1771	932	4240
CSB	6555	2081	2454	1631	5095	16505
KMZ-T	761	1740	8372	0	0	10721
KMZ-S	2843	47	839	1103	435	4698
FTB	280	9382	9165	10889	0	29660
SOC	0	3992	9646	6074	0	19712
TOTAL	11759	17335	30864	21468	6462	85536
GRAND TOT	12314	35953	74048	61175	25235	206096

OCEAN POPULATION - KLAMATH FALL CHINOOK, START OF PERIOD-1988

	SEPT-87	MAY-88	JUN-88	JUL-88	AUG-88	END AUG	RIV RUN
AGE 3	703800	351438	330751	284810	243875	224522	95700
AGE 4	222750	168793	151458	120594	99126	92664	81800

1987 SUMMARY
OCEAN FISHERIES AND KLAMATH IMPACTS

TOTAL CHINOOK LANDINGS (ALL STOCKS) - 1987						
	FALL-86	MAY-87	JUN-87	JUL-87	AUG-87	TOTALS
NOR	37100	14828	9121	42459	35453	138961
CSB	22400	17790	11421	231791	47299	330701
KMZ-T	4935	9595	110140	0	0	124672
KMZ-S	1252	1513	11284	20078	14341	48468
FTB	574	71544	88075	130799	49204	340196
SOC	4898	192598	132742	74606	31006	435850
TOTAL	71159	307868	362783	499734	177304	1418848

KLAMATH FALL CHINOOK CATCH CONTRIBUTIONS IN 1987 FISHERIES						
BOTH AGES	FALL-86	MAY-87	JUN-87	JUL-87	AUG-87	
NORTHERN OREGON	18.1%	1.3%	1.1%	11.6%	10.0%	
COOS BAY	22.4%	9.0%	25.3%	33.5%	37.6%	
KMZ-TROLL	0.3%	32.7%	40.8%	0.0%	0.0%	
KMZ-SPORT	0.0%	4.2%	19.4%	22.0%	31.0%	
FORT BRAGG	8.4%	23.1%	41.9%	31.4%	14.2%	
SOUTHERN CAL.	0.0%	5.8%	19.1%	8.0%	12.7%	

KLAMATH LANDINGS - 1987						
AGE 3	FALL-86	MAY-87	JUN-87	JUL-87	AUG-87	SUM EQUIV
NOR	439	0	0	1683	1793	3696
CSB	0	110	329	33046	10576	44061
KMZ-T	0	878	26532	0	0	27410
KMZ-S	0	0	1208	3184	2269	6661
FTB	0	6697	21189	31838	5233	64957
SOC	0	4867	16285	4428	2745	28325
TOTAL	439	12552	65543	74179	22616	175110
AGE 4	FALL-86	MAY-87	JUN-87	JUL-87	AUG-87	SUM EQUIV
NOR	6283	193	97	3222	1756	10294
CSB	5011	1498	2562	44581	7282	59932
KMZ-T	16	2256	18415	0	0	20684
KMZ-S	0	64	983	1241	2175	4463
FTB	48	9844	15709	9216	1772	36579
SOC	0	6300	9071	1563	1208	18142
TOTAL	11358	20155	46837	59823	14193	150094
GRAND TOT	11797	32707	112380	134002	36809	325204

OCEAN POPULATION - KLAMATH FALL CHINOOK, START OF PERIOD-1987							
	SEPT-86	MAY-87	JUN-87	JUL-87	AUG-87	END AUG	RIV RUN
AGE 3	788000	393634	379688	309961	233488	210172	87600
AGE 4	341125	263814	243659	196822	136999	122806	109900

1986 SUMMARY
OCEAN FISHERIES AND KLAMATH IMPACTS

TOTAL CHINOOK LANDINGS (ALL STOCKS) - 1986						
	FALL-85	MAY-86	JUN-86	JUL-86	AUG-86	TOTALS
NOR	1600	14966	11919	34014	10633	73132
CSB	22400	18206	21387	95143	81806	238942
KMZ-T	3805	3893	37207	16522	41595	103022
KMZ-S	1210	1651	6436	8904	8600	26801
FTB	5242	57019	90749	96861	27058	276929
SOC	14126	166394	176264	117797	37043	511624
TOTAL	48383	262129	343962	369241	206735	1230450

