Agenda Item C.4.b
Supplemental Tribal Comments
October 30, 2001

Statement of Jim Harp Concerning
2002 Tribal Groundfish Management Measures

Mr. Chairman:

At the September Council meeting we preliminarily adopted for public review a set of management measures for the 2002 Tribal groundfish fisheries. This included some additional measures proposed by the Makah Tribe.

There still remain some outstanding issues among the coastal tribes concerning the groundfish measures for 2002 and discussions are ongoing this week to try and resolve those.

While these are always difficult issues in light of the conservation concerns being faced by all of us in the Council process, I am optimistic that we will be able to resolve the outstanding issues we have among the tribes and be able to bring a consensus tribal proposal forward by the end of the week for final Council action.

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON STATUS OF FISHERIES AND INSEASON ADJUSTMENTS

The Groundfish Advisory Subpanel (GAP) discussed with the Groundfish Management Team (GMT) an inseason adjustment that would provide a small incidental catch of Dover sole in December for the flatfish fishery.

Under action taken in September, the directed fishery for Dover sole was closed beginning October 1st in order to avoid exceeding the target optimum yield of sablefish and shortspine thornyhead. However, there is still a considerable amount of Dover sole available for harvest. Rather than having the Dover sole be discarded in the winter flatfish fishery, the GAP and GMT agreed that an incidental catch of 1,000 pounds of Dover sole be allowed in December.

PFMC
11/02/01

Exhibit C.1
Situation Summary
November 2001

NATIONAL MARINE FISHERIES SERVICE REPORT

Situation: The National Marine Fisheries Service (NMFS) will report on its regulatory activities since the September 2001 Council meeting. NMFS will report on this year's whiting fishery (Exhibit C.1, Supplemental Attachment 1) as well as the limited entry fixed gear sablefish fishery which experienced permit stacking with the implementation of Amendment 14 to the Pacific Coast Groundfish Fish Management Plan (Exhibit C.1, Supplemental Attachment 2). NMFS will also report on progress implementing the on-board Observer Program (Exhibit C.1, Supplemental Attachment 3). Observers have been placed on selected vessels in the fixed gear fishery beginning August 15 and selected vessels in the trawl fishery since September 1. In addition, NMFS will report on miscellaneous research and other ongoing regulatory and non-regulatory activities.

Council Task: Discussion and guidance.

Reference Materials:

1. NMFS Report on the 2001 Pacific Whiting Fishery (Exhibit C.1, Supplemental Attachment 1).
2. NMFS Update on Amendment 14 Implementation (Exhibit C.1, Supplemental Attachment 2).
3. MFS Update on the On-Board Observer Program (Exhibit C.1, Supplemental Attachment 3).

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

This agenda item is not expected to require Council decision making that raises issues of consistency with the GFSP.

PFMC
10/16/01

Exhibit C.1
Supplemental Attachment 1
November 2001

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic an Atmospheric Administration
National Marine Fisheries Service
Sustainable Fisheries Division
7600 Sand Point Way N.E., Building. 1
Seattle, WA 98115-0070

DATE: October 25, 2001

TO: DISTRIBUTION

FROM: F/NWR2 - Becky Renko

SUBJECT: PRELIMINARY Report #9 -- 2001 Pacific Whiting Fishery

This report consolidates preliminary state, federal, and tribal data for the 2001 Pacific whiting fishery off Washington, Oregon, and California.

	Allocation (including reapportionments)		*Catch (mt)	Thru (date)	Status	Percent of allocation taken
	Percentages	Metric Tons				
California (south of 42 N lat.)	(5% shore alloc'n; included in WOC shore allocation)	3,421	2,305	8/21	CA season started 4/1; 5% alloc'n,	
Oregon	--	NA	52,530	9/23	started 0001 hrs 6/15,	
Washington	--	NA	16,258	9/23	started 0001 hrs 6/15,	
WOC shoreside	42% commercial OY	**72,618**	**71,093**	9/23	The primary season for shore-based sector ended at noon 8/21, and trip limits resumed until re-opening of primary season at noon 9/17. At 2000 9/26, the extended primary season ended and trip limits resumed.	97.9%
Mothership (N. of 42 N. lat.)	24% commercial OY	**41,496**	**35,823**	10/25	started 0001 hrs 5/15	86.3%
Catcher/processor (N. of 42 N. lat.)	34% commercial OY	**58,786**	**49,497**	10/25	started 0001 hrs 5/15	84.2%
Total nontribal	commercial OY (86% OY)	162,900	156,413		--	96.0%
Tribal (Makah)	14% OY	**17,500**	**5,814**	10/25		33.2%
Total	OY=optimum yield	190,400	162,227		--	85.2%

* Catch includes discards from at-sea processors; weigh-backs from shore-based catcher vessels; and small amounts landed under the 20,000-pound trip limit between the seasons. The data for at-sea processing (catcher/processors and motherships) are preliminary and are based on reports from NMFS-certified observers. Data for shoreside processors also are preliminary and are provided by each State to NMFS for the purpose of monitoring the fishery. Preliminary data for the Makah fishery will be from a NMFS-trained observer. All weights are round weight (the weight of the whole fish before processing) or round-weight equivalents. One metric ton is 2,204.6 pounds.

AMENDMENT 14 (PERMIT STACKING) IMPLEMENTATION ISSUES FOR 2002 AND BEYOND

NMFS Northwest Region is drafting a Proposed Rule to implement those Amendment 14 management measures that were not implemented through the 2001 season final rule, published on August 7, 2001. Proposed regulatory changes for 2002 and beyond would include: a primary season framework so that the season may be of any duration within the period April 1 through October 31; permit owners would be required to document their ownership interests in their permits to ensure that no person holds more than three permits; vessels that do not meet minimum frozen sablefish historic landing requirements would not be allowed to process sablefish at sea; an owner-on-board requirement for permit owners who did not own sablefish endorsed permits on November 1, 2000; and the definition of the term "base permit."

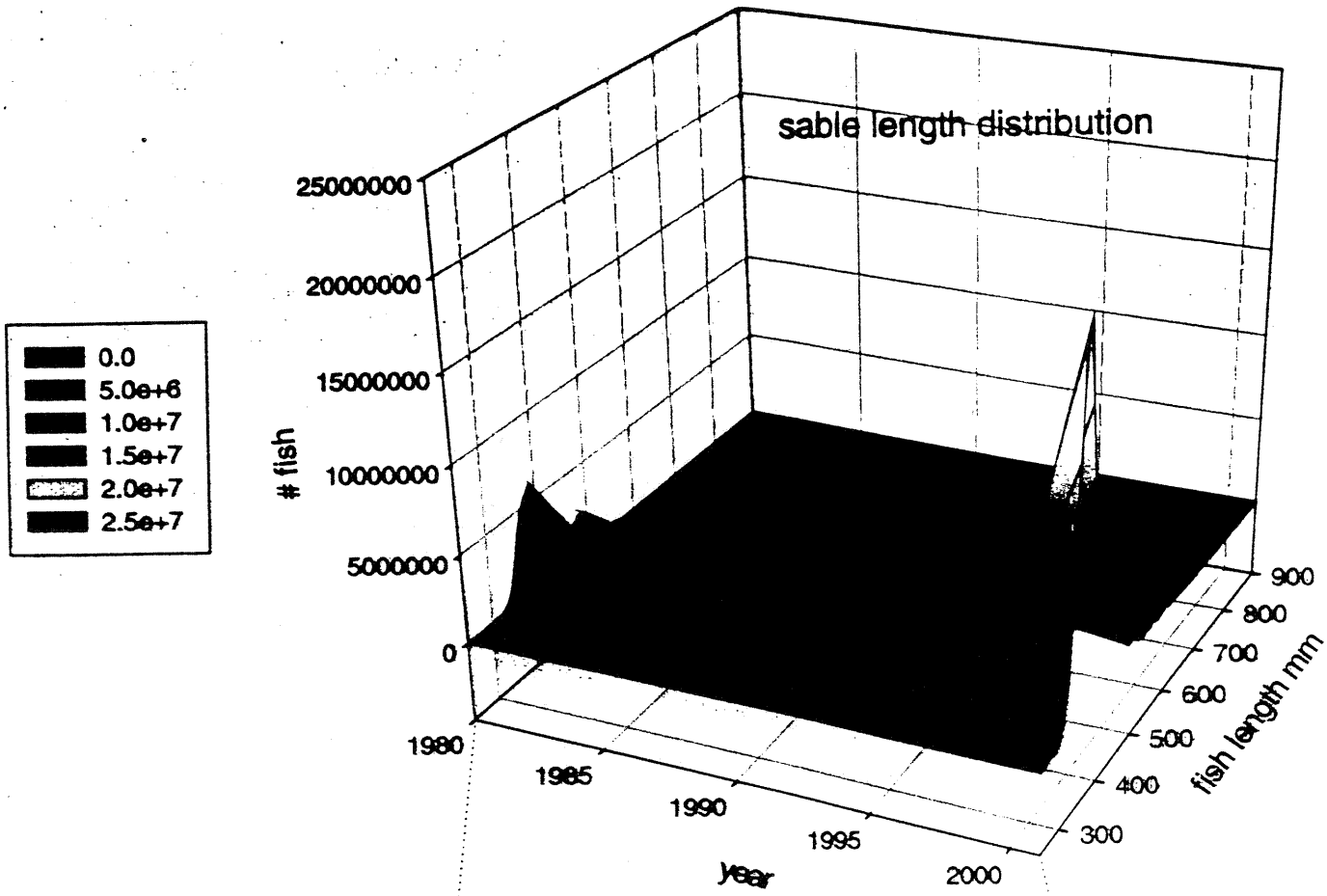
When the Council adopted regulatory recommendations to implement Amendment 14, it recommended that NMFS require vessels to provide six hours' notice when making sablefish landings during the primary season. This provision was included in the regulatory recommendations because a similar provision is in place for the Alaska halibut/sablefish individual fishing quota (IFQ) fishery. For the Alaska fisheries, the hail-in requirement was part of the original IFQ/CDQ program first proposed at 57 FR 57130, on December 3, 1992. In that proposed rule, NMFS wrote:

> "A capability to monitor an IFQ landing and enforce provisions of the IFQ rules is necessary to all IFQ landings. A requirement to give prior notice of an IFQ landing is proposed to satisfy this need. The operator of any vessel making an IFQ landing would be required to give NMFS notice of the landing no less than 6 hours before landing IFQ species...The intent of this requirement is to give monitoring and enforcement personnel an option of observing the landing and inspecting the vessel making the landing. The real potential of such monitoring is expected to inspire most fishermen to comply with reporting and landing requirements..."

NMFS discussed the merits of requiring hail-in for West Coast sablefish landings internally between its Northwest, Southwest, and Alaska Regions, and between the management and enforcement branches of the agency. The agency has determined that this hail-in requirement would be unnecessarily burdensome for fishers and less useful in enforcing West Coast fisheries regulations than it may be in Alaska waters. Over 1,000 vessels participate in the sablefish/halibut IFQ fisheries off Alaska, each landing a vessel-specific amount of fish based on that vessel's particular quota shares. In the West Coast primary sablefish fishery, there are only 164 sablefish-endorsed permits, which means that no more than 164 vessels could participate in the fishery. Additionally, each permit is assigned to one of three tiers, which means that there is a limited number of possible landings amounts available to the vessels participating in the primary fishery. This relatively simple cumulative limit system and the small number of vessels involved make a hail-in requirement unnecessary. NMFS does not now have hail-in requirements for any other West Coast groundfish species or fishery and does not believe that primary sablefish season cumulative limit management differs significantly enough from the rest of the groundfish fishery's cumulative limit management to warrant this additional enforcement and reporting burden.

NMFS would be pleased to hear any comments the Council and its advisory entities may have on this issue, and would incorporate those comments into the preamble text of the Proposed Rule to implement additional Amendment 14 regulatory measures for 2002 and beyond.

Sablefish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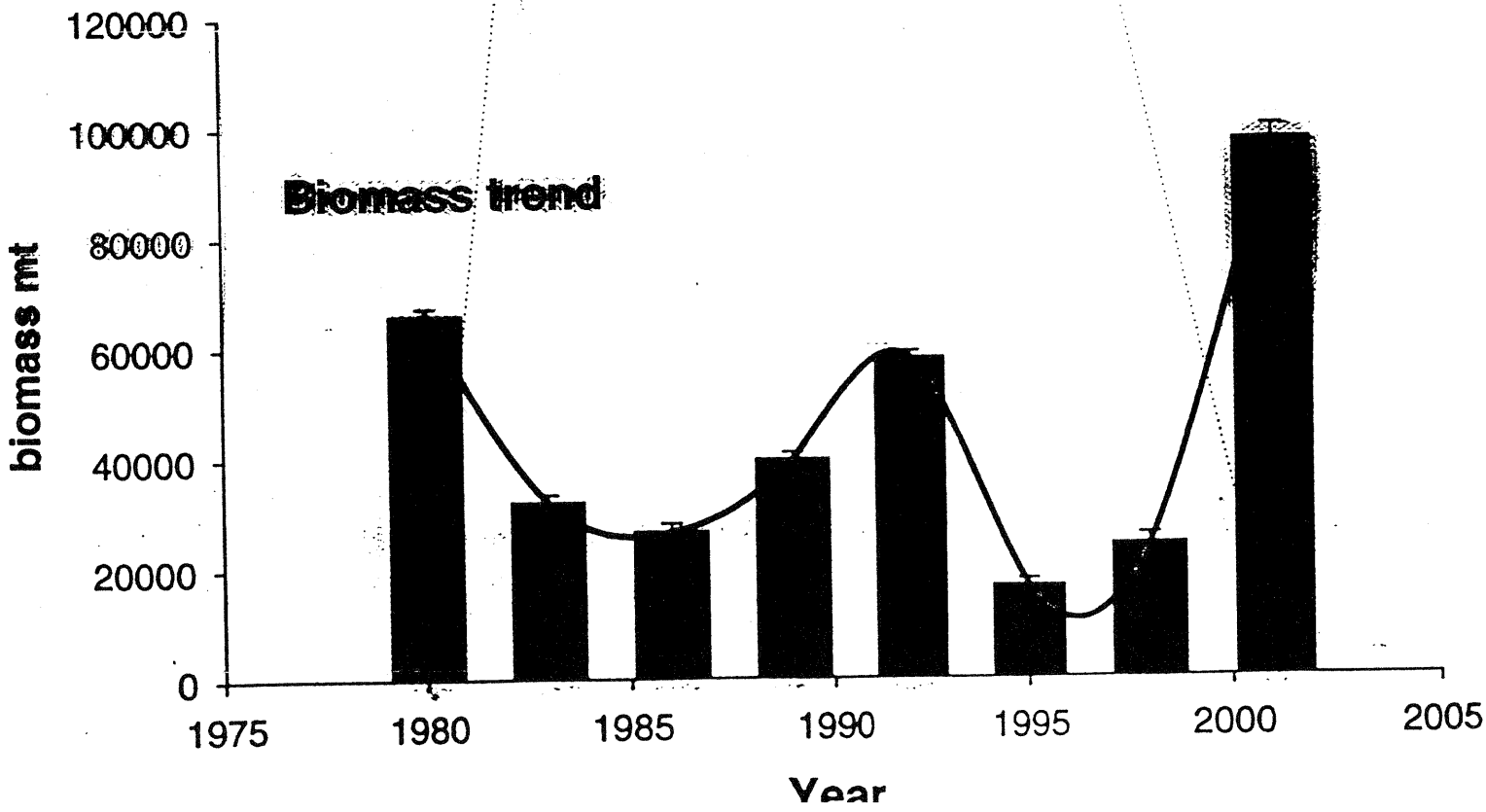
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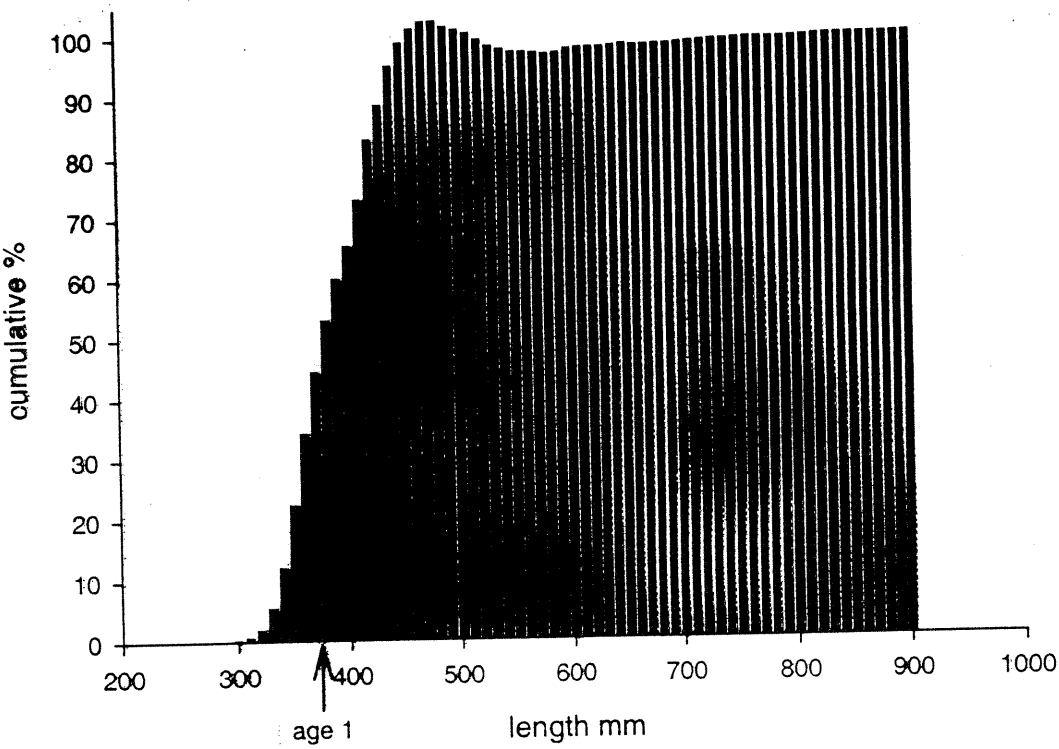
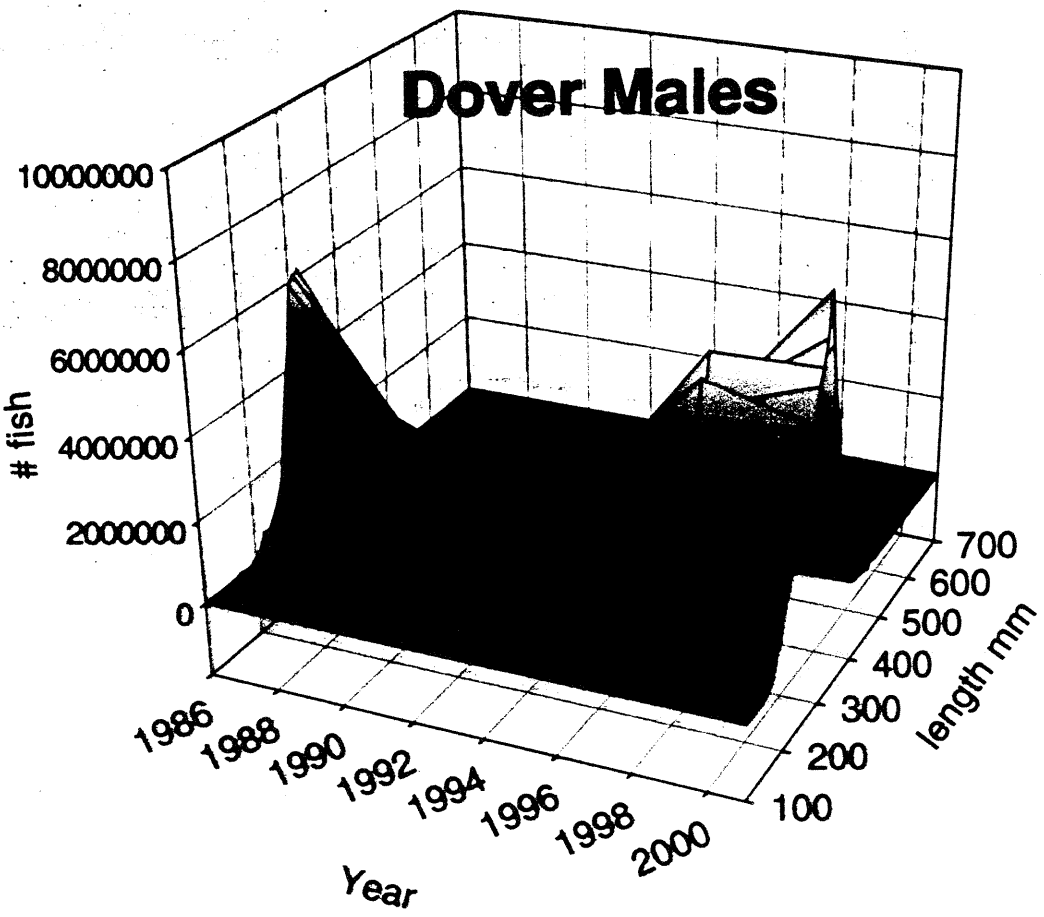
Sablefish
Cumulative percent change in biomass from 1998-2001

