

APPENDIX F

California Department of Fish and Game  
Proposed Inseason Coho Management Model



**DEPARTMENT OF FISH AND GAME**1416 NINTH STREET  
SACRAMENTO, CALIFORNIA 95814

(916) 445-3531



July 25, 1984

Dr. Jack Donaldson, Chairman  
Pacific Fishery Management Council  
526 S.W. Mill Street  
Portland, Oregon 97201

Dear Jack:

I am writing to request a second teleconference of the PFMC to reevaluate the OPI coho projection for 1984. We have data and a new regression analysis to indicate the OPI projection should be readjusted to 1.75 million coho. It is in everyone's best interest to have the SPDT look at the data and analysis included with this letter and report back to the Council in a teleconference that hopefully can be held during the week of July 30-August 3.

Our analysis is based on troll coho landings south of Point Arena during 1962-83 and through July 23 of this year.

Coho salmon normally comprise a small percentage of troll landings south of Point Arena, which includes the ports of Bodega Bay, Sausalito, Oakland, Half Moon Bay, Moss Landing and Monterey. Through July 23, troll landings tabulated to date at these ports total approximately 13,900 coho which is 11,100 (396%) over 1983 and 7,300 (111%) over 1982 for the same period (Table 1).

When final landings are tabulated, we expect coho landings through July will reach 20,000 fish and season landings, based on 1980-83 landing pattern, will total 25,000 coho.

Landings to date are only partially complete through July because a few major buyers in our Central Coast region have been uncooperative in mailing in salmon market receipts in a timely manner. Also, a few dealers have been mixing chinook and coho on the receipts in an effort to give a bonus price for the many large (over 9 pound dressed) coho that have occurred in catches.

The large coho landings in our Central Coast area are not an artifact of increased effort or a shift in landing pattern. Effort, in fact, is down about 50% from 1983 based on number of deliveries in the Central Coast area; and 1984 regulations allow commercial trollers to land coho at any port south of Trinidad. The argument that trollers have been landing coho south of Point Arena because the management boundary is set at Point Arena does not apply because trollers are free to transport their catches through State (or Federal) waters anywhere in our regulatory District 7 (Humboldt Bay to about the Gualala River).

If troll effort were comparable to 1983, troll coho landings south of Point Arena in 1984 would probably rise to 30,000-40,000 fish.



July 25, 1984

Our interest in coho landings south of Arena stems from the close relationship we have observed between the total OPI (observed) and coho troll landings south of Point Arena. This relation is shown in Figure 1. The data and statistical analysis used to construct the straight-line regression are enclosed. Allowing that the straight-line analysis may not be appropriate for years of low (under 1.7 million) abundance, we have fitted a line by eye to estimate the relation when south of Arena troll landings are less than 30,000.

As you can see based on a projected troll landing south of Point Arena in 1984 of 25,000 coho, we project the 1984 OPI will total 1.75 million fish.

The escapement goal for OPI coho this year is 488,000. Estimating the OPI at 1.75 million leaves an allowable catch for the area south of Ledbetter Point of 1,278,000 fish. Our recommended distribution of these fish, including private hatchery, is shown in Table 2. We have not included increased quotas for the area north of Falcon because of uncertainty how the Council might wish to redistribute the fish to this area in light of Washington coastal coho concerns.

Regarding allocation of coho between Oregon and California, the peak of our fishery has passed and we would land fewer than 100,000 coho in our troll fishery even if the season were opened as early as August 1. No separate quota for the California fishery would be needed.

No change is recommended for the California sport fishery which has already been restricted by two weeks to protect OPI coho, as well as Klamath River chinook.

We are confident that OPI coho are more abundant than were projected at the start of the 1984 season. Our alternate projection, based on inseason landings data, would increase the allowable ocean harvest south of Cape Falcon by about 1.2 million coho.

Ocean commercial fishermen continue to catch and release large numbers of coho north of Point Arena. Catches in excess of 100 coho per day in pursuit of chinook salmon are not uncommon. Continued at sea observation by department biologists confirm the high incidence of coho off the California coast. I trust you will seriously consider our management recommendations in light of the landing data and regression analysis we have presented with this letter.

Sincerely,



Jack C. Parnell

*for* Director

Enclosures

cc: Members, Pacific Fishery Management Council  
Members, Salmon Team, PFMC  
E. C. Fullerton



Table 1.