KLAMATH FALL CHINOOK CATCH CONTRIBUTIONS IN 1986 FISHERIES						
BOTH AGES	FALL-85	MAY-86	JUN-86	JUL-86	AUG-86	
NORTHERN OREGON	36.2%	2.2%	3.5%	10.1%	2.5%	
COOS BAY	31.8%	4.6%	20.5%	47.4%	48.3%	
KMZ-TROLL	0.0%	26.7%	62.6%	67.0%	43.0%	
KMZ-SPORT	20.7%	27.0%	8.9%	12.6%	46.6%	
FORT BRAGG	0.0%	29.8%	45.0%	29.1%	8.5%	
SOUTHERN CAL.	2.8%	6.7%	25.1%	24.1%	11.0%	

KLAMATH LANDINGS - 1986						
AGE 3	FALL-85	MAY-86	JUN-86	JUL-86	AUG-86	SUM EQUIV
NOR	0	209	417	3441	261	4328
CSB	312	730	4172	41037	38430	84525
KMZ-T	0	886	21640	10168	16790	49484
KMZ-S	208	417	574	886	3754	5735
FTB	0	13870	37544	27376	2242	81032
SOC	312	10220	39682	27532	4067	81657
TOTAL	832	26332	104029	110440	65544	306761
AGE 4	FALL-85	MAY-86	JUN-86	JUL-86	AUG-86	SUM EQUIV
NOR	579	127	0	0	0	590
CSB	6807	113	212	4025	1045	10841
KMZ-T	0	155	1652	904	1102	3813
KMZ-S	42	28	0	240	254	556
FTB	0	3121	3248	819	71	7259
SOC	85	960	4533	847	0	6408
TOTAL	7513	4504	9645	6835	2472	29466
GRAND TOT	8345	30836	113674	117275	68016	336227

OCEAN POPULATION - KLAMATH FALL CHINOOK, START OF PERIOD-1986							
	SEPT-85	MAY-86	JUN-86	JUL-86	AUG-86	END AUG	RIV RUN
AGE 3	1409800	704207	674949	564280	450424	382853	160700
AGE 4	78375	56690	52186	42541	35706	33234	29400

Base Calibration

The average of the last three years seasons adjusted for '89 stock

KLAMATH OCEAN HARVEST MODEL: EXPLTN. RATE VERSION: 5.0
 1989 OPTION # RUN DATE: 3-3-89 TIME: 10:27
 BASE CALIBRATION

(corrected for 1988 August Sport)
 and 88 Aug 2-week closure in CSB

	EXPLOITATION RATE CHANGE FROM BASE PERIOD: a(.jk)					
	FALL	MAY	JUNE	JULY	AUGUST	
NDR	1.00	1.00	1.00	1.00	1.00	
CSB	1.00	1.00	1.00	1.00	1.00	
KMZ-T	1.00	1.00	1.00	1.00	1.00	
KMZ-S	1.00	1.00	1.00	1.00	1.00	
FTB	1.00	1.00	1.00	1.00	1.00	
SOC	1.00	1.00	1.00	1.00	1.00	

	KLAMATH INRIVER ESCAPE - GOAL = DIFF			OCEAN IMPACTS Sept-Aug LANDINGS - GOAL = DIFF		
	AGE 3	50254	73300	-23046	103446	51500
AGE 4	72767	103600	-30833	91120	56000	35120
TOTAL	123020	176900	-53880	194565	107500	87065