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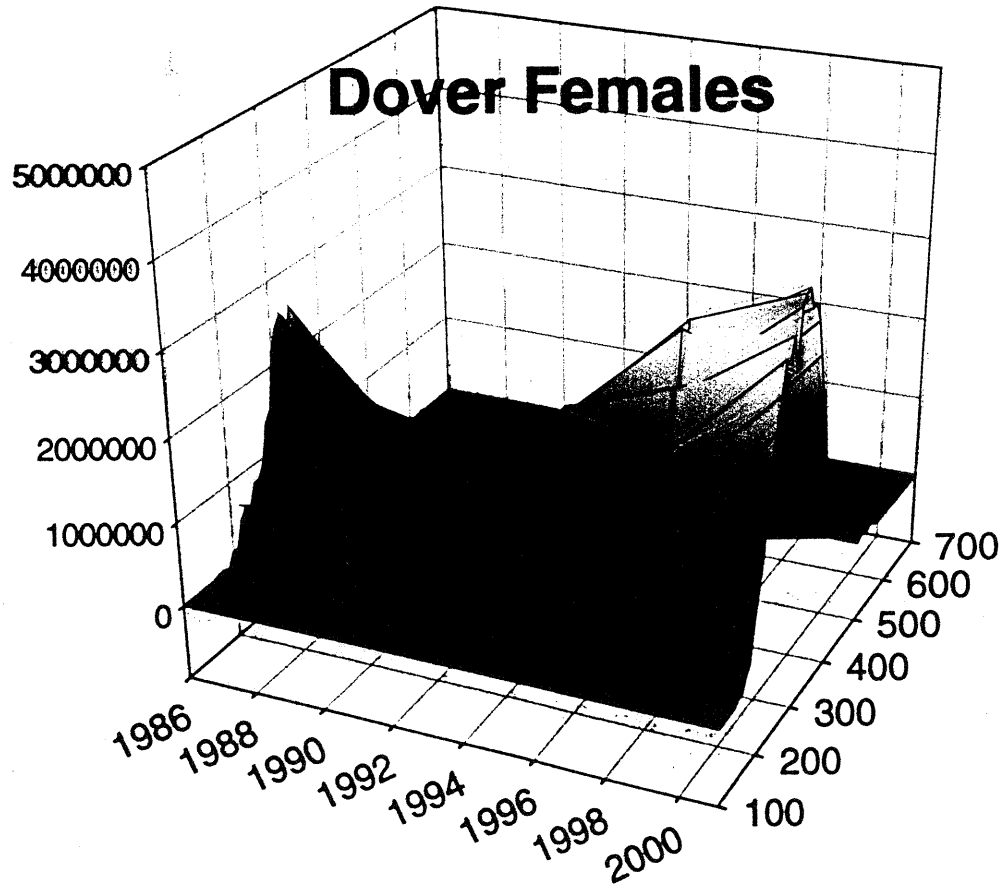
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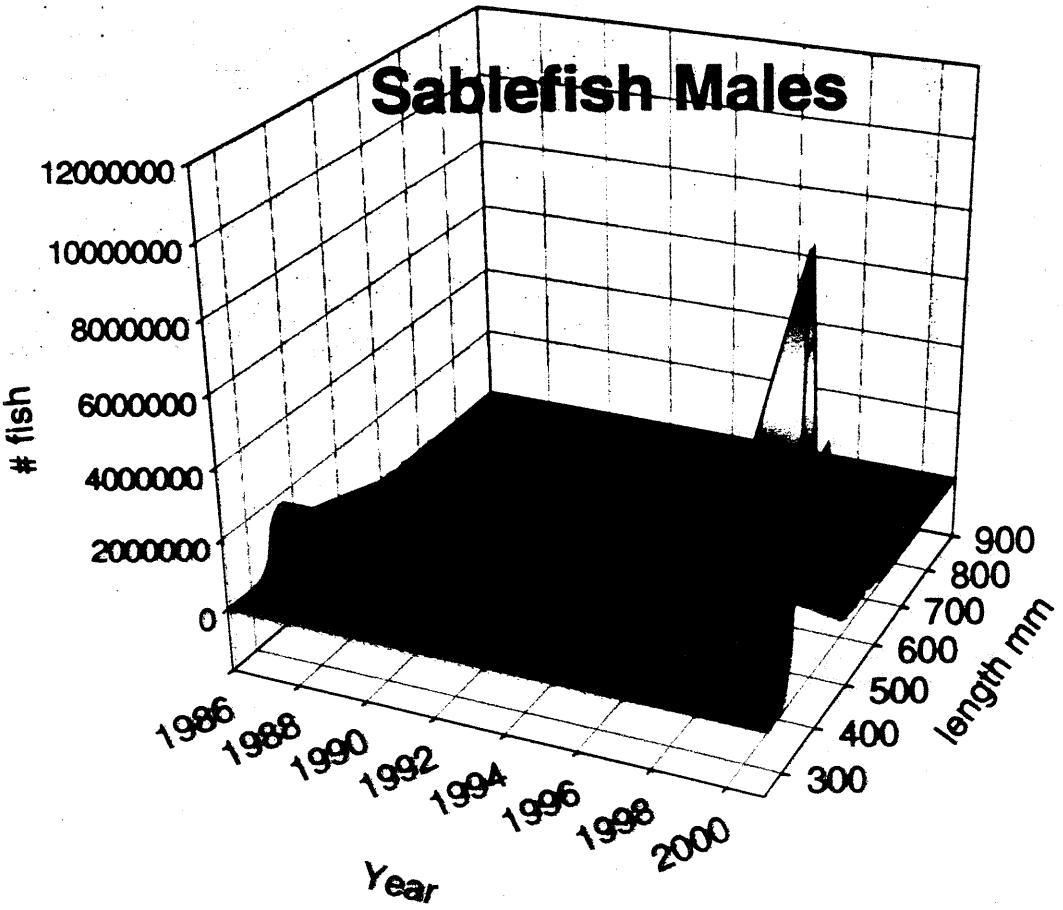
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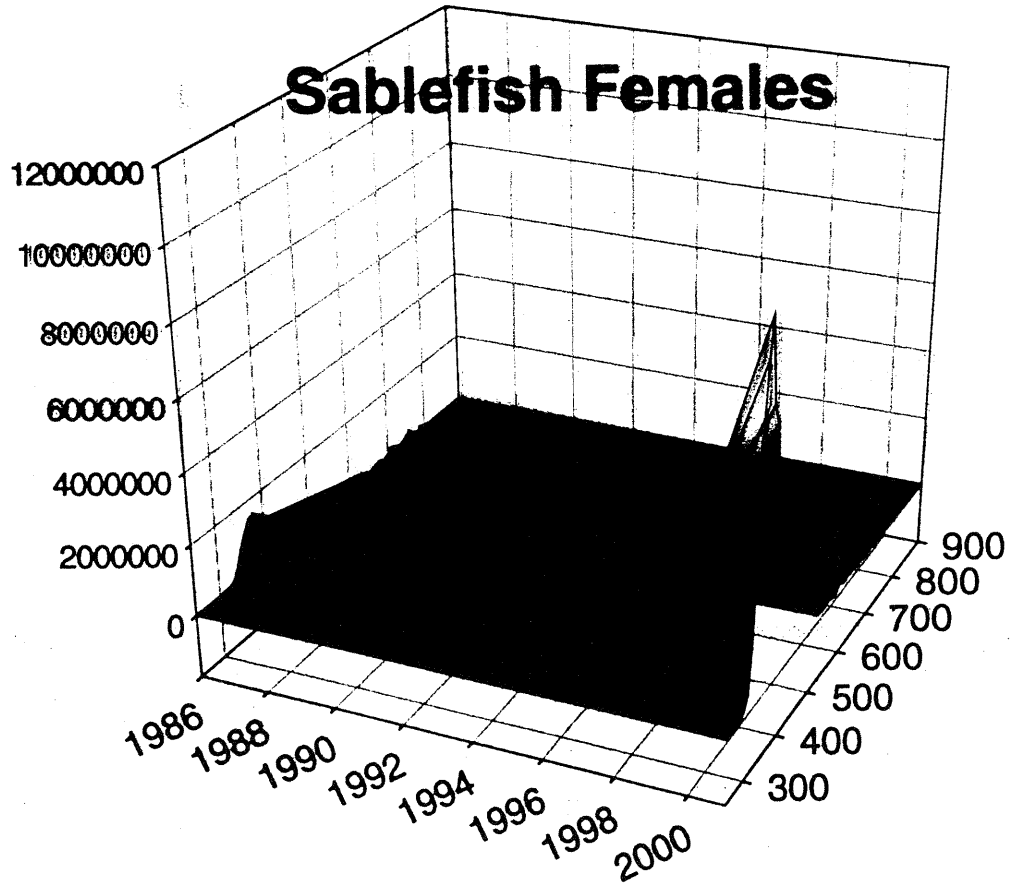
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Table 1.--Estimated abundance of canary rockfish from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area / Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	19,887	0.98	8,935	0.98	2.23
1980	2,588	0.90	1,290	0.98	2.01
1983	4,638	0.41	2,316	0.38	2.00
1986	3,202	0.40	1,920	0.39	1.67
1989	3,767	0.36	2,154	0.36	1.75
1992	590	0.42	435	0.49	1.36
1995	60	0.44	50	0.45	1.20
1998	458	0.26	280	0.23	1.64
2001	661	0.66	664	0.78	1.00
Columbia					
1977	6,193	0.31	2,985	0.30	2.07
1980	2,955	0.35	1,403	0.35	2.11
1983	6,318	0.36	5,287	0.44	1.20
1986	5,399	0.48	3,076	0.39	1.76
1989	3,372	0.58	2,679	0.55	1.26
1992	1,278	0.51	1,198	0.54	1.07
1995	1,922	0.55	1,386	0.50	1.39
1998	252	0.21	259	0.24	0.97
2001	2,295	0.62	2,322	0.73	0.99
Eureka					
1977	38	0.47	17	0.49	2.24
1980	1,263	0.91	637	0.91	1.98
1983	367	0.27	287	0.33	1.28
1986	746	0.44	464	0.41	1.61
1989	124	0.43	53	0.38	2.34
1992	17	0.52	15	0.44	1.13
1995	63	0.53	66	0.59	0.95
1998	146	0.28	115	0.26	1.27
2001	161	0.40	118	0.41	1.36
Monterey					
1977	759	0.64	344	0.65	2.21
1980	218	0.63	113	0.48	1.93
1983	7,481	0.66	4,290	0.60	1.74
1986	1,240	0.56	840	0.49	1.48
1989	731	0.44	1,062	0.50	0.69
1992	88	0.43	236	0.43	0.37
1995	1,095	0.83	692	0.65	1.58
1998	670	0.71	649	0.71	1.03
2001	96	0.55	102	0.55	0.94
Conception					
1977	33	0.42	35	0.58	0.94
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	3	0.79	5	0.87	0.60
1992	0		0		
1995	Trace	1.00	2	1.00	
1998	2	0.72	2	0.80	1.00
2001	Trace		5	0.71	
US Total					
1977	26,910	0.73	12,317	0.71	2.18
1980	7,024	0.40	3,444	0.42	2.04
1983	18,804	0.31	12,180	0.29	1.54
1986	10,586	0.30	6,300	0.25	1.68
1989	7,998	0.35	5,953	0.34	1.34
1992	1,972	0.44	1,882	0.45	1.05
1995	3,140	0.45	2,195	0.38	1.43
1998	1,528	0.33	1,306	0.36	1.17
2001	3,220	0.57	3,212	0.69	1.00

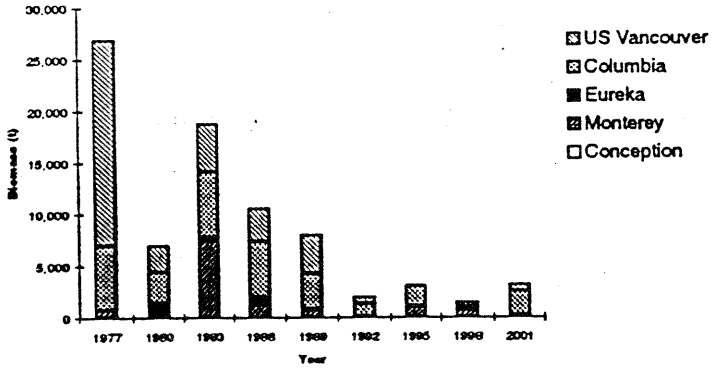
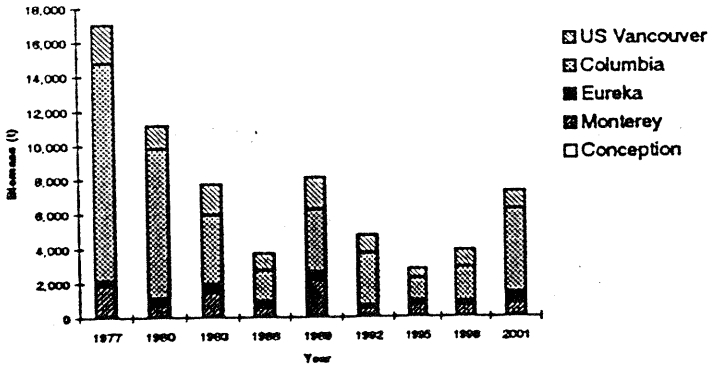
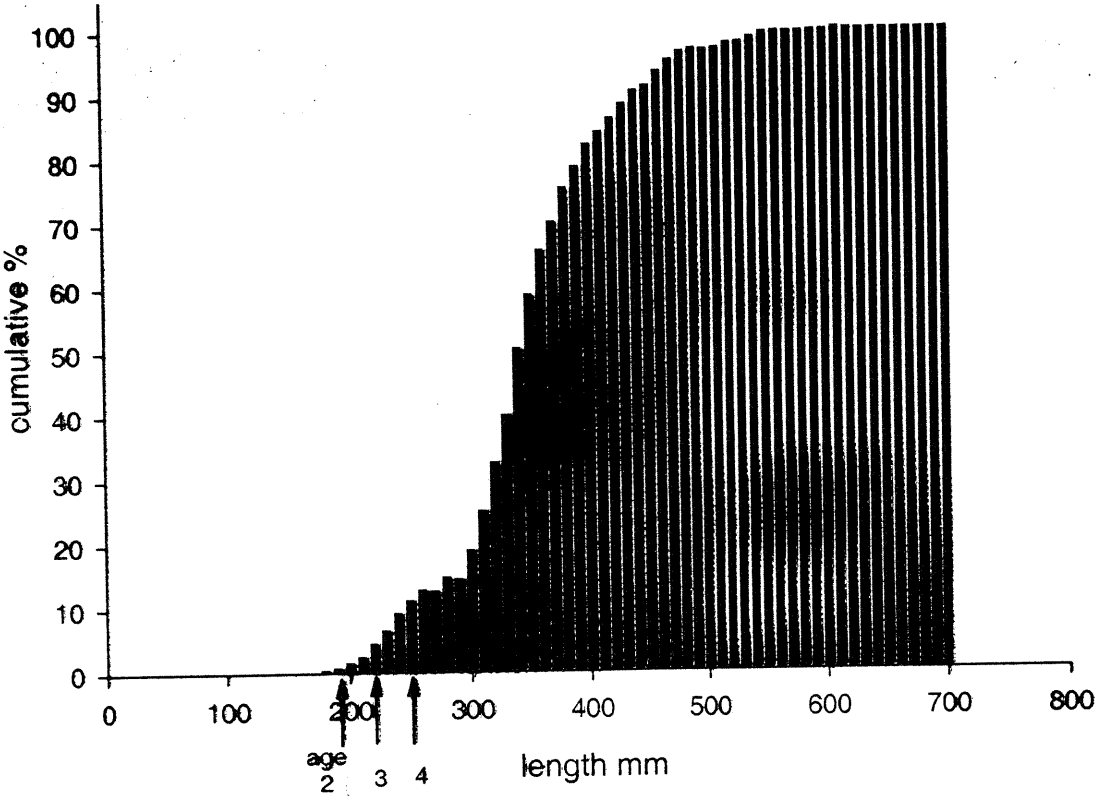