California Fish and Game  
1984 Ocean Salmon Catch Statistics  
For Standard Week 11 ( 07/16 - 07/23 )  
Prepared 24-Jul-84 02:24 PM

## Commercial Fishery

Port	Number of Deliveries			Number of Kings			Number of Silvers					
	Current Week	Cumulative 1983	Cumulative 1982	Current Week	Cumulative 1983	Cumulative 1982	Current Week	Cumulative 1983	Cumulative 1982			
Crescent City	-	406	2248	3137	-	3424	19072	25296	-	12986	13714	
Eureka	-	315	2960	3854	-	6293	28317	68291	-	34	18876	22625
Fort Bragg	-	1775	3427	8793	-	13350	39044	124576	-	616	7552	20984
Subtotal	-	2496	8635	15784	-	23067	86433	218163	-	650	39414	57323
Bodega Bay	12	1156	1533	-	74	16559	13560	-	11	6258	1098	-
San Francisco	1	1124	2155	9247	2	33685	38198	197357	-	5899	605	6318
Monterey	7	4146	8764	8844	23	35294	88441	103091	1	1753	1090	252
Subtotal	20	6426	12452	18091	98	85538	140199	300448	12	13910	2793	6570
Grand-Total	20	8922	21087	33875	98	108605	226632	518611	12	14560	42207	63893

## Recreational Fishery

Port	Number of Days Fished			Number of Kings			Number of Silvers					
	Current Week	Cumulative 1983	Cumulative 1982	Current Week	Cumulative 1983	Cumulative 1982	Current Week	Cumulative 1983	Cumulative 1982			
Crescent City	-	5782	12440	10504	-	310	2466	2500	-	1262	7207	5113
Eureka	-	7327	13893	14947	-	2040	4139	9639	-	3159	10880	11466
Fort Bragg	-	1226	4202	5163	-	224	629	2957	-	311	812	771
Subtotal	-	14335	30535	30614	-	2574	7234	15096	-	4732	18899	17350
San Francisco	-	24832	30532	56338	-	30183	34257	55793	-	210	448	1841
Monterey	-	8956	5398	5695	-	4330	2037	3188	-	56	70	22
Subtotal	-	33788	35930	62033	-	34513	36294	58981	-	266	518	1863
Grand-Total	0	48123	66465	92647	0	37087	43528	74077	0	4998	19417	19213