	KLAMATH LANDINGS - ESTIMATES: L(ijk)						
	FALL	MAY	JUNE	JULY	AUGUST		89 TOT
AGE 3	168	22	94	865	755	1736	
NDR	0	297	887	11321	8802	21307	
CSB	0	460	10434	7850	6728	25472	
KMZ-T	0	94	638	965	1004	2700	
KMZ-S	0	4718	10542	14492	1513	31266	
FTB	0	3585	10337	5968	907	20796	
SOC	0	9176	32932	41461	19709	103278	
TOTAL	168	200	152	1070	626	2047	
AGE 4	540	1137	1591	14614	4024	21365	
NDR	0	1227	8441	6346	4790	20804	
CSB	0	58	494	878	953	2383	
KMZ-T	0	8408	9888	6551	411	25258	
KMZ-S	0	3663	9745	3222	232	16863	
FTB	0	14692	30310	32681	11036	88720	
SOC	0						
TOTAL	2400	31368	63242	74143	30745	191997	
GRAND TOT	2568	23868	63242	74143	30745	191997	

	CATCH PROJECTIONS BASED ON EXPLOITATION RATE						SHIFTS: a(.ij)*C(.ij)
	FALL	MAY	JUNE	JULY	AUGUST		
NDR	31600	9571	10796	28888	19771	88970	
CSB	40352	18366	19795	78102	46364	162627	
KMZ-T	18666	4871	41488	3186	8332	57877	
KMZ-S	252	1007	9428	10701	5452	26587	
FTB	13880	63610	77355	104972	37721	283657	
SOC	24073	192947	151037	110926	36124	491035	
TOTAL	128823	290372	309899	336775	153764	1090810	

KLAMATH OCEAN HARVEST MODEL: EXPLTN. RATE VERSION: 5.0
 1989 OPTION # RUN DATE: 3-3-89 TIME: 10:39
 PCFFA OPTION with 100,000 KMZ troll

0.50/0.49 Harvest Combination
 Does not meet MSY (results in 67,700 adult spawning escapment)

EXPLOITATION RATE CHANGE FROM BASE PERIOD: a(.jk)

	FALL	MAY	JUNE	JULY	AUGUST
NOR	1.00	1.00	1.00	1.00	1.00
CSB	1.00	1.00	1.00	0.50	0.60
KMZ-T	1.00	1.00	2.30	0.00	0.00
KMZ-S	1.00	1.00	1.00	1.00	1.00
FTB	1.00	0.60	0.50	1.00	1.00
SOC	1.00	1.00	1.00	1.00	1.00

	KLAMATH INRIVER			OCEAN IMPACTS Sept-Aug		
	ESCAPE	- GOAL	= DIFF	LANDINGS	- GOAL	= DIFF
AGE 3	57985	60500	-2515	85874	76100	9774
AGE 4	87581	76700	10881	74474	84300	-9826
TOTAL	145567	137200	8367	160348	160400	-52

KLAMATH LANDINGS - ESTIMATES: L(ijk)

AGE 3	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
	NOR	168	22	95	831	797
CSB	0	297	896	5394	5579	12166
KMZ-T	0	460	24225	0	0	24685
KMZ-S	0	94	645	909	1071	2719
FTB	0	2831	5321	13813	1625	23590
SOC	0	3585	10437	5800	979	20801
TOTAL	168	7288	41618	26748	10052	85706
AGE 4	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
	NOR	0	200	155	1013	716
CSB	540	1137	1625	6996	2712	12469
KMZ-T	1770	1227	19814	0	0	21041
KMZ-S	90	58	505	853	1084	2499
FTB	0	5045	5050	6327	492	16914
SOC	0	3663	9966	3155	282	17066
TOTAL	2400	11329	37115	18343	5286	72074
GRAND TOT	2568	18618	78733	45091	15338	157780

CATCH PROJECTIONS BASED ON EXPLOITATION RATE SHIFTS: a(.ij)*C(.ij)

	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
NOR	31600	9571	10796	28888	19771	69026
CSB	40352	18366	19795	39051	27818	105031
KMZ-T	18666	4871	95422	0	0	100294
KMZ-S	252	1007	9428	10701	5452	26587
FTB	13880	38166	38677	104972	37721	219536
SOC	24073	192947	151037	110926	36124	491035
TOTAL	128823	264928	325156	294539	126886	1011508