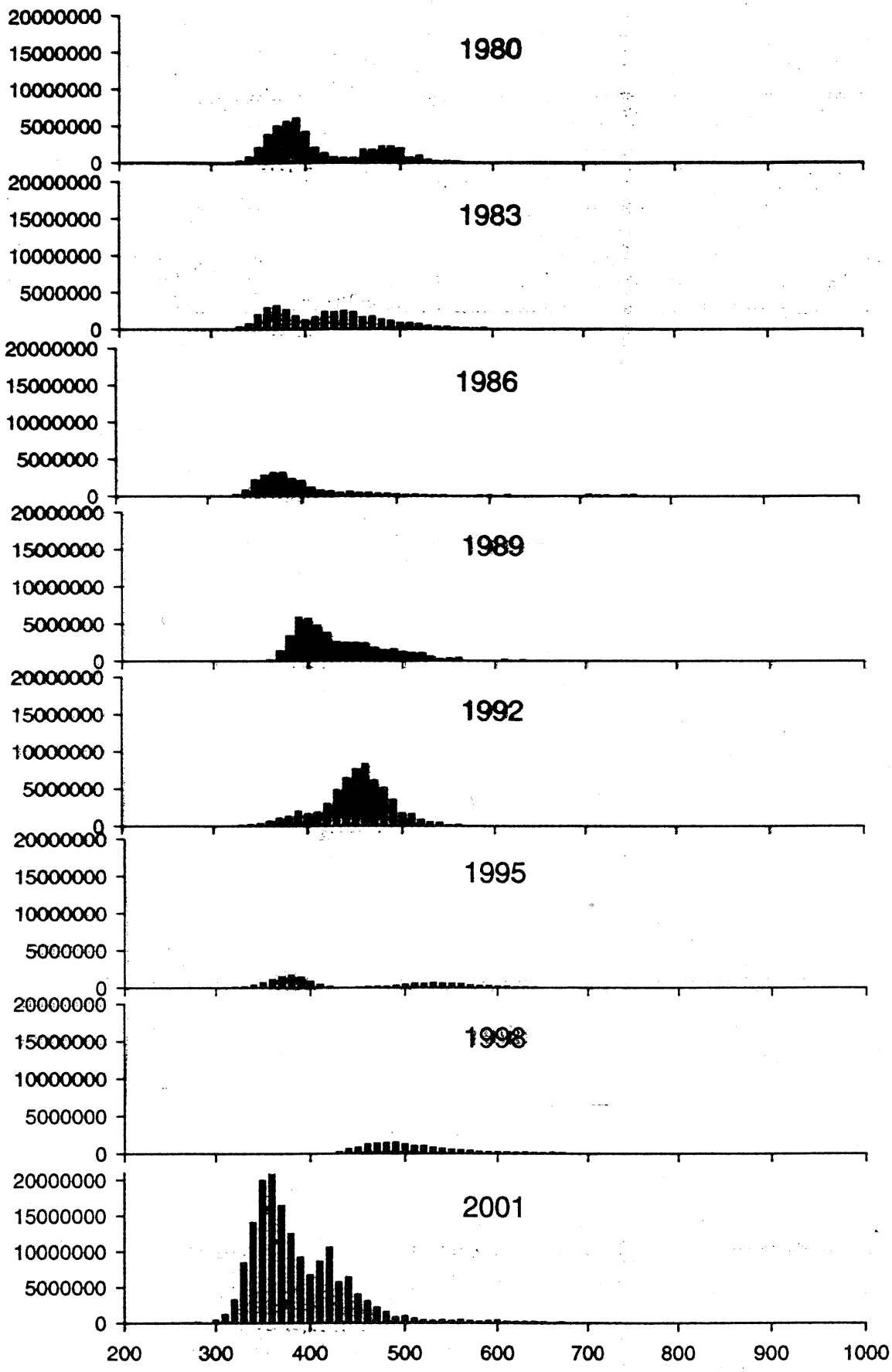
Table 1.–Estimated abundance of lingcod from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977..

INPFC Area / Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	2,277	0.66	276	0.53	8.25
1980	1,343	0.46	663	0.68	2.03
1983	1,805	0.21	409	0.20	4.41
1986	988	0.15	234	0.12	4.22
1989	1,863	0.23	533	0.27	3.50
1992	1,050	0.57	399	0.28	2.63
1995	552	0.27	237	0.26	2.33
1998	1,019	0.26	352	0.20	2.89
2001	1,021	0.36	604	0.23	1.69
Columbia					
1977	12,648	0.91	1,541	0.84	8.21
1980	8,714	0.74	1,137	0.62	7.66
1983	4,016	0.20	908	0.16	4.42
1986	1,828	0.16	507	0.13	3.61
1989	3,649	0.43	931	0.25	3.92
1992	3,071	0.64	1,351	0.23	2.27
1995	1,323	0.19	807	0.18	1.64
1998	2,002	0.38	732	0.21	2.73
2001	4,854	0.45	2,753	0.18	1.76
Eureka					
1977	274	0.38	44	0.44	6.23
1980	423	0.55	142	0.51	2.98
1983	498	0.38	111	0.26	4.49
1986	316	0.27	179	0.16	1.77
1989	473	0.31	164	0.33	2.88
1992	148	0.33	103	0.22	1.44
1995	182	0.25	117	0.23	1.56
1998	219	0.37	127	0.28	1.72
2001	642	0.16	545	0.13	1.18
Monterey					
1977	1,300	0.37	459	0.25	3.92
1980	714	0.32	287	0.24	2.49
1983	1,469	0.42	567	0.23	2.59
1986	611	0.29	382	0.16	1.60
1989	2,107	0.24	1,204	0.24	1.75
1992	484	0.30	654	0.22	0.74
1995	710	0.35	652	0.24	1.09
1998	651	0.34	567	0.37	1.15
2001	712	0.18	978	0.15	0.73
Conception					
1977	69	0.27	27	0.25	2.56
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	54	0.41	143	0.25	0.38
1992	27	0.43	66	0.39	0.41
1995	42	0.31	119	0.32	0.35
1998	34	0.38	46	0.35	0.74
2001	86	0.55	159	0.46	0.54
US Total					
1977	17,067	0.68	2,347	0.55	7.27
1980	11,194	0.58	2,229	0.38	5.02
1983	7,788	0.14	1,995	0.11	3.90
1986	3,742	0.11	1,302	0.09	2.87
1989	8,146	0.21	2,975	0.14	2.74
1992	4,780	0.54	2,573	0.17	1.86
1995	2,810	0.14	1,932	0.12	1.45
1998	3,925	0.25	1,324	0.16	2.15
2001	7,315	0.33	5,039	0.12	1.45



Dover
Cumulative percent increase in biomass from 1998-2001

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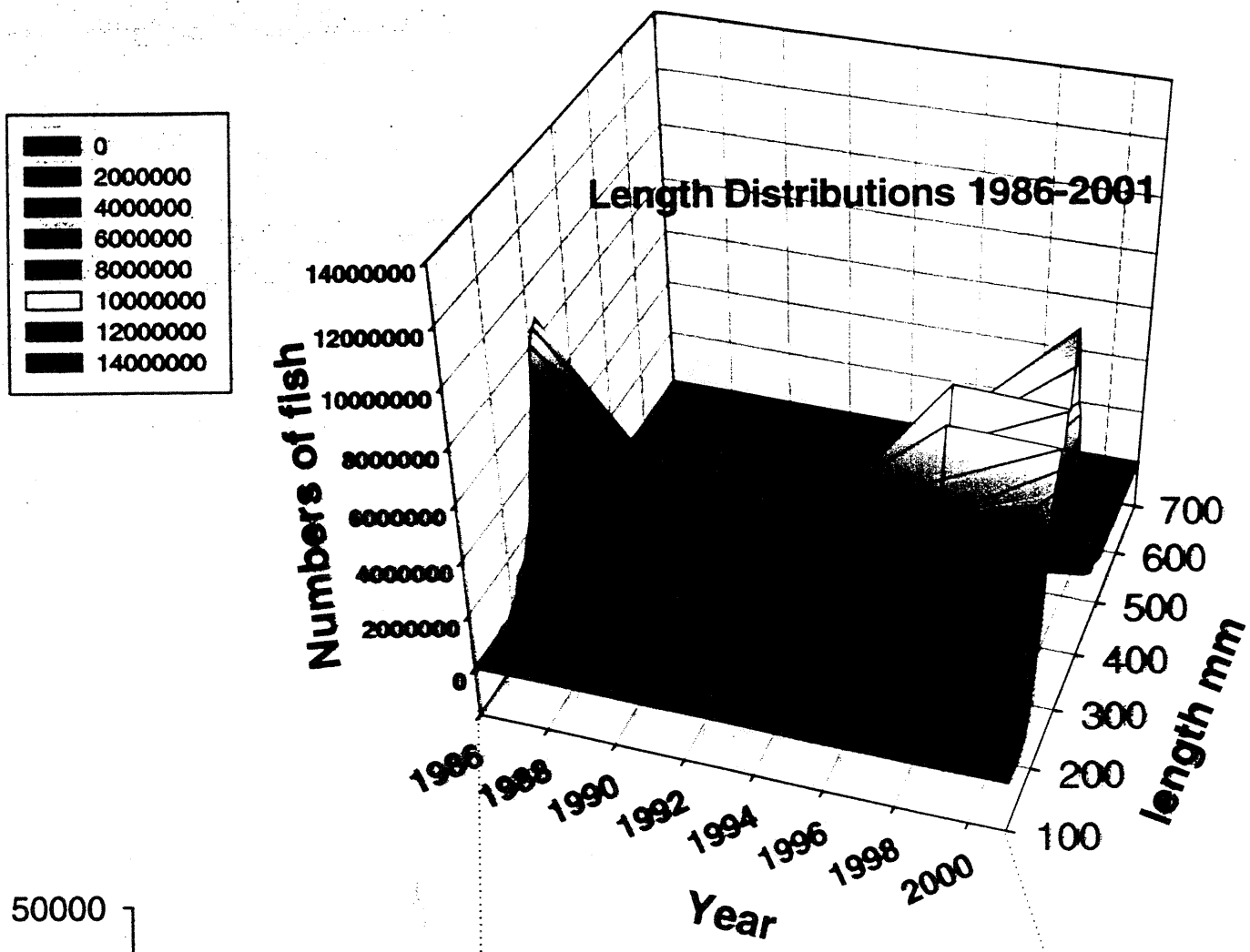
Dover sole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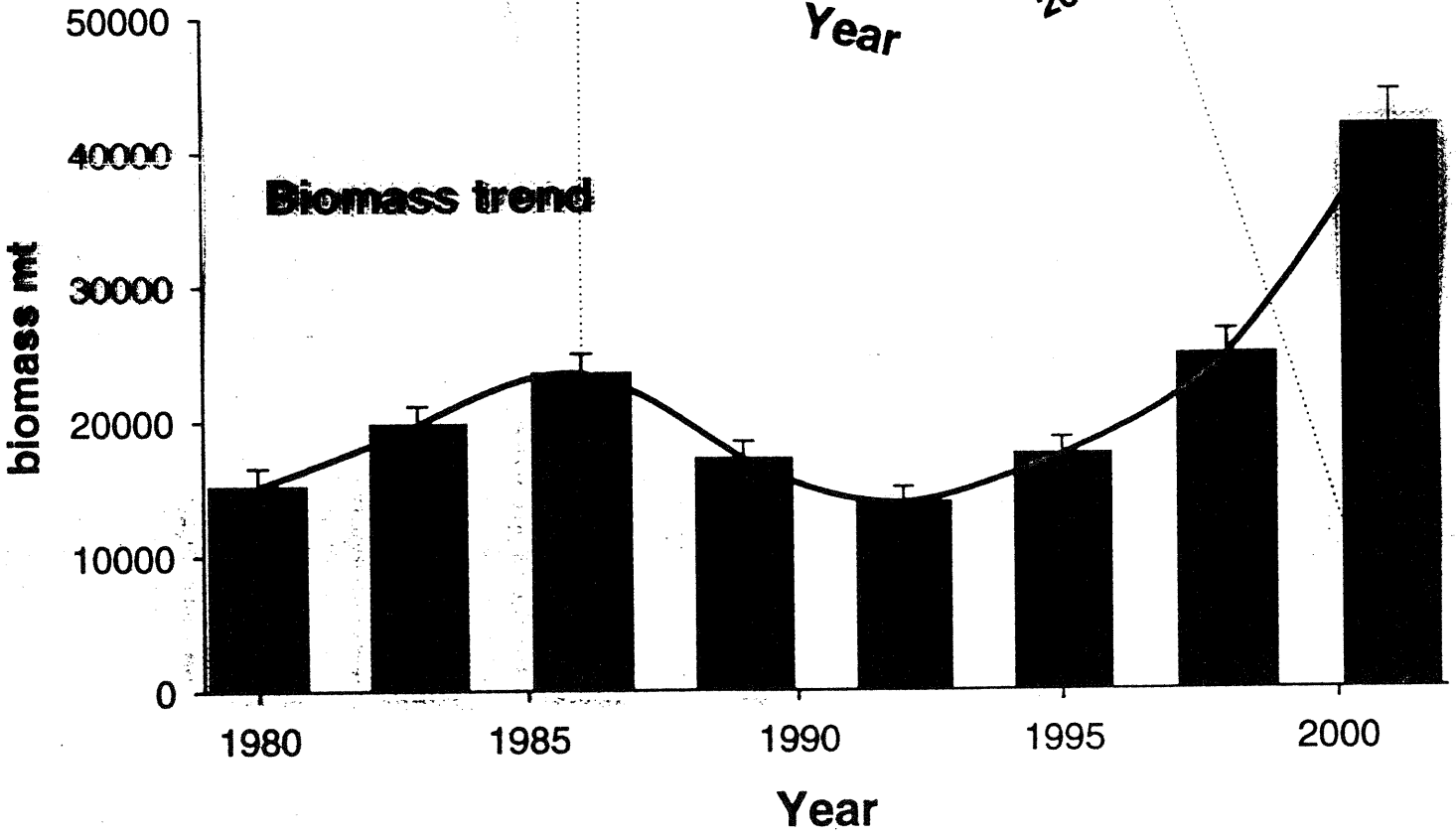
Biomass trend
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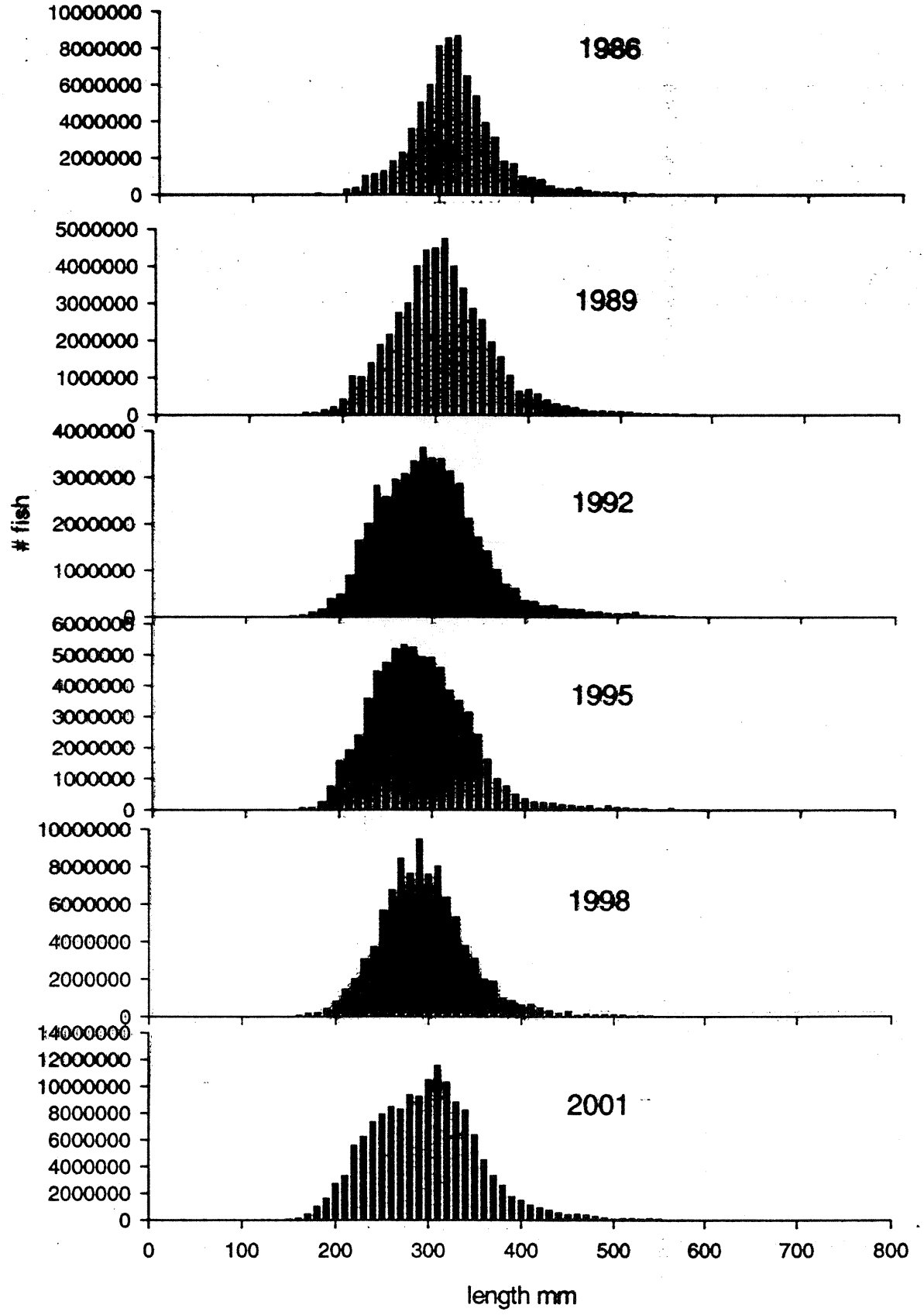
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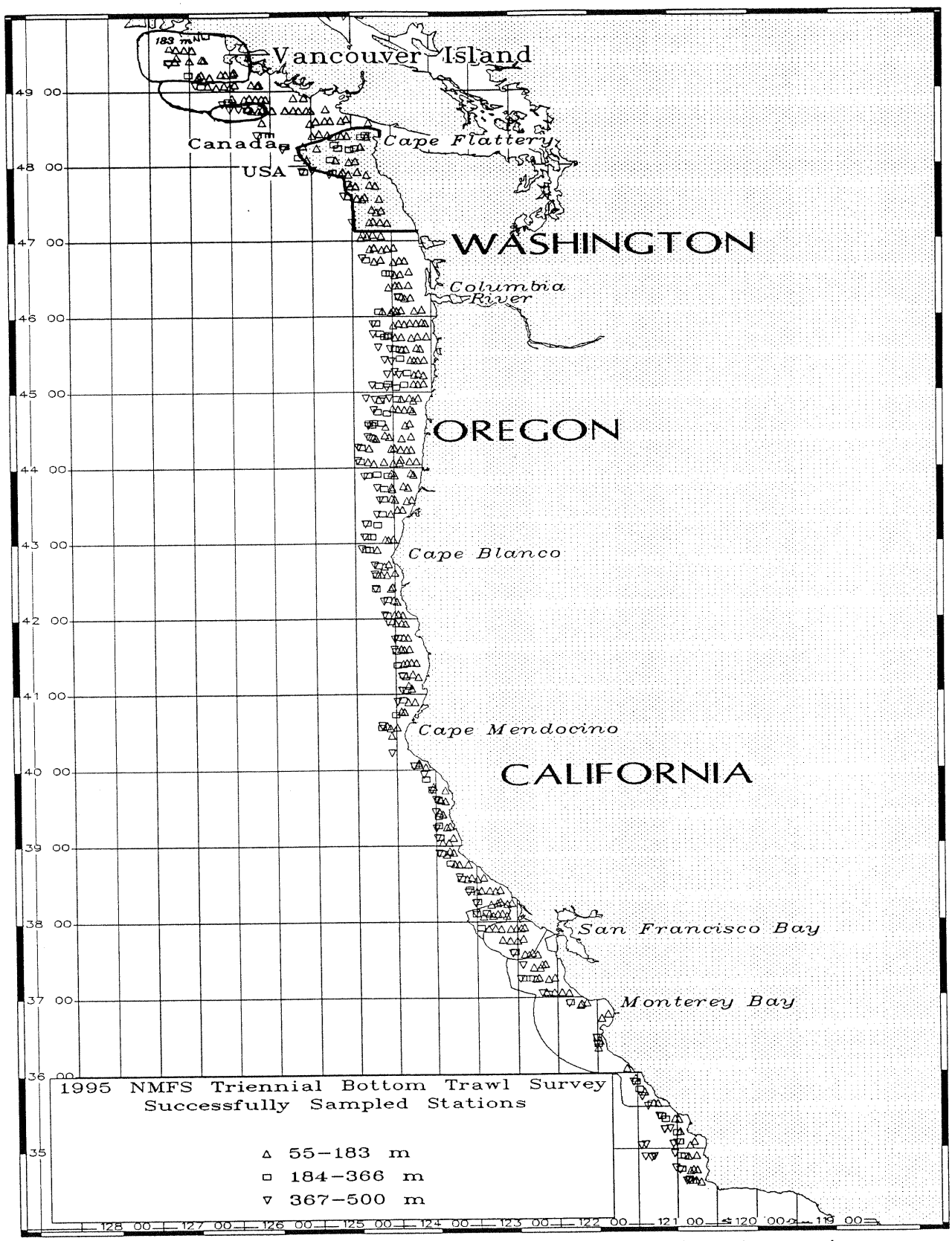