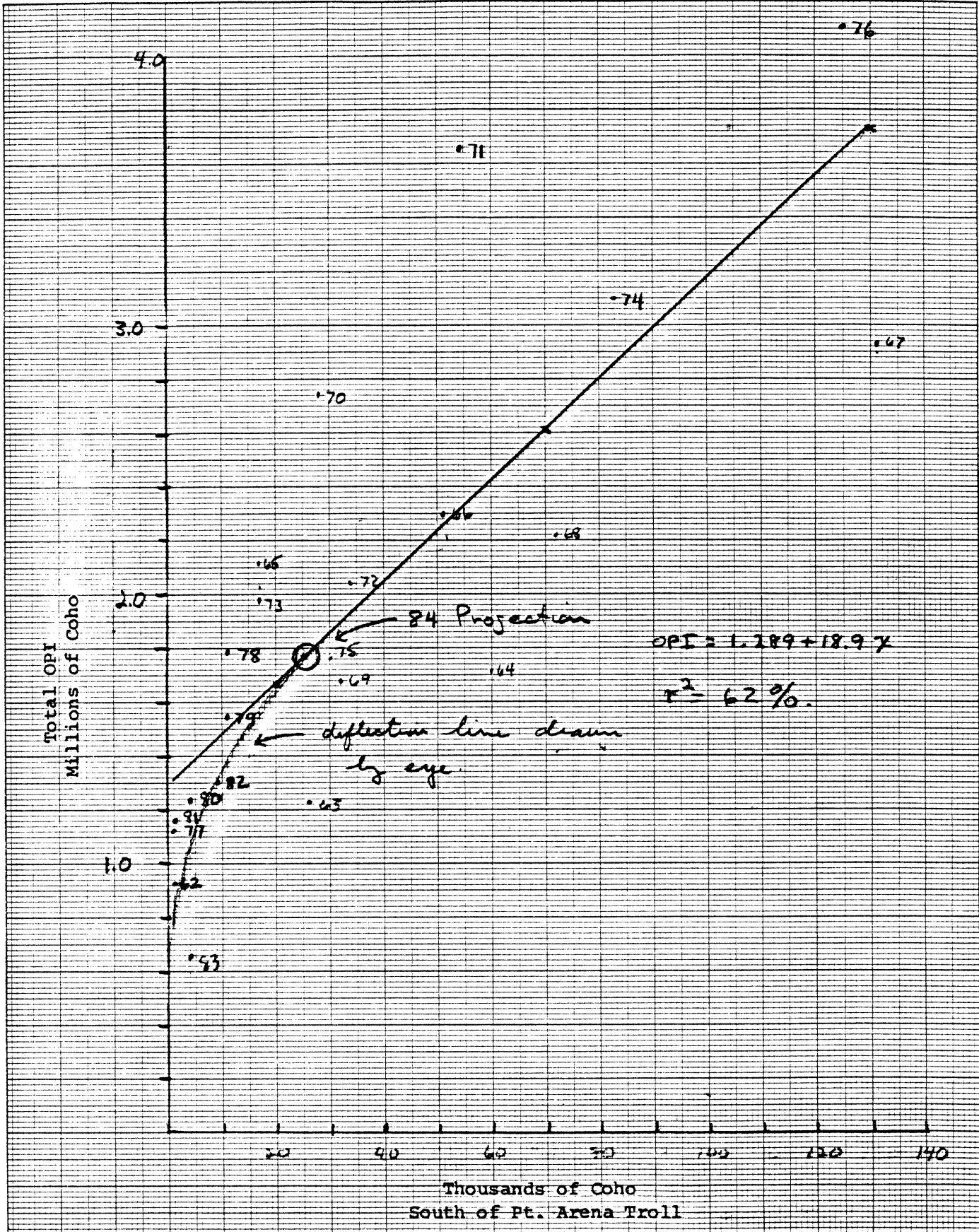


Figure 1. Regression of OPI Coho on South of Arena Troll Coho Landings, 1982-83 Season



DATA FOR SOUTH OF ARENA TROLL LANDING  
ANALYSIS, 1962-83

MTB > NOTE  
MTB > NOTE  
MTB > PRINT C1-C3

ROW	YEAR	SARENA	OPI
1	62	1	863
2	63	26	1236
3	64	60	1720
4	65	17	2135
5	66	51	2330
6	67	131	2939
7	68	72	2224
8	69	32	1684
9	70	28	2769
10	71	54	3672
11	72	33	2043
12	73	16	1998
13	74	83	3126
14	75	30	1759
15	76	125	4114
16	77	1	1125
17	78	11	1785
18	79	11	1548
19	80	4	1244
20	81	1	1165
21	82	9	1301
22	83	4	658



MTB > NOTE  
 MTB > NOTE  
 MTB > REGRESS C3 1 C2

REGRESSION OF OPI ON SOUTH OF ARENA TROLL  
 SILVER SALMON LANDINGS, 1962-83

THE REGRESSION EQUATION IS  
 $OPI = 1289 + 18.9 \text{ SARENA}$

COLUMN	COEFFICIENT	ST. DEV. OF COEF.	T-RATIO = COEF/S. D.
	1288.6	164.8	7.82
SARENA	18.861	3.173	5.94

S = 552.0

R-SQUARED = 63.9 PERCENT  
 R-SQUARED = 62.0 PERCENT, ADJUSTED FOR D. F.

ANALYSIS OF VARIANCE

DUE TO	DF	SS	MS=SS/DF
REGRESSION	1	10764470	10764470
RESIDUAL	20	6093149	304657
TOTAL	21	16857618	

ROW	SARENA	Y OPI	PRED. Y VALUE	ST. DEV. PRED. Y	RESIDUAL	ST. RES.
6	131	2939	3759	323	-820	-1.83 X
10	54	3672	2307	130	1365	2.54R
15	125	4114	3646	305	468	1.02 X

R DENOTES AN OBS. WITH A LARGE ST. RES.  
 X DENOTES AN OBS. WHOSE X VALUE GIVES IT LARGE INFLUENCE.

DURBIN-WATSON STATISTIC = 1.21



MTB > NOTE  
MTB > DESCRIBE C1-C3

DESCRIPTION OF DATA

	YEAR	SARENA	OPI
N	22	22	22
MEAN	72.50	36.4	1974
MEDIAN	72.50	27.0	1772
TMEAN	72.50	33.4	1933
STDEV	6.49	38.0	896
SEMEAN	1.38	8.1	191
MAX	83.00	131.0	4114
MIN	62.00	1.0	658
Q3	78.25	55.5	2440
Q1	66.75	7.8	1242





Table 2. Projected 1984 OPI Area Coho Stock Size, Escapement Component and Allowable Harvest Based on 1984 South of Pt. Arena Troll Coho Landings.

OPI Stock Size (excludes private hatchery fish)	1,750,000	
<u>OPI Escapement Goal</u>	<u>-488,000</u>	
Allowable Harvest	1,262,000	
<u>Expected Ocean Contribution by Private Hatchery Production</u>	<u>+ 16,000</u>	
Allowable Harvest	1,278,000	
Harvest Guidelines		
North of Falcon <sup>1/</sup>		
Troll	12,400	
Sport	<u>43,000</u>	
Total	55,400	
South of Falcon <sup>2/</sup>		
Troll	990,300	(81%)
Sport	<u>232,300</u>	(19%)
Total	1,222,600	
All Areas		
Troll	1,002,700	
Sport	<u>275,300</u>	
Total	1,278,000	

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<sup>1/</sup> Based on Table 1, Supplement 4 of 1984 Plan (Current Quotas).

<sup>2/</sup> Based on Framework Plan.