KLAMATH OCEAN HARVEST MODEL: EXPLTN. RATE VERSION: 5.0
 1989 OPTION # RUN DATE: 3-3-89 TIME: 10:42
 J. MARTIN'S OPTION

042/042 Harvest Combination
 100,000 KMZ troll

post 34vs

EXPLOITATION RATE CHANGE FROM BASE PERIOD: a(.jk)

	FALL	MAY	JUNE	JULY	AUGUST
NDR	1.00	1.00	1.00	1.00	1.00
CSB	1.00	1.00	1.00	0.50	0.60
KMZ-T	1.00	1.00	2.30	0.00 ?	0.00 ?
KMZ-S	1.00	1.00	1.00	1.00	1.00
FTB	1.00	0.60	0.50	1.00	1.00
SOC	1.00	1.00	1.00	1.00	1.00

KLAMATH INRIVER			OCEAN IMPACTS Sept-Aug			
ESCAPE	- GOAL	= DIFF	LANDINGS	- GOAL	= DIFF	
AGE 3	57985	66300	-8315	85874	66400	19474
AGE 4	87581	89000	-1419	74474	70500	3974
TOTAL	145567	155300	-9733	160348	136900	23448

Get replacement page

KLAMATH LANDINGS - ESTIMATES: L(ijk)

AGE	PERIOD	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
AGE 3	NDR	168	23	95	831	797	1746
	CSB	0	297	896	5394	5579	12166
	KMZ-T	0	460	24225	0	0	24685
	KMZ-S	0	94	645	909	1071	2719
	FTB	0	2831	5321	13813	1625	23590
	SOC	0	3585	10437	5800	979	20801
	TOTAL	168	7288	41618	26748	10052	85706
AGE 4	NDR	0	200	155	1013	716	2085
	CSB	540	1137	1625	6996	2712	12469
	KMZ-T	1770	1227	19814	0	0	21041
	KMZ-S	90	58	505	853	1084	2499
	FTB	0	5045	5050	6327	492	16914
	SOC	0	3663	9966	3155	282	17066
	TOTAL	2400	11329	37115	18343	5286	72074
GRAND TOT	2568	18618	78733	45091	15338	157780	

CATCH PROJECTIONS BASED ON EXPLOITATION RATE SHIFTS: a(.ij)*C(.ij)

	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
NDR	31600	9571	10796	28888	19771	69026
CSB	40252	18366	19795	39051	27818	105031
KMZ-T	18666	4871	95422	0	0	100294
KMZ-S	252	1007	9428	10701	5452	26587
FTB	13880	38166	38677	104972	37721	219536
SOC	24073	192947	151037	110926	36124	491035
TOTAL	128823	264928	325156	294539	126886	1011508

KLAMATH OCEAN HARVEST MODEL: EXPLTN. RATE VERSION: 5.0
 1989 OPTION # RUN DATE: 3-3-89 TIME: 10:58
 LISLE REED OPTION #2

0.375/0.49

100,000 KMZ Tr=11

Escapement Goal Met, Not Ocean Impacts

EXPLOITATION RATE CHANGE FROM BASE PERIOD: a(.jk)

	FALL	MAY	JUNE	JULY	AUGUST
NOR	1.00	1.00	0.75	1.00	1.00
CSB	1.00	1.00	0.75	0.25	0.25
KMZ-T	1.00	1.00	2.30	0.00	0.00
KMZ-S	1.00	1.00	1.00	1.00	1.00
FTB	1.00	0.25	0.25	0.60	1.00
SOC	1.00	1.00	0.75	1.00	1.00

KLAMATH INRIVER

OCEAN IMPACTS Sept-Aug

	ESCAPE	- GOAL	= DIFF	LANDINGS	- GOAL	= DIFF
AGE 3	65572	69500	-3928	69055	59400	9655
AGE 4	100178	95900	4278	60321	64700	-4379
TOTAL	165750	165400	350	129376	124100	5276

KLAMATH LANDINGS - ESTIMATES: L(ijk)