Figure 1.--Successful 1995 NMFS Triennial bottom trawl survey stations. Same stations are planned for 2001. Sanctuary boundaries are also shown on the chart.

Table 1.--Estimated abundance of canary rockfish from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

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1989	3,767	0.36	2,154	0.36	1.75
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Columbia					
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1983	6,318	0.36	5,287	0.44	1.20
1986	5,399	0.48	3,076	0.39	1.76
1989	3,372	0.58	2,679	0.55	1.26
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1998	252	0.21	259	0.24	0.97
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Eureka					
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1980	1,263	0.91	637	0.91	1.98
1983	367	0.27	287	0.33	1.28
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2001	161	0.40	118	0.41	1.36
Monterey					
1977	759	0.64	344	0.65	2.21
1980	218	0.63	113	0.48	1.93
1983	7,481	0.66	4,290	0.60	1.74
1986	1,240	0.56	840	0.49	1.48
1989	731	0.44	1,062	0.50	0.69
1992	88	0.43	236	0.43	0.37
1995	1,095	0.83	692	0.65	1.58
1998	670	0.71	649	0.71	1.03
2001	96	0.55	102	0.55	0.94
Conception					
1977	33	0.42	35	0.58	0.94
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	3	0.79	5	0.87	0.60
1992	0		0		
1995	Trace	1.00	2	1.00	
1998	2	0.72	2	0.80	1.00
2001	Trace		5	0.71	
US Total					
1977	26,910	0.73	12,317	0.71	2.18
1980	7,024	0.40	3,444	0.42	2.04
1983	18,804	0.31	12,180	0.29	1.54
1986	10,586	0.30	6,300	0.25	1.68
1989	7,998	0.35	5,953	0.34	1.34
1992	1,972	0.44	1,882	0.45	1.05
1995	3,140	0.45	2,195	0.38	1.43
1998	1,528	0.33	1,306	0.36	1.17
2001	3,220	0.57	3,212	0.69	1.00

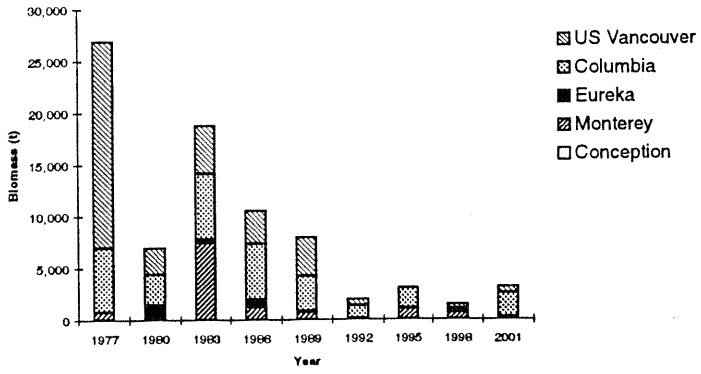


Table 1.--Estimated abundance of Dover sole from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area / Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	1,907	0.14	3,223	0.16	0.59
1980	2,157	0.26	3,608	0.24	0.60
1983	1,714	0.20	3,822	0.23	0.45
1986	1,340	0.21	3,364	0.24	0.40
1989	1,928	0.14	4,574	0.14	0.42
1992	1,911	0.17	5,311	0.16	0.36
1995	2,519	0.13	7,098	0.12	0.35
1998	3,505	0.11	9,836	0.11	0.36
2001	6,368	0.13	15,900	0.12	0.40
Columbia					
1977	8,486	0.08	15,069	0.09	0.56
1980	4,903	0.13	11,289	0.13	0.43
1983	9,141	0.10	26,752	0.12	0.34
1986	9,798	0.09	30,901	0.09	0.32
1989	6,785	0.11	21,839	0.12	0.31
1992	8,384	0.10	28,105	0.10	0.30
1995	8,554	0.10	32,733	0.09	0.26
1998	12,914	0.11	48,193	0.13	0.27
2001	22,790	0.09	79,062	0.09	0.29
Eureka					
1977	1,211	0.31	1,873	0.42	0.65
1980	866	0.23	2,021	0.25	0.43
1983	2,685	0.15	7,615	0.16	0.35
1986	4,250	0.12	14,798	0.11	0.29
1989	2,923	0.22	8,775	0.23	0.33
1992	1,767	0.28	5,500	0.24	0.32
1995	1,597	0.23	5,957	0.26	0.27
1998	4,624	0.17	18,467	0.18	0.25
2001	4,698	0.18	16,913	0.17	0.28
Monterey					
1977	4,050	0.09	9,764	0.07	0.41
1980	2,708	0.20	7,171	0.20	0.38
1983	5,368	0.14	20,038	0.16	0.27
1986	7,931	0.12	27,722	0.12	0.29
1989	4,421	0.14	18,072	0.14	0.24
1992	1,728	0.24	8,188	0.23	0.21
1995	4,749	0.15	23,445	0.13	0.20
1998	3,780	0.20	16,956	0.18	0.22
2001	7,945	0.12	35,671	0.12	0.22
Conception					
1977	1,516	0.11	3,254	0.11	0.47
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	1,312	0.58	4,393	0.52	0.30
1992	99	0.61	452	0.62	0.22
1995	1,071	0.38	4,352	0.35	0.25
1998	332	0.46	2,266	0.40	0.15
2001	2,680	0.22	13,283	0.21	0.20
US Total					
1977	17,170	0.05	33,182	0.05	0.52
1980	10,635	0.10	24,089	0.10	0.44
1983	18,907	0.07	58,227	0.08	0.32
1986	23,320	0.08	76,786	0.08	0.30
1989	17,369	0.08	57,654	0.08	0.30
1992	13,888	0.08	47,556	0.08	0.29
1995	18,490	0.07	73,584	0.07	0.25
1998	25,155	0.07	95,718	0.08	0.26
2001	44,481	0.06	160,829	0.06	0.28

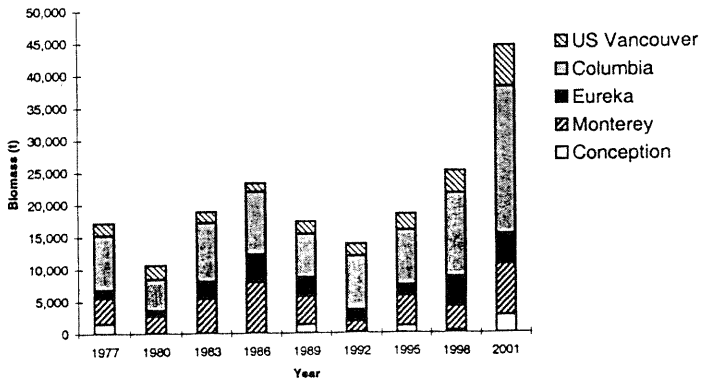


Table 1.–Estimated abundance of yellowtail rockfish from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area / Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	11,451	0.58	7,625	0.57	1.50
1980	4,979	0.68	3,096	0.68	1.61
1983	4,666	0.90	3,080	0.89	1.51
1986	2,592	0.36	1,853	0.35	1.40
1989	9,443	0.80	6,331	0.81	1.49
1992	5,174	0.47	4,399	0.51	1.18
1995	1,525	0.63	1,151	0.62	1.32
1998	16,212	0.34	14,674	0.33	1.10
2001	4,019	0.31	2,708	0.31	1.48
Columbia					
1977	11,800	0.42	7,021	0.41	1.68
1980	5,284	0.56	3,471	0.54	1.52
1983	6,718	0.28	5,809	0.29	1.16
1986	5,475	0.32	5,313	0.47	1.03
1989	7,031	0.51	5,100	0.52	1.38
1992	5,398	0.39	3,920	0.41	1.38
1995	1,384	0.57	1,996	0.78	0.69
1998	6,017	0.21	5,461	0.22	1.10
2001	1,115	0.56	854	0.53	1.31
Eureka					
1977	661	0.66	426	0.65	1.55
1980	522	0.57	340	0.58	1.54
1983	673	0.54	634	0.53	1.06
1986	1,086	0.50	1,228	0.48	0.88
1989	387	0.70	244	0.66	1.59
1992	74	0.56	57	0.47	1.30
1995	31	0.55	41	0.62	0.76
1998	385	0.84	480	0.87	0.80
2001	24	0.71	34	0.74	0.71
Monterey					
1977	683	0.58	514	0.64	1.33
1980	205	0.62	227	0.57	0.90
1983	1,586	0.80	2,331	0.68	0.68
1986	2,222	0.56	2,500	0.55	0.89
1989	880	0.67	1,229	0.71	0.72
1992	652	0.70	980	0.64	0.67
1995	408	0.67	470	0.70	0.87
1998	3,858	0.67	4,276	0.67	0.90
2001	75	0.79	86	0.80	0.87
Conception					
1977	2	0.76	3	0.68	0.67
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	0		0		
1992	147	1.00	157	1.00	0.94
1995	29	0.91	186	0.97	0.16
1998	0		0		
2001	17	1.00	20	1.00	0.85
US Total					
1977	24,598	0.34	15,588	0.34	1.58
1980	10,989	0.41	7,134	0.40	1.54
1983	13,643	0.35	11,853	0.30	1.15
1986	11,375	0.25	10,893	0.31	1.04
1989	17,742	0.48	12,903	0.45	1.38
1992	11,446	0.30	9,513	0.31	1.20
1995	3,377	0.38	3,843	0.46	0.88
1998	26,472	0.24	24,890	0.23	1.06
2001	5,249	0.26	3,703	0.26	1.42

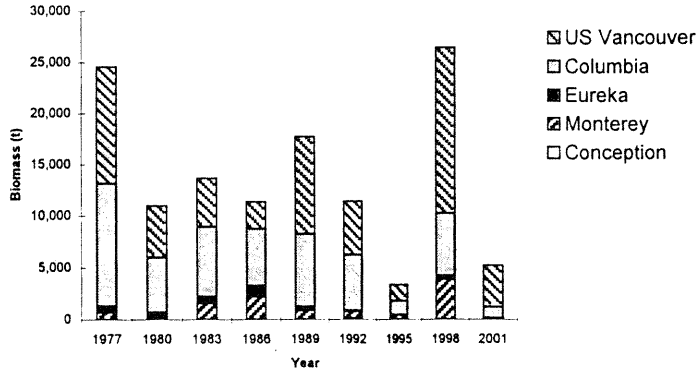


Table 1.--Estimated abundance of bocaccio from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area / Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	1,617	0.89	763	0.92	2.12
1980	159	0.61	28	0.70	5.68
1983	332	0.46	156	0.51	2.13
1986	116	0.35	32	0.36	3.63
1989	14,318	0.99	2,894	0.99	4.95
1992	197	0.74	45	0.67	4.38
1995	11	0.63	2	0.50	5.50
1998	143	0.36	34	0.33	4.21
2001	7	0.84	1	0.72	7.00
Columbia					
1977	906	0.35	201	0.31	4.51
1980	516	0.33	348	0.33	1.48
1983	590	0.31	248	0.31	2.38
1986	539	0.54	199	0.55	2.71
1989	59	0.52	16	0.54	3.69
1992	74	0.80	20	0.71	3.70
1995	32	0.81	15	0.79	2.13
1998	0		0		
2001	68	0.49	15	0.45	4.53
Eureka					
1977	22	0.71	15	0.86	1.47
1980	761	0.38	689	0.44	1.10
1983	318	0.41	194	0.40	1.64
1986	2,057	0.75	978	0.49	2.10
1989	41	0.45	19	0.42	2.16
1992	21	0.66	11	0.68	1.91
1995	11	0.69	7	0.58	1.57
1998	0		0		
2001	27	0.58	6	0.58	4.50
Monterey					
1977	6,084	0.41	3,320	0.31	1.83
1980	3,502	0.35	3,813	0.34	0.92
1983	6,187	0.64	3,014	0.60	2.05
1986	4,591	0.78	2,190	0.51	2.10
1989	968	0.34	2,046	0.36	0.47
1992	502	0.48	691	0.56	0.73
1995	486	0.51	340	0.41	1.43
1998	130	0.38	129	0.47	1.01
2001	132	0.34	140	0.41	0.94
Conception					
1977	804	0.49	748	0.49	1.07
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	8,598	0.89	34,439	0.88	0.25
1992	790	0.90	839	0.84	0.94
1995	58	0.56	189	0.76	0.31
1998	10	0.32	22	0.32	0.45
2001	51	0.45	87	0.44	0.59
US Total					
1977	9,434	0.31	5,046	0.26	1.87
1980	4,938	0.26	4,878	0.27	1.01
1983	7,427	0.53	3,612	0.51	2.06
1986	7,303	0.70	3,400	0.47	2.15
1989	23,984	0.67	39,413	0.77	0.61
1992	1,584	0.49	1,606	0.50	0.99
1995	598	0.42	553	0.36	1.08
1998	283	0.25	185	0.34	1.53
2001	286	0.22	249	0.28	1.15

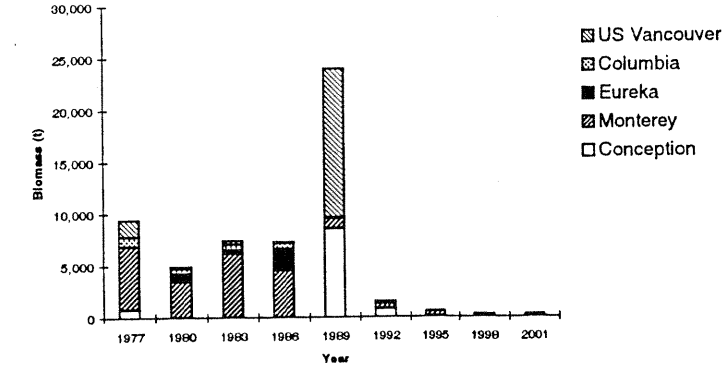


Table 1.--Estimated abundance of darkblotched rockfish from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	176	0.43	430	0.32	0.41
1980	59	0.48	109	0.44	0.54
1983	297	0.63	1,886	0.76	0.16
1986	981	0.76	2,579	0.64	0.38
1989	213	0.25	1,080	0.21	0.20
1992	331	0.37	1,354	0.32	0.24
1995	422	0.29	1,166	0.27	0.36
1998	358	0.34	1,395	0.32	0.26
2001	824	0.64	1,629	0.55	0.51
Columbia					
1977	1,881	0.16	4,131	0.15	0.46
1980	1,477	0.37	4,933	0.39	0.30
1983	6,836	0.40	18,503	0.21	0.37
1986	3,090	0.38	8,143	0.29	0.38
1989	1,452	0.20	9,512	0.14	0.15
1992	5,771	0.52	17,098	0.43	0.34
1995	4,165	0.75	7,480	0.44	0.56
1998	1,710	0.23	6,915	0.21	0.25
2001	2,129	0.56	6,824	0.30	0.31
Eureka					
1977	471	0.27	621	0.25	0.76
1980	1,119	0.36	1,275	0.26	0.88
1983	878	0.32	1,849	0.23	0.47
1986	1,220	0.46	1,523	0.36	0.80
1989	1,148	0.37	3,034	0.27	0.38
1992	440	0.33	1,273	0.32	0.35
1995	209	0.37	642	0.29	0.33
1998	365	0.45	1,240	0.52	0.29
2001	247	0.27	1,423	0.30	0.17
Monterey					
1977	1,362	0.45	3,609	0.57	0.38
1980	701	0.65	817	0.53	0.86
1983	1,041	0.38	2,084	0.34	0.50
1986	2,059	0.46	2,602	0.37	0.79
1989	268	0.34	899	0.27	0.30
1992	301	0.53	687	0.43	0.44
1995	464	0.39	690	0.32	0.67
1998	127	0.58	295	0.43	0.43
2001	276	0.44	1,669	0.55	0.17
Conception					
1977	33	0.50	42	0.41	0.79
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	4	0.48	12	0.42	0.33
1992	0		0		
1995	1	0.67	5	0.67	0.20
1998	0		0		
2001	2	0.53	14	0.52	0.14
US Total					
1977	3,923	0.17	8,834	0.24	0.44
1980	3,356	0.24	7,134	0.28	0.47
1983	9,052	0.30	24,322	0.17	0.37
1986	7,350	0.32	14,846	0.28	0.50
1989	3,085	0.17	14,537	0.12	0.21
1992	6,842	0.44	20,418	0.37	0.34
1995	5,261	0.59	9,983	0.34	0.53
1998	2,560	0.18	9,845	0.18	0.26
2001	3,479	0.46	11,560	0.25	0.30

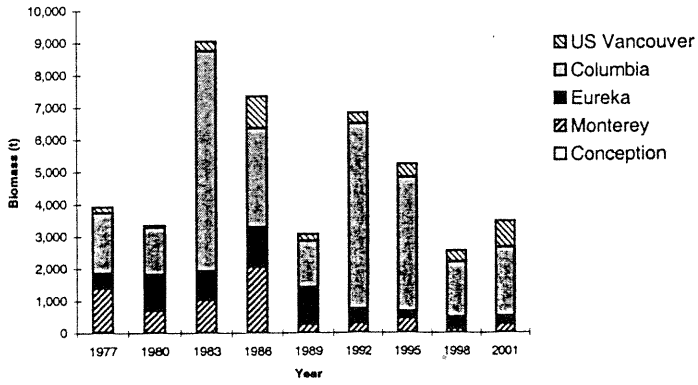


Table 1.--Estimated abundance of shortspine thornyhead from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	227	0.15	621	0.15	0.37
1980	294	0.24	872	0.29	0.34
1983	265	0.35	1,037	0.33	0.26
1986	203	0.33	960	0.40	0.21
1989	283	0.24	1,689	0.32	0.17
1992	306	0.36	1,989	0.34	0.15
1995	463	0.22	2,749	0.19	0.17
1998	294	0.29	1,291	0.27	0.23
2001	320	0.21	1,342	0.21	0.24
Columbia					
1977	1,610	0.11	4,423	0.11	0.36
1980	953	0.23	2,750	0.23	0.35
1983	1,663	0.15	8,619	0.17	0.19
1986	1,562	0.21	9,017	0.27	0.17
1989	939	0.22	5,295	0.23	0.18
1992	1,334	0.20	10,237	0.22	0.13
1995	1,582	0.25	12,663	0.22	0.12
1998	1,925	0.24	14,786	0.26	0.13
2001	1,895	0.16	14,478	0.20	0.13
Eureka					
1977	82	0.44	236	0.46	0.35
1980	89	0.33	304	0.30	0.29
1983	304	0.32	1,864	0.29	0.16
1986	131	0.22	875	0.25	0.15
1989	219	0.27	1,381	0.21	0.16
1992	140	0.42	959	0.35	0.15
1995	225	0.37	1,874	0.31	0.12
1998	106	0.25	1,328	0.31	0.08
2001	170	0.15	1,160	0.16	0.15
Monterey					
1977	157	0.23	523	0.20	0.30
1980	115	0.57	342	0.47	0.34
1983	145	0.26	815	0.26	0.18
1986	165	0.29	1,061	0.32	0.16
1989	225	0.25	1,420	0.24	0.16
1992	145	0.23	920	0.24	0.16
1995	285	0.34	1,726	0.28	0.17
1998	128	0.29	957	0.29	0.13
2001	227	0.24	1,182	0.24	0.19
Conception					
1977	36	0.19	137	0.19	0.26
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	88	0.60	433	0.58	0.20
1992	6	0.08	64	0.05	0.09
1995	18	0.39	96	0.41	0.19
1998	2	0.56	14	0.62	0.14
2001	45	0.48	219	0.56	0.21
US Total					
1977	2,109	0.09	5,971	0.09	0.35
1980	1,452	0.17	4,268	0.17	0.34
1983	2,377	0.12	12,335	0.13	0.19
1986	2,061	0.17	11,912	0.22	0.17
1989	1,754	0.14	10,218	0.14	0.17
1992	1,933	0.15	14,168	0.17	0.14
1995	2,573	0.17	19,107	0.15	0.13
1998	2,455	0.19	18,376	0.21	0.13
2001	2,657	0.12	18,380	0.16	0.14

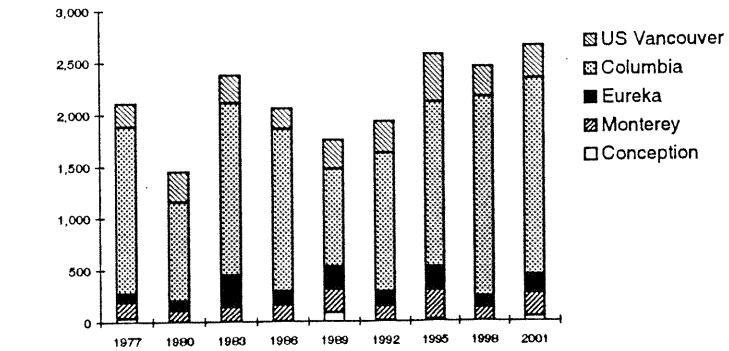


Table 1.--Estimated abundance of Pacific ocean perch from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area / Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	7,590	0.64	7,026	0.54	1.08
1980	3,260	0.60	3,228	0.56	1.01
1983	3,775	0.38	3,709	0.31	1.02
1986	1,100	0.39	1,418	0.38	0.78
1989	7,719	0.55	12,371	0.53	0.62
1992	5,359	0.65	7,029	0.51	0.76
1995	3,454	0.65	4,089	0.54	0.84
1998	4,486	0.45	5,136	0.38	0.87
2001	6,605	0.90	7,136	0.81	0.93
Columbia					
1977	6,656	0.21	8,144	0.19	0.82
1980	3,692	0.36	4,646	0.38	0.79
1983	2,913	0.43	3,149	0.40	0.93
1986	1,404	0.69	2,697	0.58	0.52
1989	1,520	0.54	2,879	0.50	0.53
1992	2,243	0.46	4,339	0.41	0.52
1995	318	0.48	948	0.54	0.34
1998	2,824	0.47	5,134	0.42	0.55
2001	1,579	0.67	2,718	0.61	0.58
Eureka					
1977	230	0.38	375	0.36	0.61
1980	281	0.42	402	0.42	0.70
1983	321	0.46	474	0.42	0.68
1986	123	0.62	126	0.58	0.98
1989	251	0.40	380	0.40	0.66
1992	65	0.58	307	0.51	0.21
1995	273	0.43	406	0.41	0.67
1998	77	0.41	241	0.60	0.32
2001	24	0.52	35	0.42	0.69
Monterey					
1977	1	0.40	2	0.38	0.50
1980	5	0.72	24	0.87	0.21
1983	6	0.94	12	0.77	0.50
1986	200	0.65	204	0.61	0.98
1989	0		0		
1992	3	0.84	11	0.77	0.27
1995	12	0.79	13	0.71	0.92
1998	6	0.59	9	0.59	0.67
2001	7	0.51	9	0.49	0.78
Conception					
1977	0		0		
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	0		0		
1992	0		0		
1995	0		0		
1998	0		0		
2001	0		0		
US Total					
1977	14,476	0.34	15,547	0.26	0.93
1980	7,237	0.33	8,300	0.31	0.87
1983	7,016	0.27	7,344	0.23	0.96
1986	2,826	0.40	4,445	0.40	0.64
1989	9,490	0.46	15,630	0.43	0.61
1992	7,670	0.48	11,685	0.35	0.66
1995	4,057	0.55	5,456	0.41	0.74
1998	7,392	0.33	10,521	0.28	0.70
2001	8,215	0.74	9,897	0.62	0.83

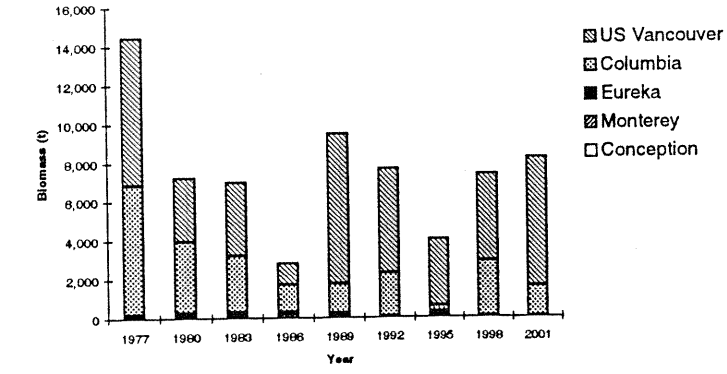


Table 1.--Estimated abundance of lingcod from the results of NMFS triennial bottom trawl surveys.
These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area / Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	2,277	0.66	276	0.53	8.25
1980	1,343	0.46	663	0.68	2.03
1983	1,805	0.21	409	0.20	4.41
1986	988	0.15	234	0.12	4.22
1989	1,863	0.23	533	0.27	3.50
1992	1,050	0.57	399	0.28	2.63
1995	552	0.27	237	0.26	2.33
1998	1,019	0.26	352	0.20	2.89
2001	1,021	0.36	604	0.23	1.69
Columbia					
1977	12,648	0.91	1,541	0.84	8.21
1980	8,714	0.74	1,137	0.62	7.66
1983	4,016	0.20	908	0.16	4.42
1986	1,828	0.16	507	0.13	3.61
1989	3,649	0.43	931	0.25	3.92
1992	3,071	0.64	1,351	0.23	2.27
1995	1,323	0.19	807	0.18	1.64
1998	2,002	0.38	732	0.21	2.73
2001	4,854	0.45	2,753	0.18	1.76
Eureka					
1977	274	0.38	44	0.44	6.23
1980	423	0.55	142	0.51	2.98
1983	498	0.38	111	0.26	4.49
1986	316	0.27	179	0.16	1.77
1989	473	0.31	164	0.33	2.88
1992	148	0.33	103	0.22	1.44
1995	182	0.25	117	0.23	1.56
1998	219	0.37	127	0.28	1.72
2001	642	0.16	545	0.13	1.18
Monterey					
1977	1,800	0.37	459	0.25	3.92
1980	714	0.32	287	0.24	2.49
1983	1,469	0.42	567	0.23	2.59
1986	611	0.29	382	0.16	1.60
1989	2,107	0.24	1,204	0.24	1.75
1992	484	0.30	654	0.22	0.74
1995	710	0.35	652	0.24	1.09
1998	651	0.34	567	0.37	1.15
2001	712	0.18	978	0.15	0.73
Conception					
1977	69	0.27	27	0.25	2.56
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	54	0.41	143	0.25	0.38
1992	27	0.43	66	0.39	0.41
1995	42	0.31	119	0.32	0.35
1998	34	0.38	46	0.35	0.74
2001	86	0.55	159	0.46	0.54
US Total					
1977	17,067	0.68	2,347	0.55	7.27
1980	11,194	0.58	2,229	0.38	5.02
1983	7,788	0.14	1,995	0.11	3.90
1986	3,742	0.11	1,302	0.09	2.87
1989	8,146	0.21	2,975	0.14	2.74
1992	4,780	0.54	2,573	0.17	1.86
1995	2,810	0.14	1,932	0.12	1.45
1998	3,925	0.25	1,824	0.16	2.15
2001	7,315	0.33	5,039	0.12	1.45

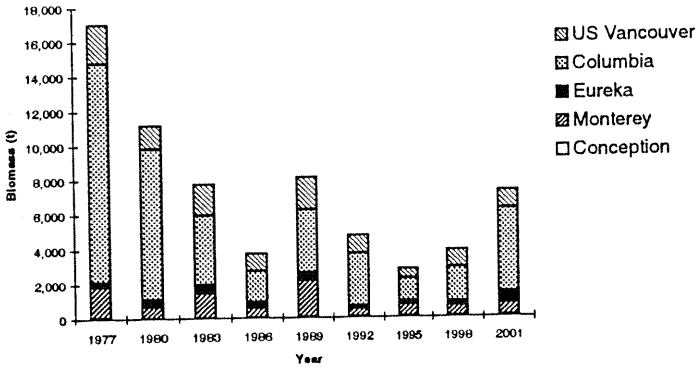
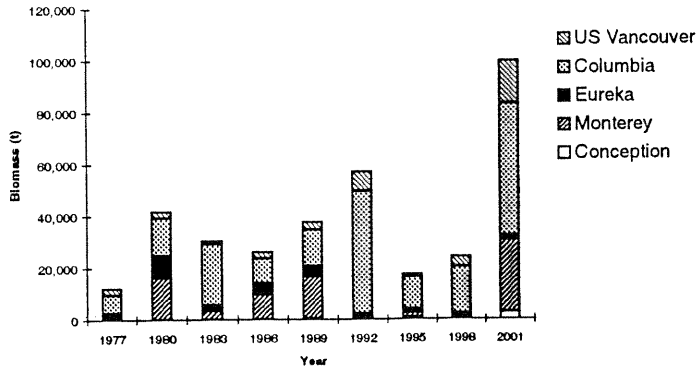


Table 1.--Estimated abundance of sablefish from the results of NMFS triennial bottom trawl surveys. These results include only U.S. waters and only the standard depth range (55-366 m) covered during all surveys since 1977.

INPFC Area / Year	Biomass (t)	CV (biomass)	Population (x 1,000)	CV (population)	Mean weight (kg)
US Vancouver					
1977	2,514	0.43	844	0.42	2.98
1980	2,442	0.34	1,329	0.38	1.84
1983	1,345	0.26	862	0.24	1.56
1986	2,477	0.24	2,411	0.26	1.03
1989	3,032	0.37	5,829	0.75	0.52
1992	7,383	0.69	7,568	0.69	0.98
1995	1,124	0.23	1,037	0.17	1.08
1998	3,871	0.17	2,258	0.18	1.71
2001	16,696	0.61	25,663	0.68	0.65
Columbia					
1977	7,118	0.13	4,359	0.16	1.63
1980	14,457	0.27	12,015	0.35	1.20
1983	23,375	0.39	31,363	0.44	0.75
1986	9,575	0.18	12,196	0.30	0.79
1989	13,991	0.37	15,022	0.34	0.93
1992	47,282	0.29	50,025	0.30	0.95
1995	12,504	0.29	10,777	0.23	1.16
1998	18,018	0.31	12,205	0.30	1.48
2001	50,812	0.43	96,808	0.52	0.52
Eureka					
1977	665	0.42	402	0.35	1.65
1980	8,672	0.93	15,834	0.96	0.55
1983	2,402	0.28	2,905	0.35	0.83
1986	4,530	0.44	4,349	0.34	1.04
1989	3,829	0.60	4,074	0.57	0.94
1992	1,174	0.39	1,164	0.34	1.01
1995	1,522	0.17	1,787	0.19	0.85
1998	1,545	0.36	1,193	0.36	1.30
2001	1,674	0.16	1,783	0.18	0.94
Monterey					
1977	1,305	0.20	1,444	0.24	0.90
1980	16,180	0.77	20,927	0.81	0.77
1983	3,439	0.47	2,973	0.41	1.16
1986	9,672	0.48	9,251	0.36	1.05
1989	16,407	0.85	26,470	0.89	0.62
1992	1,127	0.18	2,053	0.20	0.55
1995	1,624	0.18	2,580	0.19	0.63
1998	768	0.18	700	0.15	1.10
2001	27,958	0.57	39,915	0.61	0.70
Conception					
1977	672	0.14	492	0.14	1.37
1980	THE CONCEPTION AREA WAS NOT SAMPLED DURING THE 1980, 1983, AND 1986 TRIENNIAL SURVEYS.				
1983					
1986					
1989	479	0.29	847	0.26	0.57
1992	76	0.58	176	0.52	0.43
1995	795	0.24	1,320	0.20	0.60
1998	44	0.49	119	0.52	0.37
2001	2,667	0.20	4,592	0.22	0.58
US Total					
1977	12,275	0.11	7,541	0.11	1.63
1980	41,750	0.37	50,106	0.46	0.83
1983	30,561	0.31	38,103	0.37	0.80
1986	26,254	0.26	28,206	0.22	0.93
1989	37,738	0.40	52,241	0.47	0.72
1992	57,043	0.26	60,987	0.26	0.94
1995	17,568	0.21	17,501	0.15	1.00
1998	24,247	0.24	16,474	0.23	1.47
2001	99,806	0.29	168,761	0.35	0.59



RECREATIONAL FISHERIES INFORMATION NETWORK
PACIFIC STATES MARINE FISHERIES COMMISSION
45 S.E. 82ND DRIVE, SUITE 100, GLADSTONE, OREGON 97027-2522
PHONE (503) 650-5400 FAX (503) 650-5426

RecFIN Presentation

Pacific Fishery Management Council
October 30, 2001
by
Russell Porter
RecFIN Chairman

Request from RecFIN

1. ***Determination of an acceptable level of precision for marine recreational fishery catch estimates***. A request is hereby made that the Council specify the level of precision (percent standard error) desired for recreational catch estimates. It is suggested that the Council establish a group of scientists to assist the Council in this task.