AGE 3	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
NOR	168	22	72	867	882	1844
CSB	0	297	678	2816	2558	6349
KMZ-T	0	460	24423	0	0	24883
KMZ-S	0	94	650	947	1187	2879
FTB	0	1180	2682	8635	1813	14310
SOC	0	3585	7893	6052	1092	18622
TOTAL	168	5637	36399	19318	7533	68887
AGE 4	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
NOR	0	200	119	1073	817	2209
CSB	540	1137	1241	3702	1277	7357
KMZ-T	1770	1227	20163	0	0	21390
KMZ-S	90	58	514	908	1228	2707
FTB	0	2102	2572	4043	562	9279
SOC	0	3663	7619	3371	325	14978
TOTAL	2400	8387	32228	13097	4209	57921
GRAND TOT	2568	14024	68627	32415	11742	126808

CATCH PROJECTIONS BASED ON EXPLOITATION RATE SHIFTS: a(.ij)*C(.ij)

	FALL	MAY	JUNE	JULY	AUGUST	88 TOT
NOR	31600	9571	8097	28888	19771	66327
CSB	40352	18366	14847	19526	11591	64329
KMZ-T	18666	4871	95422	0	0	100294
KMZ-S	252	1007	9428	10701	5452	26587
FTB	13880	15903	19339	62983	37721	135945
SOC	24073	192947	113278	110926	36124	453275
TOTAL	128823	242664	260410	233025	110659	846758

KLAMATH OCEAN HARVEST MODEL: EXPLTN. RATE VERSION: 5.0
 1989 OPTION # RUN DATE: 3-3-89 TIME: 11:2
 LISLE REED OPTION #2

0.375/0.49

Ocean Impacts Met, Escapement over goal

100,000 KMZ Troll

EXPLOITATION RATE	CHANGE FROM BASE PERIOD: a(.jk)				
	FALL	MAY	JUNE	JULY	AUGUST
NOR	1.00	1.00	0.65	1.00	1.00
CSB	1.00	1.00	0.65	0.20	0.20
KMZ-T	1.00	1.00	2.30	0.00	0.00
KMZ-S	1.00	1.00	1.00	1.00	1.00
FTB	1.00	0.20	0.20	0.60	1.00
SOC	1.00	1.00	0.65	1.00	1.00

	KLAMATH INRIVER			OCEAN IMPACTS Sept-Aug		
	ESCAPE	- GOAL	= DIFF	LANDINGS	- GOAL	= DIFF
AGE 3	66774	69500	-2726	66414	59400	7014
AGE 4	102638	95900	6738	57556	64700	-7144
TOTAL	169413	165400	4013	123970	124100	-130

KLAMATH LANDINGS - ESTIMATES: L(ijk)						
AGE	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
NOR	168	22	62	877	894	1857
CSB	0	297	588	2279	2077	5242
KMZ-T	0	460	24452	0	0	24911
KMZ-S	0	94	651	957	1206	2909
FTB	0	944	2148	8729	1841	13662
SOC	0	3585	6849	6121	1111	17666
TOTAL	168	5401	34751	18964	7130	66246
AGE	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
NOR	0	200	103	1088	835	2227
CSB	540	1137	1079	3004	1044	6264
KMZ-T	1770	1227	20213	0	0	21440
KMZ-S	90	58	515	922	1256	2751
FTB	0	1682	2063	4108	577	8429
SOC	0	3663	6621	3428	333	14045
TOTAL	2400	7966	30594	12551	4045	55156
GRAND TOT	2568	13367	65345	31515	11175	121402

CATCH PROJECTIONS BASED ON EXPLOITATION RATE SHIFTS: a(.ij)*C(.ij)						
	FALL	MAY	JUNE	JULY	AUGUST	88 TOT
NOR	31600	9571	7017	28888	19771	65248
CSB	40352	18366	12867	15620	9273	56126
KMZ-T	18666	4871	95422	0	0	100294
KMZ-S	252	1007	9428	10701	5452	26587
FTB	13880	12722	15471	62983	37721	128897
SOC	24073	192947	98174	110926	36124	438172
TOTAL	128823	239484	238380	229119	108340	815323