   Background: It is RecFIN's belief that the Council could best be assisted by two or three scientists working together to identify an approach for addressing the question and providing trade-off tables and analyses for the Council to use in its decision. In order to produce more relevant analysis, this group should be provided with an opportunity to receive policy level guidance between Council meetings, such as through consultation at a SPOC meeting. We would suggest a stock assessment person from the NW Center, a GMT representative (Hastie, Culver or McCall) and the RecFIN Programmer/Analyst (Wade VanBuskirk). In order for RecFIN to determine proper sample sizes needed to produce catch estimates for in-season quota monitoring, a determination of the level of precision desired for the estimates is necessary.

Review of Recreational Sampling Programs:

RecFIN is planning a series of meetings with state, federal and Council representatives to address whether changes are needed in the Marine Recreational Fisheries Statistics Survey (MRFSS) as well as other components of RecFIN. Changes necessary to provide field sampling that meets management plan needs and any resultant additional costs will be

determined. We hope to start this process in December, 2001 and thank the Pacific Council in taking the lead in requesting funding for travel from NMFS for these meetings.

New Party/Charterboat Effort Survey

In 2001, PSMFC with support from NMFS began a new survey to estimate party/charterboat (CPFV) fishing effort in California. This survey differs from the traditional MRFSS telephone survey of anglers to determine CPFV trips by two-month period. The new survey samples 10% of the active CPFV fleet each week to determine the number of trips taken and the anglers carried on each trip. This 10% sample is then expanded to make estimates of total angler trips for Southern California and Northern California. The survey began in March, 2001. Initially we had 526 vessels in the sampling frame from the CDFG license files. Since that time we have worked to determine the exact number of vessels actually participating in the fishery. Our current sample frame has 250 vessels in Southern California and 150 vessels in Northern California. The following are some statistics from this new survey of CPFV's in California:

Response Rates (Jul-Aug, 2001):

Area (Sample)	Reported Trips	Reported No Trips	No Contact	Refused	Inactive/ Ineligible
S. Calif. (225)	61 *[31%]*	20 *[10%]*	72 *[37%]*	41 *[21%]*	31 *[14%]*
N. Calif. (135)	41 *[36%]*	4 *[4%]*	21 *[18%]*	49 *[43%]*	20 *[15%]*

Reporting Method (Jul-Aug, 2001):

Area	Telephone	Called In	FAX	Mail
S. Calif.	43.4%	22.9%	28.9%	4.8%
N. Calif.	56.8%	20.5%	20.4%	2.3%

Use of Printed Survey Log Provided (Jul-Aug, 2001):

Area	Yes	No
S. Calif.	97.2%	2.8%
N. Calif.	82.1%	17.9%

Trip Estimate Comparison – Regular MRFSS vs. Preliminary New CPFV Effort Survey[1/]

Survey	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	TOTAL
So. Calif.	*Closure*				
MRFSS	25,000	50,000	107,000	246,000	428,000
		[	***403,000***	***]***	
PC Effort[1/]	---	42,152	88,278	158,598	314,028
		[	**289,028**	***]***	
No. Calif.		*Closure*			
MRFSS	29,000	10,000	24,000	59,000	122,000
		[	***93,000***	***]***	
PC Effort[1/]	---	6,160	35,579	48,954	119,693
		[	***90,693***	***]***	

1/ (Preliminary) Includes a 30% adjustment for non-response.

Preliminary California RecFIN Bocaccio Catch Estimates (MT), Jan-Aug, 2001:

Survey	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	TOTAL
MRFSS {CPFV}	17	3	20	7	47
Private Boats	0	4	5	16	25
				TOTAL:	**73**
Preliminary PC Effort Survey	*[17]*	2.5	11.4	10.9	41.8
Private Boats	0	4	5	16	25
				TOTAL:	**67**

Oregon & Washington Catch (MT)

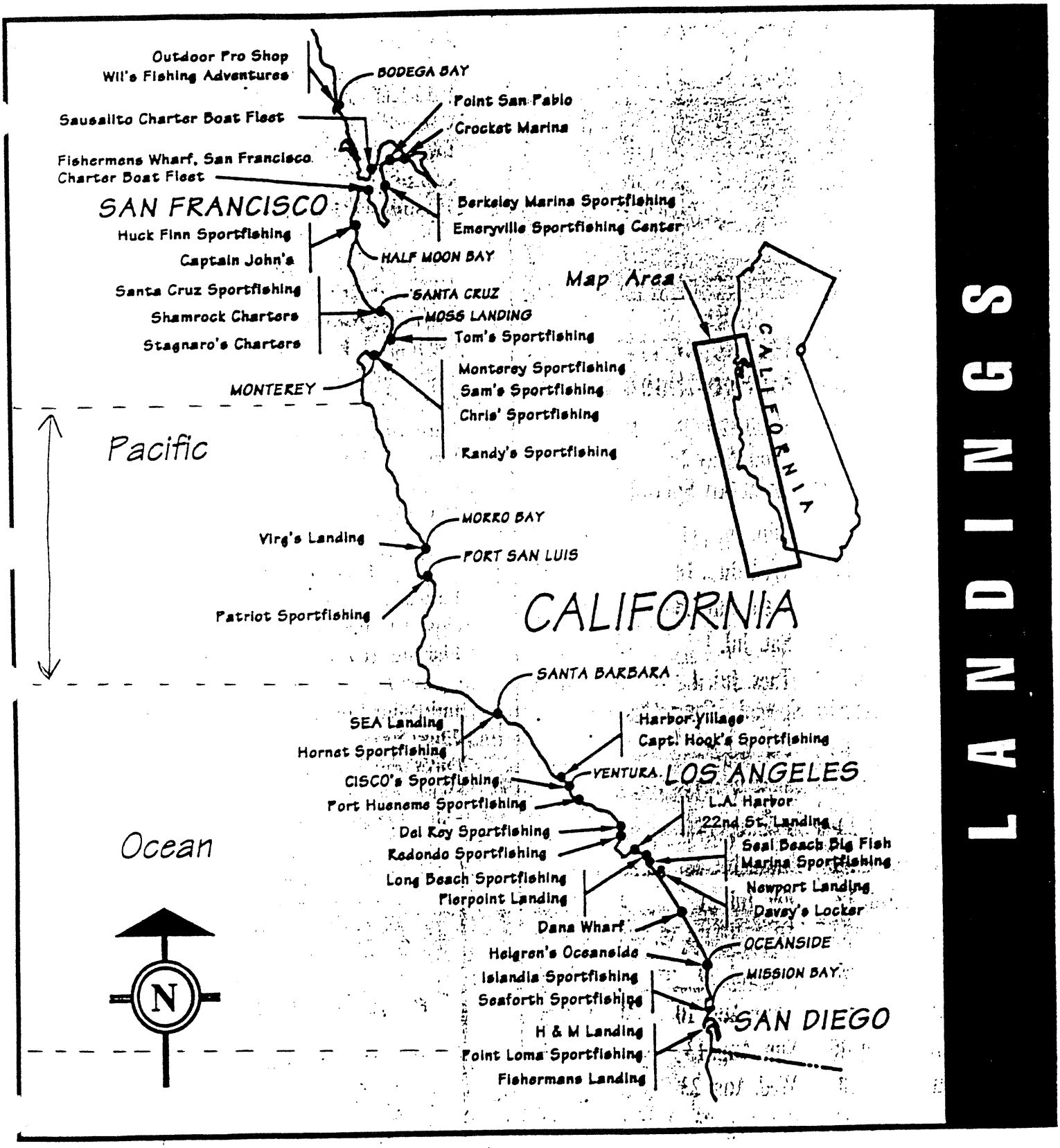
Oregon Jan-Aug: 2

Washington Jan-Aug: 1

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON MARINE RECREATIONAL FISHERIES STATISTICS SURVEY UPDATE

The Groundfish Advisory Subpanel (GAP) continues to express its concern about several aspects of the Marine Recreational Fisheries Statistics Survey (MRFSS). Both commercial and recreational fishermen, whose fisheries are affected by management actions based on MRFSS data, have complaints about the accuracy of that data and its use for inseason adjustments, especially since use of the data can lead - and has led - to fisheries closures. Since recreational data is used for some stock assessments, GAP members question the reliability of those assessments (yelloweye rockfish is frequently cited as one example). The GAP believes the California Department of Fish and Game needs to continue to encourage the use of recreational logbooks and follow up with extensive sampling. Further, sampling times need to be based on the realities of the recreational fishery. Sampling when a fishery is closed makes little sense.

PFMC
10/30/01



• FISHING HARBORS

MARINE RECREATIONAL FISHERIES STATISTICS SURVEY UPDATE

Situation: An update on the status of the Marine Recreational Fisheries Statistics Survey (MRFSS) and complementary elements will be provided by Mr. Russell Porter (Pacific States Marine Fisheries Commission). He will also present the Council with a report on an approach for evaluating the adequacy and opportunities for improvement of the current system for collecting data from recreational groundfish fisheries.

Council Task:

1. **Provide comment and guidance on a course of action to be followed for evaluating and improving the current system for collecting groundfish recreational fishery data.**

Reference Materials:

✓1. Exhibit C.2.b, Supplemental PSMFC Report. received 10/29/01

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis
The GFSP calls for data collection, monitoring, and analysis: "To provide comprehensive, objective, reproducible, and credible information in an understandable and timely manner to meet our conservation and management objectives." Recommendations reference the need to create cooperative interagency-industry partnerships, implement the West Coast Fisheries Economic Data Plan, and integrate Council research and data needs into the NOAA budget process.

PFMC
10/16/01

2. GAP statement on MRFSS (Exhibit C.2.c, Supplemental GAP Report).

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON FINAL HARVEST LEVELS FOR 2002

The Groundfish Advisory Subpanel (GAP) met jointly with the Groundfish Management Team to discuss 2002 harvest levels. The GAP makes the following recommendations to the Council.

Given the drastic reductions in optimum yields (OYs) for several important species, the GAP spent some time discussing survey methodology and the need for innovative approaches to stock assessment. For example, additional attention needs to be given to examining environmental factors affecting both abundance and availability of fish to survey gear. In addition, NMFS should expand survey work on sablefish by utilizing fixed gear (especially on the continental shelf) and by examining all depths. Further, as the GAP has recommended in the past, surveys need to extend below Point Conception.

Several of the OY figures proposed by the Council in September were expressed as ranges. The GAP first addressed the question of a final number within these ranges, although the GAP notes that - based on discussions with NOAA General Counsel - nothing prevents the Council from adopting a final OY above or below a proposed range if the data support that action.

For sablefish, the GAP recommends the Council adopt an acceptable biological catch (ABC) of 4,786 mt and an OY of 4,500 mt for 2002, and recommend to NMFS the preferred stock assessment model used in 2001 be re-calculated using updated data from the 2001 triennial survey and any other new data available. The 2001 stock assessment reduced the sablefish biomass primarily on the basis of missing recruitment in the mid 1990's and projections that - unless recruitment improved - sablefish stocks would continue to decline below the overfished level. The preliminary data from the triennial survey not only shows a significant increase in biomass, but also verifies the anecdotal data that had been presented to the Stock Assessment Review (STAR) Panel, the GAP, and the Council regarding the presence of significant numbers of small sablefish. Since these fish will not be immediately available to the fishery, a reduction in OY from 2000 levels is justified. At the same time, the presence of large numbers of small sablefish gives initial indications the necessary upswing in recruitment is occurring, and the spawning biomass is larger. An OY of 4,500 mt is slightly below the amount which would be available under the Council's harvest policy of $F_{45\%}$ using an assumption that missing recruitment was due to a regime shift and takes into account the Council's precautionary control rule (the 40-10 policy). In terms of the social and economic environment, the Council's draft Environmental Assessment (EA) shows that in 2000, sablefish represented 30% of groundfish landings by value, the highest of all groundfish species (Table 3.3.1.1-2, page T-32). For both conservation and management reasons, the suggested OY is justified for 2002, and future OY will depend on the revised sock assessment.

For Dover sole, the GAP recommends an ABC of 8,510 mt and an OY of 7,440 mt for 2002, and the Council recommend to NMFS the preferred 2000 stock assessment model be updated using the 2001 trawl survey data and any other readily available information. As the GAP noted in September, these ABC and OY levels are based on the preferred model of the 2001 Dover sole stock assessment; utilize the Council's approved harvest policy of $F_{40\%}$; have been adjusted in accordance with the Council's precautionary control rule (40-10 policy) and will allow the stocks to increase in size over the next 10 years. Further, the GAP references the preliminary trawl survey data which shows a significant increase in Dover sole biomass, again - as in the case of sablefish - supporting anecdotal data regarding the abundance of Dover sole. Length data from the trawl survey does not indicate predominance of any age class, but rather a reasonable distribution across all ages and both sexes. The GAP also points out that if Dover sole abundance is as high as is indicated by the trawl survey and anecdotal data, significantly reducing Dover harvest will merely result in increased discards, which contravenes the conservation standards of the law. Finally, from the socioeconomic standpoint, the Council's draft EA shows that flatfish (including Dover sole) represented 24% of groundfish landings (by value) in 2000. The GAP believes the ABC and OY values recommended are fully justified.

For shortspine thornyheads, the GAP recommends a 2002 ABC of 1,004 mt and an OY of 955 mt. Again,

both anecdotal data and trawl survey data show shortspines to be stable to increasing; in fact, the 2001 survey results for shortspine are the highest on record. Since 1992, the mean weight (coast wide) of shortspine taken in the trawl survey has stayed in the range of .13 - .14 kg, an indication of stability. The 2001 stock assessment clearly indicates this species is not overfished, although the assessment is unclear - due to inherent data problems associated with this species - as to relative abundance trends. Finally, the ABC and OY levels recommended by the GAP are identical to those recommended to the Council by the Groundfish Management Team in September. Artificially constraining shortspine catches will also constrain Dover sole and sablefish catches, leading to both increased discards and substantial reduction in economic value of the fishery.

For Pacific ocean perch (POP), the majority of the GAP recommends an ABC of 640 mt and an OY of 410 mt for 2002. The 2001 trawl survey shows POP increasing, reflecting the results of the most recent stock assessment. Although the 2001 survey point is the highest since 1989, averaging survey population estimates across the years shows the population to be relatively stable in spite of higher harvest levels allowed in the past. The recommended OY level is equivalent to a 60% probability of rebuilding within the time frame estimated in the rebuilding analysis adopted by the Council. The recommended OY would provide adequate precaution for this species.

For darkblotched rockfish, a majority of the GAP recommends an ABC of 187 mt and an OY of 181 mt for 2002. This corresponds to a 60% probability of achieving the rebuilding target. Again looking at the 2001 trawl survey data, darkblotched shows an increase in population.

For widow rockfish, a majority of the GAP recommends an ABC of 3,727 mt and an OY of 856 mt for 2002, again equivalent to a 60% probability of meeting rebuilding targets. The most recent stock assessment indicated that widow rockfish are just below the “overfished” level, so a conservative harvest level as recommended here should be sufficient to achieve rebuilding.

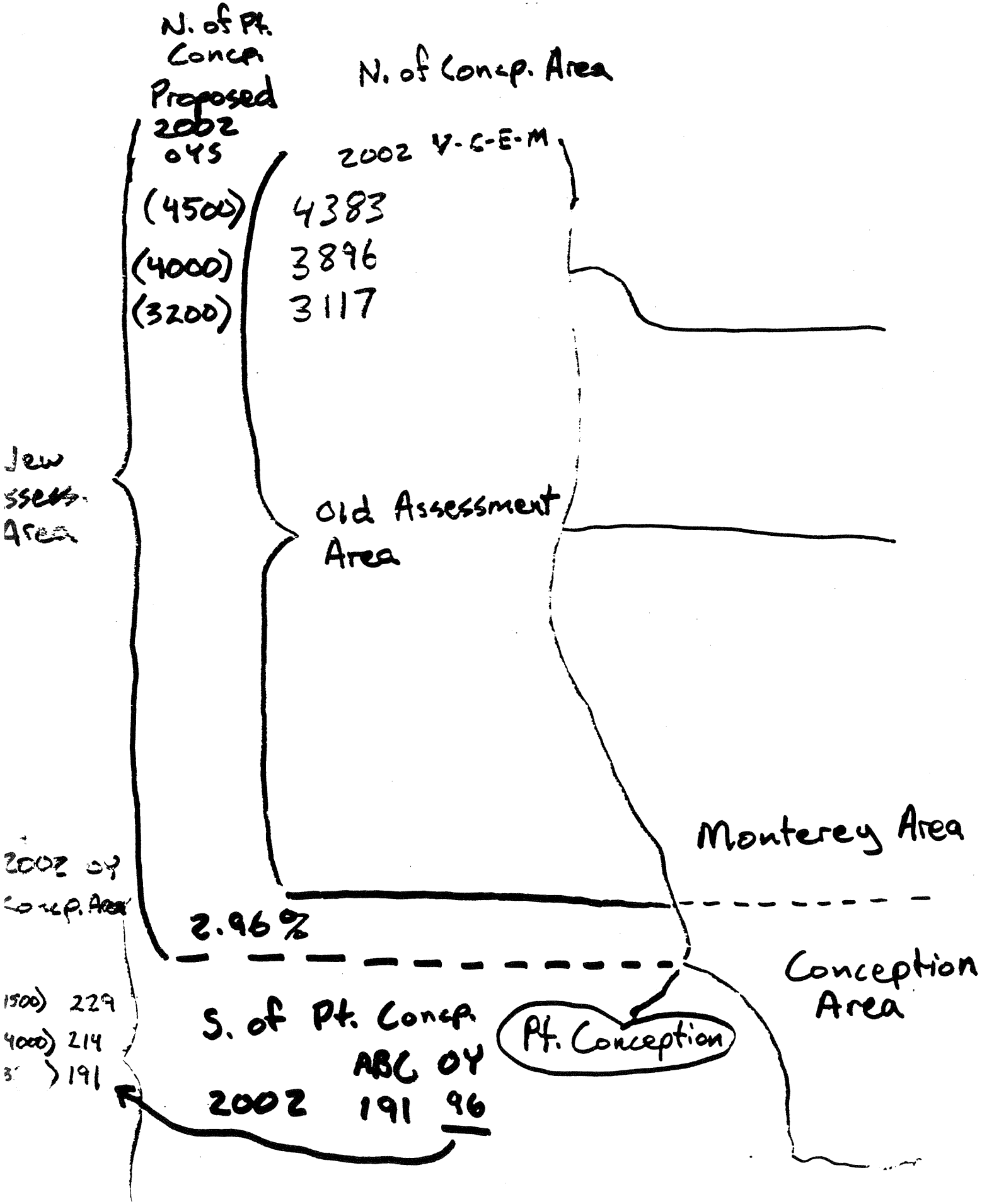
A minority of the GAP recommends ABCs and OYs for widow rockfish, darkblotched rockfish, and Pacific ocean perch be set at levels equal to an 80% probability of achieving rebuilding targets. The corresponding tonnages are shown as Alternative 1 in Exhibit C.3 Attachment 1.

For the remaining ABCs and OYs, the GAP recommends the preferred levels identified in Exhibit C.3 Attachment 1.

In the case of yelloweye rockfish, the GAP is concerned that stock assessment relies primarily on recreational catch data, especially considering the problems that have previously been recognized with recreational data. Recreational data tends to show local depletion rather than coast wide effects. Recent efforts by the recreational fleet to avoid canary rockfish have also reduced yelloweye catch. The GAP believes a better data source needs to be found, as the overfished status of yelloweye will profoundly affect harvest in a variety of fisheries.

The GAP also recognizes that the 2001 trawl survey data for yellowtail rockfish shows a large decrease in population. Based on information provided by Dr. Mark Wilkins of NMFS, yellowtail demonstrate a wide range in catchability in the triennial survey and the reduced numbers from this year are not necessarily indicative of a population trend. Similar phenomena occurred in the surveys between 1992 and 1998, where a relatively “normal” number was followed by an apparent crash and then by an apparent massive increase. Since yellowtail are a long-lived species which will not go through such tremendous population fluctuations in such a short period of time, combined with the fact that mid-water fishing opportunities will be reduced due to protection of widow rockfish, the GAP believes the OY identified as preferred is a reasonable one.

From the socioeconomic aspect, the Council’s draft EA does not break out species of rockfish. However, rockfish as a group represented 28% of the groundfish landings by value in 2000.


N. of Pt. Concp Proposed 2002 045
N. of Concp. Area
2002 V-C-E-M
(4500) 4383
(4000) 3896
(3200) 3117
New Assess. Area
Old Assessment Area
Monterey Area
2002 of Concp. Area
2.96%
Conception Area
1500) 229
4000) 214
3) 191
S. of Pt. Concp
ABC 04
2002 191 96
Pt. Conception

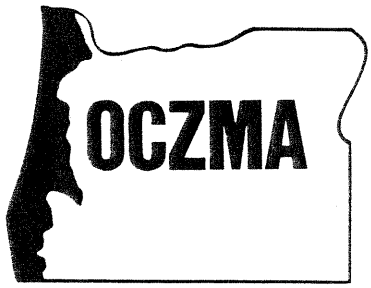
SCIENTIFIC AND STATISTICAL COMMITTEE STATEMENT ON FINAL HARVEST LEVELS FOR 2002

As part of the process of setting harvest guidelines for the 2002 groundfish fishery, the Groundfish Management Team (GMT) has undertaken a more comprehensive analysis of bycatch rates than was carried out in the past. The Scientific and Statistical Committee (SSC) discussed this analysis in some depth under Agenda Item C.4. With respect to final harvest levels for 2002, the new GMT analysis, including revised bycatch and discard estimates, is considered to be the best way to proceed for the coming year (see SSC Statement on Management Measures for 2002 and Environmental Assessment [EA] for details).

With regard to the 2002 optimum yield (OY) for shortspine thornyhead, the SSC recognizes that it had not provided advice to the Council on a preferred alternative during the September 2001 Council meeting. In many ways, the analysis and data employed in the new stock assessment are improvements over the previous assessment carried out in 1998. However, the SSC notes that the Stock Assessment Review (STAR) Panel review in July 2001 indicates the assessment and, in particular the 2002 stock projections, remain highly uncertain. If the Council wishes to be risk-averse, the "Low OY" alternative is warranted (751 mt – Exhibit C.3, Attachment 1).

The SSC discussed the results from the National Marine Fisheries Services Alaska Fisheries Science Center (NMFS-AFSC) Shelf Survey conducted during June-August 2001. While it is encouraging to see estimates of incoming recruitment for sablefish at higher levels than in the recent past, the SSC cautions that these early indicators of year-class strength are uncertain, and it will take at least another year or two of data (survey + fishery) to better determine year-class strength. Further, the SSC notes that the results of the 2001 NMFS-Northwest Fisheries Science Center (NWFSC) Slope Survey, when available, should provide much better indices of exploitable biomass for the Dover sole/thornyhead/trawl-caught sablefish complex (DTS) species than those indices provided by the 2001 shelf survey. In the absence of quantitative analyses of the 2001 survey indices (shelf and slope surveys) conducted in concert with the relevant stock assessment model, the Council should not consider modification of 2002 OY's in response to the newly available 2001 shelf survey data.

PFMC
10/30/01



Oregon Coastal Zone Management Association

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October 29, 2001

Mr. Jim Lone, Chairman
Pacific Fishery Management Council
2130 SW Fifth Street, Suite 224
Portland, Oregon 97201

RE: GROUNDFISH FISHERY MANAGEMENT MEASURES FOR 2002
AND SUPPORT FOR A STATUS QUO ALTERNATIVE

Dear Chairman Lone:

I am writing to urge the Council, in the strongest possible terms, to exercise leniency in applying precautionary principals in setting optimum yields (OY) for some species within the groundfish fishery. There is compelling anecdotal and scientific evidence that stock abundance of critically important commercial species in the Dover sole/thornyhead/sablefish (DTS) complex are rebuilding at a much faster rate than previously expected. The most notable of these species are Dover sole and sablefish. While the new recruits will not appear in higher Acceptable Biological Catches (ABC) due to limitations in present age-growth models, the Council has the flexibility to set OY's in consideration of the devastating economic effects that would result from the application of the predictive model results on a year-to-year basis.

Groundfish harvest revenue in Oregon declined by 38% between 1995 and 1998. Ironically, modest overall revenue increases have occurred since 1998 due to increased prices and stable landings of sablefish. Of course, not everyone in the fishery shared in these revenue increases. However, the range of alternatives proposed for the 2002 management measures will cause significance decreases in expected revenue to the fishing industry compared to the estimated landings in 2001. We estimate the scale of reductions to be as follows:

- Sablefish down 35% to 54%
- Widow rockfish down 63% to 68%
- Dover sole down 3% to 28%

Standing alone, these three groundfish species represent 57% of the non-whiting groundfish fishery in 2000, and, in 2001, this would constitute 59%. If all the other groundfish species landings remain constant from last year, the overall non-whiting groundfish fishery will contract

by approximately 25%. The distributional impacts of a 25% reduction would fall especially hard on certain segments of the industry. The proposed 2002 alternative's impacts, when combined with last year's declines, will cause severe economic impacts to these harvester groups.

Mr. Chairman, I respectfully submit adequate room exists within the biological model's uncertainty, and measures to reduce bycatch and discards, to allow for higher directed fishery harvests while still meeting conservation practice goals for sustainable fisheries.

The groundfish industry has made great strides in developing gears and harvest methods that minimize impacts to stocks of concern. That good work will continue. In addition, the industry has proposed solutions to address the central problem of over capacity. Fleet reduction measures will require significant financial sacrifices from people leaving the fishery and from those remaining in the industry. OCZMA will continue to work with people in the industry and with all other West Coast fishing associations to develop the means to promote an orderly transition in the groundfish industry. However, given the tragic events of September 11, 2001, we anticipate Congress will wait until next year before they appropriate funds for a buyback program and/or other forms of substantial emergency assistance to the industry. As such, actions taken by the Council at your meeting will have "make or break" consequences for many.

On behalf of OCZMA's membership of over 40 local governments along the Oregon Coast, I ask the Council to use as much discretion as possible to adopt a status quo alternative.

Sincerely,

Onno Husing, Executive Director
OREGON COASTAL ZONE MANAGEMENT ASSOCIATION

OH/kco

cc: OCZMA Members
Oregon Congressional Delegation
Oregon Coastal Legislators
Other Interested Parties

Alternative acceptable biological catch (ABC) and total catch optimum yield (OY) recommendations for 2002 for the Washington, Oregon, and California region (metric tons). (Overfished stocks in CAPS).

	Alternative 1 2001 ABCs and OYs		Alternative 2 2002 Low OYs		Alternative 3 2002 High OYs		Alternative 4 2002 Preferred OYs	
Species/Group	ABC	OY	ABC	OY	ABC	OY	ABC	OY
LINGCOD	1,119	611					745	577
Pacific cod	3,200	3,200					3,200	3,200
Whiting	238,000	190,400					238,000	190,400
Sablefish	7,661	6,895	4,062	3,200	4,786	4,500	4,786	4,000
S. of Pt. Conception	191	96					191	96
PACIFIC OCEAN PERCH	1,541	303	640	290	640	410	640	350
Shortbelly	13,900	13,900					13,900	13,900
WIDOW	3,727	2,300	3,727	726	3,727	856	3,727	856
CANARY	228	93					228	93
Chilipepper	2,700	2,000					2,700	2,000
BOCACCIO	122	100					122	100
Splitnose	615	461					615	461
Yellowtail	3,146	3,146					3,146	3,146
Shortspine Thornyhead	880	751	880	751	1,004	955		
Longspine Thornyhead	2,461	2,461					2,461	2,461
Conception area	390	195					390	195
COWCOD - Conception	2.4	2.4					2.4	2.4
Monterey	19	2.4					19	2.4
DARKBLOTCHED	349	130	187	157	187	181	187	168
YELLOWEYE - coastwide							27	11
Monterey							5	2-3
N of 40 10	29	22					22	8-9
Minor Rockfish N	4,823	3,137					4,794	3,115
Minor Rockfish S	3,556	2,040					3,506	2,015
Remaining rockfish North	2,755						2,755	
black	1,115						1,115	
bocaccio	318						318	
chilipepper - Eureka	32						32	
redstripe	576						576	
sharpchin	307						307	
silvergrey	38						38	
splitnose	242						242	
yellowmouth	99						99	
Remaining rockfish South	854						854	
bank	350						350	
blackgill	343						343	
sharpchin	45						45	
yellowtail	116						116	
Other rockfish North	2,068						2,068	
South	2,702						2,652	
Dover sole	8,204	7,677	6,142	5,520	8,510	7,440	7,221	6,410
English sole	3,100						3,100	
Petrale sole	2,762						2,762	
Arrowtooth flounder	5,800						5,800	
Other flatfish	7,700						7,700	
Other Fish	14,700						14,700	

1 2001 Specifications of Acceptable Biological Catch (ABC), Optimum Yields (OYs) and Limited Entry and Open Access Allocations, by International North Pacific Fisheries Commission (INPFC) Areas (weights in metric tons).

Species	ACCEPTABLE BIOLOGICAL CATCH (ABC)						OY (Total Catch)	Commercial OY (Total Catch)	Allocations Total Catch			
	Vancouver[a/]	Columbia	Eureka	Monterey	Conception	Total Catch			Limited Entry		Open Access	
									mt	%	mt	%
ROUNDFISH												
Lingcod[b/]		610			509	1,119	611	251	203	81	48	19.0
Pacific Cod		3,200		c/		3,200	N/A	3,200	–-	–-	–-	--
Pacific Whiting[d/]					190,400	190,400	190,400	162,900	–-	–-	–-	--
Sablefish[e/] (north of 36^{O})				7,661	--	7,661	6,895	6,181	5,600	90.6	581	9.4
Sablefish[f/] (south of 36^{O})		--			425	425	212	212	–-	–-	–-	--
FLATFISH												
Dover Sole[g/]				7,151	1,053	8,204	7,677	7,610	–-	–-	–-	--
English Sole		2,000			1,100	3,100	N/A	–	–-	–-	–-	--
Petrale Sole[h/]		1,262	500	800	200	2,762	N/A	–	–-	–-	–-	--
Arrowtooth Flounder					5,800	5,800	N/A	–	–-	–-	–-	--
Other Flatfish	700	3,000	1,700	1,800	500	7,700	N/A	–	–-	–-	–-	–

2 2001 Specifications of Acceptable Biological Catch (ABC), Optimum Yields (OYs) and Limited Entry and Open Access Allocations, by International North Pacific Fisheries Commission (INPFC) Areas (weights in metric tons).

Species	ACCEPTABLE BIOLOGICAL CATCH (ABC)						OY (Total Catch)	Commercial OY (Total Catch	Allocations Total Catch			
	Vancouver	Columbia	Eureka	Monterey	Conception	Total Catch			Limited Entry		Open Access	
									mt	%	mt	%
ROCKFISH												
Pacific Ocean Perch[i/]	1,541			--		1,541	303	303	–-	-–	-–	--
Shortbelly[j/]					13,900	13,900	13,900	13,900	–-	-–	-–	--
Widow[k/]					3,727	3,727	2,300	2,260	2,192	97.0	68	3.0
Canary[l/]					228	228	93	44	39	87.7	5	12.3
Chilipepper[m/]	c/			2,700		2,700	2,000	1,985	1,106	55.7	879	44.3
Bocaccio[n/]	c/			122		122	100	52	29	55.7	23	44.3
Splitnose[o/]	c/			615		615	461	461	–-	-–	-–	--
Yellowtail[p/]	3,146			c/		3,146	3,146	3,086	2,830	91.7	256	8.3
Shortspine Thornyhead North of 36[Oq/r/]	757				--	757	689	685	683	99.7	2	0.27
South of 36[Os/]	--				123	123	62	62	62	99.7	0	0.27
Longspine Thornyhead North of 36[Oq/t/]	2,461				--	2,461	2,461	2,453	–-	-–	-–	--
South of 36[Ou/]	--				390	390	195	195	–-	-–	-–	--
Cowcod[v/]	c/			19		19	2.4	0				
	c/				2.4	2.4	2.4	0				

Darkblotched[w/]	302-349	302-349	130	130	127	97.7	3	2.3

2001 Specifications of Acceptable Biological Catch (ABC), Optimum Yields (OYs) and Limited Entry and Open Access Allocations, by International North Pacific Fisheries Commission (INPFC) Areas (weights in metric tons).

Species	ACCEPTABLE BIOLOGICAL CATCH (ABC)						OY (Total Catch)	Commercial OY (Total Catch	Allocations Total Catch			
	Vancouver	Columbia	Eureka	Monterey	Conception	Total Catch			Limited Entry		Open Access	
									mt	%	mt	%
Minor Rockfish North[x/]			4,823		--	4,823	3,137	2,492	2,254	90.4	238	9.6
Minor Rockfish South[y/]		--			3,556	3,556	2,040	1,090	597	55.7	493	44.3
REMAINING ROCKFISH			2,755		854	--	--	--	-–	-–	-–	--
Bank[z/]		c/			350	350	--	--	-–	-–	-–	--
Black[aa/]			1,115			1,115	--	--	-–	-–	-–	--
Blackgill[bb/]		c/			343		--	--	-–	-–	-–	--
Bocaccio - North			318			318	--	--	-–	-–	-–	--
Chilipepper-North			32			32	--	--	-–	-–	-–	--
Redstripe			576		c/	576	--	--	-–	-–	-–	--
Sharpchin			307		45	352	--	--	-–	-–	-–	--
Silvergrey			38		c/	38	--	--	-–	-–	-–	--
Splitnose			242		c/	242	--	--	-–	-–	-–	--
Yelloweye			29		c/	29	--	--	-–	-–	-–	--
Yellowmouth			99		c/	99	--	--	-–	-–	-–	--
Yellowtail-South					116	116	--	--	-–	-–	-–	--
Other Rockfish[cc/]			2,068		2,702	--	–	--	-–	-–	-–	--

OTHER FISH[dd/]	2,500	7,000	1,200	2,000	2,000	14,700	N/A	–	–-	-–	-–	–

OYs for Minor Rockfish by Depth Sub-groups (Weights in Metric Tons).