KLAMATH OCEAN HARVEST MODEL: EXPLTN. RATE VERSION: 5.0
 1989 OPTION # RUN DATE: 3-3-89 TIME: 11:14
 LYLE MARSHALL #2

0.35/0.52

ocean impacts met - esc. high

88,000 KMZ Troll

EXPLOITATION RATE CHANGE FROM BASE PERIOD: a(.jk)

	FALL	MAY	JUNE	JULY	AUGUST
NOR	1.00	1.00	0.65	1.00	1.00
CSB	1.00	1.00	0.50	0.20	0.20
KMZ-T	1.00	1.00	2.00	0.00	0.00
KMZ-S	1.00	1.00	1.00	1.00	1.00
FTB	1.00	0.20	0.20	0.50	1.00
SOC	1.00	1.00	0.50	1.00	1.00

	KLAMATH INRIVER			OCEAN IMPACTS Sept-Aug		
	ESCAPE	- GOAL	= DIFF	LANDINGS	- GOAL	= DIFF
AGE 3	69313	71400	-2087	60844	55300	5544
AGE 4	106657	99700	6957	53041	58400	-5359
TOTAL	175969	171100	4869	113885	113700	185

KLAMATH LANDINGS - ESTIMATES: L(ijk)

	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
AGE 3						
NOR	168	22	62	903	932	1919
CSB	0	297	453	2350	2152	5252
KMZ-T	0	460	21262	0	0	21722
KMZ-S	0	94	651	989	1253	2987
FTB	0	944	2148	7492	1922	12505
SOC	0	3585	5269	6282	1156	16290
TOTAL	168	5401	29845	18015	7415	60676
AGE 4						
NOR	0	200	103	1129	673	2305
CSB	540	1137	830	3109	1087	6162
KMZ-T	1770	1227	17577	0	0	18804
KMZ-S	90	58	515	954	1307	2834
FTB	0	1682	2063	3544	600	7889
SOC	0	3663	5093	3543	348	12647
TOTAL	2400	7966	26181	12278	4215	50641
GRAND TOT	2568	13367	56026	30294	11630	111317

CATCH PROJECTIONS BASED ON EXPLOITATION RATE SHIFTS: a(.ij)*C(.ij)

	FALL	MAY	JUNE	JULY	AUGUST	88 TOT
NOR	31600	9571	7017	28868	19771	65248
CSB	40352	18366	9898	15620	9273	53157
KMZ-T	18666	4871	82976	0	0	87847
KMZ-S	252	1007	9428	10701	5452	26587
FTB	13880	12722	15471	52486	37721	118399
SOC	24073	192947	75519	110926	36124	415516
TOTAL	128823	239484	200308	218622	108340	766755

KLAMATH OCEAN HARVEST MODEL: EXPLTN. RATE VERSION: 5.0
 1989 OPTION # RUN DATE: 3-3-89 TIME: 11:17
 LYLE MARSHALL #2

0.35 / 0.52

Escapement Goals Met

88,000 kmz Troll

Ocean Impacts Too High

EXPLOITATION RATE CHANGE FROM BASE PERIOD: a(.jk)

	FALL	MAY	JUNE	JULY	AUGUST
NOR	1.00	1.00	0.65	1.00	1.00
CSB	1.00	1.00	0.50	0.30	0.30
KMZ-T	1.00	1.00	2.00	0.00	0.00
KMZ-S	1.00	1.00	1.00	1.00	1.00
FTB	1.00	0.30	0.30	0.50	1.00
SOC	1.00	1.00	0.50	1.00	1.00

KLAMATH INRIVER

OCEAN IMPACTS Sept-Aug

	ESCAPE	- GOAL	= DIFF	LANDINGS	- GOAL	= DIFF
AGE 3	67766	71400	-3634	64263	55300	8963
AGE 4	103524	99700	3824	56561	58400	-1839
TOTAL	171290	171100	190	120825	113700	7125

KLAMATH LANDINGS - ESTIMATES: L(ijk)

	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
AGE 3						
NOR	168	22	62	895	918	1898
CSB	0	297	452	3494	3179	7421
KMZ-T	0	460	21213	0	0	21673
KMZ-S	0	94	650	980	1232	2955
FTB	0	1416	3215	7429	1887	13946
SOC	0	3585	5256	6229	1133	16203
TOTAL	168	5873	30847	19027	8349	64095
AGE 4						
NOR	0	200	103	1115	848	2266
CSB	540	1137	825	4606	1589	8157
KMZ-T	1770	1227	17490	0	0	18717
KMZ-S	90	58	512	942	1271	2783
FTB	0	2522	3078	3498	580	9678
SOC	0	3663	5066	3496	335	12560
TOTAL	2400	8807	27074	13657	4623	54161
GRAND TOT	2568	14680	57921	32683	12972	118257

CATCH PROJECTIONS BASED ON EXPLOITATION RATE SHIFTS: a(.ij)*C(.ij)

	FALL	MAY	JUNE	JULY	AUGUST	88 TOT
NOR	31600	9571	7017	28888	19771	65248
CSB	40352	18366	9898	23431	13909	65603
KMZ-T	18666	4871	82976	0	0	87847
KMZ-S	252	1007	9428	10701	5452	26587
FTB	13880	19083	23206	52486	37721	132496
SOC	24073	192947	75519	110926	36124	415516
TOTAL	128823	245845	208044	226432	112977	793298

KLAMATH OCEAN HARVEST MODEL: EXPLTN. RATE VERSION: 5.0
 1989 OPTION # RUN DATE: 3-3-89 TIME: 11:20
 STATUS QUO

0335/.54

Ocean Impacts Met

58,800 Kmz Troll

EXPLOITATION RATE CHANGE FROM BASE PERIOD: a(.jk)

	FALL	MAY	JUNE	JULY	AUGUST
NDR	1.00	1.00	0.65	1.00	1.00
CSB	1.00	1.00	0.50	0.30	0.30
KMZ-T	1.00	1.00	1.30	0.00	0.00
KMZ-S	1.00	1.00	1.00	1.00	1.00
FTB	1.00	0.30	0.30	0.50	1.00
SOC	1.00	1.00	0.50	1.00	1.00

KLAMATH INRIVER

OCEAN IMPACTS Sept-Aug

	ESCAPE	- GOAL	= DIFF	LANDINGS	- GOAL	= DIFF
AGE 3	70630	72500	-1870	58041	53000	5041
AGE 4	108148	102000	6148	51365	55800	-4435
TOTAL	178778	174500	4278	109406	108800	606

KLAMATH LANDINGS - ESTIMATES: L(ijk)

AGE 3	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
NDR	168	22	62	933	963	1981
CSB	0	297	452	3661	3302	7711
KMZ-T	0	460	13788	0	0	14248
KMZ-S	0	94	650	1032	1287	3062
FTB	0	1416	3215	7773	1987	14390
SOC	0	3585	5256	6453	1187	16480
TOTAL	168	5873	23422	19853	8725	57873
AGE 4	FALL	MAY	JUNE	JULY	AUGUST	89 TOT
NDR	0	200	103	1181	897	2381
CSB	540	1137	825	4849	1667	8478
KMZ-T	1770	1227	11368	0	0	12596
KMZ-S	90	58	512	985	1336	2891
FTB	0	2522	3078	3672	614	9887
SOC	0	3663	5066	3647	357	12733
TOTAL	2400	8807	20953	14334	4871	48965
GRAND TOT	2568	14680	44375	34187	13596	106838

CATCH PROJECTIONS BASED ON EXPLOITATION RATE SHIFTS: a(.ij)*C(.ij)

	FALL	MAY	JUNE	JULY	AUGUST	88 TOT
NDR	31600	9571	7017	28888	19771	65248
CSB	40352	18366	9898	23431	13909	65603
KMZ-T	18666	4871	53934	0	0	58806
KMZ-S	252	1007	9428	10701	5452	26587
FTB	13880	19083	23206	52486	37721	132496
SOC	24073	192947	75519	110926	36124	415516
TOTAL	128823	245845	179002	226432	112977	764256