Species	Total Catch ABC	OY (Total Catch)			Allocations (Total Catch)			
		Total Catch OY	Recrea-tional Estimate	Commercial OY for Minor Rockfish and for Depth Sub-groups	Limited Entry		Open Access	
					mt	Percent	mt	Percent
Minor Rockfish North[x/]	4,823	3,137	645	2,492	2,254	90.4	238	9.6
Nearshore		987	575	412	222	N/A	190	N/A
Shelf		990	70	920	880	N/A	40	N/A
Slope		1,160		1,160	1,152	N/A	8	N/A
Minor Rockfish South[y/]	3,556	2,040	950	1,090	597	55.7	493	44.3
Nearshore		662	550	112	34	N/A	78	N/A
Shelf		739	400	339	129	N/A	210	N/A
Slope		639		639	434	N/A	195	N/A

a/ ABC applies to the U.S. portion of the Vancouver area, except as noted under individual species.

b/ Lingcod was designated as overfished in 1999 when the biomass was believed to be at 10% of the unfished biomass. A coastwide assessment was conducted in 2000 and confirmed that the stock is overfished coastwide. Separate ABCs were calculated for the northern (Vancouver-Columbia) and southern (Eureka-Monterey-Conception) areas based on $F_{45\%}$ F_{MSY} proxy. The stock assessment included parts of Canadian waters; however, the U.S. portion of the ABC for the Vancouver area was set at 44% of the total for that area. The total catch OY of 611 mt is the sum of the yield for the northern (307 mt) and the southern (304 mt) assessments where a constant exploitation rate that results in a 60% probability of rebuilding the stock to F_{MSY} within 9 years was used. The total catch OY is reduced by 360 mt for the amount that is estimated to be taken by the recreational fishery, resulting in a commercial OY of 251 mt. Tribal vessels land a small amount of lingcod, but do not have a specific allocation at this time. No discards are assumed.

c/ "Other Species", these are neither common nor important to the commercial and recreational fisheries in the areas footnoted. Accordingly, Pacific cod is included in the non-commercial OY of "other fish" and rockfish species are included in either the "other rockfish" or "remaining rockfish" for the areas footnoted only.

d/ Whiting is believed to be at less than 40% of its unfished biomass. The 1998 assessment was updated for 2000 using limited new data. The U.S.-Canada ABC (266,000 mt) is based on the updated assessment with the application of an F_{MSY} proxy of $F_{40\%}$. Because the biomass is estimated to be within the precautionary zone, the 40-10 default harvest policy was applied reducing the coastwide ABC to 238,000 mt. The whiting U.S. ABC is 80% (190,400 mt) of the 238,000 mt. The U.S. total catch OY was then set equal to the U.S. ABC. The commercial OY for whiting is 162,900 mt (the 190,400 mt OY minus the 27,500 mt tribal allocation), and is allocated 42% to the shore-based sector, 24% to the mothership sector, and 34% to the catcher-processor sector. Discards of whiting are estimated from observer data and counted towards the OY inseason.

e/ Sablefish north of 36^{O} N latitude is believed to be at 37% of its unfished biomass. The 7,661 ABC for the area north of 36^{O} N latitude is based on a F45% F_{MSY} proxy. The total catch OY (6,895 mt) is based on the application of the 40-10 harvest rate policy, because the biomass is estimated to be in the precautionary zone. The total catch OY is reduced by 690 mt for the tribal set aside and by 24 mt for the compensation to vessels that conducted resource surveys. The remaining 6,181 is the commercial total catch OY. The open access allocation of 9.4% of the commercial OY results in a total catch OY of 581 mt. The limited entry allocation of 90.6% of the commercial OY results in a total catch OY of 5,600 mt. The limited entry OY is further divided with 58% (3,248 mt) allocated to the trawl fishery and 42% (2,352 mt) allocated to the nontrawl fishery. For the first time in 2000, discard rates will be applied by sector to obtain landed catch value.

f/ Sablefish in the Conception area has an ABC (425 mt) based on historical landings. To address uncertainty in stock assessment due to limited information, the ABC was reduced by 50% to obtain the OY (212 mt). There are no limited entry or open access allocations in the Conception area at this time.

g/ Dover sole north of 36^{O} N latitude was assessed as a unit in 1997 and provided an ABC (7,151 mt) for landed catch based on a $F_{40\%}$ F_{MSY} proxy. The Conception area ABC (1,053 mt) is at the level established in the original FMP, and was based on average landings. To address uncertainty in stock assessment due to limited information, the Conception area landed catch ABC was reduced by 50% to obtain the landed catch value. The ABC in this table represents total catch and was determined by estimating that 5% of the total catch was discarded to obtain the landed catch. Therefore, the coastwide ABC and total catch OY is 7,677 mt. The OY is further reduced by 67 mt as compensation to vessels that conducted resource surveys, resulting in a commercial OY of 7,610 mt.

h/ Petrale sole was believed to be at 42% of its unfished biomass following a 1999 assessment. For 2000, the final ABC for the Vancouver-Columbia area (1,262 mt) is based on a $F_{40\%}$ F_{MSY} proxy. The ABCs for the Eureka, Monterey, and Conception areas (1,500 mt) continues at the same level as 2000.

i/ Pacific ocean perch (POP) was designated as overfished in 1999. The ABC (1541 mt) is based on the 2000 assessment for the Vancouver-Columbia area (1,523 mt at $F_{50\%}$ F_{MSY} proxy), plus 18 mt for the Eureka area. The 2001 OY of 303 mt for the Vancouver-Columbia-Eureka area was set in the rebuilding plan. Discards are assumed to be 16% for a landed catch value of 255 mt.

j/ Shortbelly rockfish remains an unexploited stock and is difficult to assess quantitatively. The 1989 assessment provided 2 alterative yield calculations of 13,900 mt and 47,000 mt. NMFS surveys indicate poor recruitment in most years since 1989, indicating low recent productivity and a naturally declining population in spite of low fishing pressure. The ABC and OY therefore are reduced to 13,900 mt, the low end of the range in the assessment.

k/ Widow rockfish is believed to be at 24% of its unfished biomass indicating that its overfished at this time. The ABC (3,727 mt) is based on the 2000 assessment with a $F_{50\%}$ F_{MSY} proxy. Two OY options were presented to the Council ranging from 2,864 (based on $F_{50\%}$ F_{MSY} proxy and the 40-10 harvest policy) to 1,775 mt (based on $F_{65\%}$ F_{MSY} proxy and the 40-10 harvest policy). The Council adopted the average of the option range resulting in a total catch OY of 2,300 mt. The OY is reduced by 40 mt for the amount estimated to be taken as recreational catch resulting in a commercial OY of 2,260 mt. The open access allocation (68 mt) is 3% of the commercial OY. The limited entry allocation (2,192 mt) is 97% of the commercial OY. The limited entry allocation is further reduced by 250 mt for anticipated bycatch in the offshore whiting fishery, and the remainder (1,942 mt) is reduced by 16% (311 mt) to account for trip limit induced discards, resulting in a landed catch equivalent for the limited entry fishery of 1,631 mt (excluding harvest in the whiting fishery).

l/ Canary rockfish is believed to be at 22% of its unfished biomass in the north (north of Cape Blanco) and 8% of its unfished biomass in the south (south of Cape Blanco). Canary rockfish was declared overfished in 2000. In 1999, two assessments addressed the northern and southern portions of the stock. Although each area was assessed separately, there is no definitive evidence of separate northern and southern stocks. The coastwide ABC (228 mt) is based on a F_{MSY} proxy of $F_{50\%}$. The coastwide OY (93 mt) is based on the rebuilding plan and is the sum of 73 mt for the northern area, plus 20 mt for the southern area. The OY is reduced by 44 mt for the estimated recreational catch and 5 mt for research surveys, resulting in a commercial OY of 44 mt. Tribal vessels land a small amount of canary rockfish, but do not have a specific allocation at this time. The open access allocation (5 mt) is 12.3% of the commercial OY. The limited entry allocation (39 mt) is 87.7% of the commercial OY. The limited entry allocation is further reduced by 3 mt for anticipated bycatch in the offshore whiting fishery, and the remainder (36 mt) is reduced by 16% (6 mt) to account for trip-limit-induced discards, resulting in a landed catch equivalent for the limited entry fishery of 30 mt (excluding harvest in the whiting fishery). However, the specific open access/limited entry allocation has been suspended during the rebuilding period as necessary to meet the overall rebuilding target while allowing harvest of healthy stocks.

m/ Chilipepper rockfish - the ABC (2,700 mt) for the Monterey-Conception area is based on the 1998 stock assessment with the application of $F_{50\%}$ F_{MSY} proxy. Because the biomass is believed to be above 40% of unfished, plus the default OY could be set equal to the ABC. However, the OY is set at 2,000 mt, near the recent average landed catch, to discourage effort on chilipepper which is known to have bycatch of bocaccio rockfish. The OY is reduced by 15 mt for the amount estimated to be taken in the recreational fishery, resulting in a commercial OY of 1,985 mt. Open access is allocated 44.3% (879 mt) of the commercial OY and limited entry is allocated 55.7% (1,106 mt) of the commercial OY. The assumed discard in the limited entry fishery is 16%, resulting in a landed catch value of 929 mt.

n/ Bocaccio rockfish is believed to be at 2% of its unfished biomass and was designated as overfished in 1999. The ABC of 122 mt is based on a $F_{50\%}$ F_{MSY} proxy. The OY (100 mt) is based on the rebuilding plan which is designed to rebuild the stock to MSY in 38 years. The OY is reduced by 48 mt for the amount estimated to be taken as recreational harvest, resulting in a 52 mt commercial OY. No discard amount is assumed within this OY.

o/ Splitnose rockfish (also called “rosefish”) - The 2001 ABC of 615 mt in the southern area (Monterey-Conception) is based on the F_{MSY} proxy of $F_{50\%}$. The 461 mt OY for the southern area reflects a 25% precautionary adjustment, because of the less rigorous assessment for this stock. In the north, splitnose is included in the minor rockfish OY. The assumed discard is 16% for a landed catch value of 387 mt.

p/ Yellowtail rockfish is believed to be at 63% of its unfished biomass. The ABC of 3,146 mt is based on a 2000

stock assessment for the Vancouver-Columbia-Eureka areas with the F_{MSY} Proxy of $F_{50\%}$. The OY (3,146 mt) was set equal to the ABC. To derive the commercial OY (3,086 mt) the OY is reduced by 60 mt, the amount estimated to be taken in the recreational fishery. The open access allocation (256 mt) is 8.3% of the commercial OY. The limited entry allocation (2,830 mt) is 91.7% of the commercial OY. The limited entry landed catch allocation (1,810 mt) is determined by subtracting 675 mt for anticipated bycatch in the whiting fishery then deducting 16% from the remainder.

q/ Thornyheads – The treaty tribes estimate that 3 mt to 4 mt of thornyheads will be taken in 2001 under a trip limit of 300 pounds per trip. This small amount is not subtracted from the thornyhead OYs at this time.

r/ Shortspine thornyhead was believed to be at 32% of its unfished biomass in 1999. The ABC (757 mt) in the north (Vancouver-Columbia-Eureka-Monterey) is based on a synthesis of two stock assessments conducted in 1998 with the application of a $F_{50\%}$ F_{MSY} proxy. The OY (689 mt) is based on applying the 40-10 harvest policy, because the biomass is in the precautionary zone. The commercial OY is reduced by 4.1 mt deducted for compensation fishing as compensation to vessels that conducted resource surveys. Open access is allocated 0.27% (2 mt) of the commercial OY and limited entry is allocated 55.7% (683 mt) of the commercial OY. A 20% rate of discard is applied to the limited entry allocation to obtain the landed catch value of 546 mt.

s/ Shortspine thornyhead - A separate ABC (120 mt) is established for the Conception area and is based on historical catch for the portion of the Conception area north of $34^{O}27'$ N latitude (Point Conception). To address uncertainty in the stock assessment due to limited information, the ABC was reduced by 50% to obtain the OY(62 mt). There is no ABC or OY for the southern Conception area.

t/ Longspine thornyhead is believed to be above 40% of its unfished biomass. The ABC (2,461 mt) in the north (Vancouver-Columbia-Eureka-Monterey) is based on the average of the 3-year individual ABCs at a $F_{50\%}$. The total catch OY (2,461 mt) is set equal to the ABC. The commercial OY (2,453 mt) is determined by deducting 8 mt for compensation to vessels that conducted resource surveys. To derive the landed catch equivalent of 2,043 mt, the limited entry allocation is reduced by 17% (410 mt) for estimated discards.

u/ Longspine thornyhead - A separate ABC (390 mt) is established for the Conception area and is based on historical catch for the portion of the Conception area north of $34^{O}27'$ N latitude (Point Conception). The ABC was reduced by 50% to obtain the OY (195 mt). This was done to address uncertainty in stock assessment due to limited information. There is no ABC or OY for the southern Conception area.

v/ Cowcod in the Conception area was assessed in 1999 and is believed to be less than 10% of its unfished biomass and was therefore declared as overfished in 2000. The ABC in the Conception area (5 mt) is based on the 1999 assessment, while the ABC for the Monterey (19 mt) is based on average landings from 1993-1997. An OY of 4.8 mt (2.4 mt in each area) was set to allow for rebuilding.

w/ Darkblotched rockfish was assessed in 2000 and is believed to be at 22% of its unfished biomass. The stock is considered to be overfished at this time. Historical catch assumptions from 1965-1978 affect the estimate of unfished biomass and a ABC range is presented at this time. The lower ABC (302 mt) is based on the assumption that 10% of the red rockfish catch during the 1960s and 1970s was darkblotched rockfish; the upper ABC (349 mt) assumes 0% was darkblotched. The OY (130 mt) is the constant annual catch that would rebuild the stock in 10 years, based on the assumption that 5% of the catch was darkblotched. Open access is allocated 2.3% (3 mt) of the commercial OY and limited entry is allocated 97.7% (127 mt) of the commercial OY (130 mt). Limited entry discard is assumed to be 16% of the allocation resulting in a limited entry landed catch value of 106 mt.

x/ Minor rockfish north includes the "remaining rockfish" and "other rockfish" categories in the Vancouver, Columbia, and Eureka areas combined. These species include "remaining rockfish", which generally includes species that have been assessed by less rigorous methods than stock assessment, and "other rockfish", which includes species that do not have quantifiable assessments. The ABC is the sum of the individual "remaining rockfish" ABCs plus the "other rockfish" ABCs. To obtain total catch OY (3,137 mt), the remaining rockfish ABCs were reduced by 25% and the other rockfish ABCs were reduced by 50%. This was a precautionary measure due to limited stock assessment information. The OY is reduced by 645 mt for the amount estimated to be taken in the recreational fishery, resulting in a commercial OY of 2,492 mt. Open access is allocated 9.6% (239 mt) of the commercial OY and limited entry is allocated 90.4% (2,253 mt) of the commercial OY. The discard is assumed to be 16% (353 mt), resulting in a landed catch value of 2139 mt.

y/ Minor rockfish south includes the "remaining rockfish" and "other rockfish" categories in the Monterey and Conception areas combined. These species include "remaining rockfish", which generally includes species that have been assessed by less rigorous methods than stock assessment, and "other rockfish", which includes species that do not have quantifiable assessments. The ABC (3,556 mt) is the sum of the individual "remaining rockfish" ABCs plus the "other rockfish" ABCs. To obtain total catch OY (2,040 mt), the remaining rockfish ABCs were reduced by 25% and the other rockfish ABCs were reduced by 50%. This was a precautionary measure due to limited stock assessment information. The OY is reduced by 950 mt for the amount estimated to be taken in the recreational fishery, resulting in a commercial OY of 1,090 mt. Open access is allocated 44.3% (483 mt) of the commercial OY and limited entry is allocated 55.7% of the commercial OY.

z/ Bank rockfish -- The ABC is 350 mt which is based on a 2000 assessment for the Monterey and Conception areas. This stock contributes 200 mt towards the minor rockfish OY in the south.

aa/ Black rockfish -- the ABC (1,115 mt), which is based on a 2000 assessment, is the sum of the assessment area (615 mt) plus the average catch in the unassessed (500 mt). This stock contributes 865 mt towards the minor rockfish OY in the north.

bb/ Blackgill rockfish is believed to be at 51% of its unfished biomass. The ABC for the Conception area (268 mt) was based on a F_{MSY} proxy of $F_{50\%}$, and 75 mt were added for the Monterey area. The ABC for the Monterey area is the OY it reduced by 25% for precautionary measures, because of lack of information. This stock contributes 306 mt towards the minor rockfish south OY.

cc/ "Other rockfish" includes rockfish species listed in 50 CFR 660.302 and California scorpionfish. The ABC is based on the 1996 review of commercial *Sebastes* landings and includes an estimate of recreational landings. These species have never been quantifiably assessed.

dd/ "Other fish" includes sharks, skates, rays, ratfish, morids, grenadiers, and other groundfish species noted above in footnote [b/].

FINAL HARVEST LEVELS FOR 2002

Situation: Each year, the Council recommends harvest specifications for the upcoming year. This year, the task remains a two-meeting process that began with the Council making preliminary recommendations at the September meeting and final recommendations at the November meeting. The fishery management plan (FMP) requires the Council to establish reference points for each major species or species complex: an acceptable biological catch (ABC), an optimum yield (OY), and overfishing threshold. In addition to the OYs, some species are allocated between the open access, limited entry, tribal, and recreational fisheries.

Developing Final Harvest Levels

Preliminary harvest levels (ABCs and total catch OYs) were adopted at the September Council meeting. A range of preliminary harvest levels was adopted for six stocks (darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish-north of Point Conception, shortspine thornyhead, and widow rockfish) with preferred alternatives adopted for five of these six stocks (all except shortspine thornyhead) (Exhibit C.3, Attachment 1). The Council task at this point is to decide the final harvest levels for next year. An analysis of alternative harvest levels relative to the alternative season structures adopted in September and alternative bycatch and discard assumptions is available in the Environmental Assessment/Regulatory Impact Review (EA/RIR) of Proposed 2002 Groundfish Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the Pacific Coast Groundfish Fishery (Exhibit C.4, Supplemental Attachment 1). After deciding the final harvest levels, the Council will need to decide any changes to the list of species and species complexes that are allocated between limited entry and open access fisheries. Management measures to achieve the harvest targets will be discussed during the Tuesday, Wednesday, and Thursday Council sessions with a final decision scheduled for the Friday Council session under agenda item C.4. Multiple sessions for deciding management measures were scheduled to allow the Groundfish Management Team (GMT) and Groundfish Advisory Subpanel (GAP) time to consider specific options and modified proposals from the Council before a final decision is rendered.

Limited entry and open access allocation shares are based on landings during the limited entry window period. In the northern area, the open access allocation is based primarily on groundfish harvest in the pink shrimp fishery. In the southern area, the open access allocation share reflects groundfish harvest by a variety of open access gears. The small recommended OYs in 2002 for yelloweye rockfish and other stocks declared overfished or estimated to be in the "precautionary zone" may require consideration for a reallocation between sectors and/or areas from the harvest sharing plan decided for 2001 fisheries.

Rationale for Bycatch and Discard Estimates

The methodological approach for estimating bycatch and discard was reviewed and discussed by the GMT and the Scientific and Statistical Committee (SSC) Groundfish Subcommittee at a joint meeting in Santa Cruz, California on September 25 (Ancillary A, GMT minutes, with additional detail in the EA/RIR). The SSC is expected to review this material and prepare a statement regarding the methodological approach for estimating bycatch and discard rates and the application of those rates in developing final harvest levels and management measures for 2002.

The National Marine Fisheries Service (NMFS) has prepared analyses of bycatch and discard rate estimation methodologies consistent with the conceptualized approach agreed to at the joint GMT/SSC Groundfish Subcommittee meeting in Santa Cruz. This NMFS analysis will consist of a range of alternative bycatch and discard rate estimates and can be found in the EA/RIR (Exhibit C.4, Supplemental Attachment 1). In order to establish landed catch targets for various stocks and for various fishing sectors, the Council applies bycatch rates of key overfished stocks (those that constrain fisheries and are segregated in the data sources used to estimate bycatch and discard rates) within target fishing strategies. Trip and cumulative landing limits are then determined in an iterative process based on allocation and other decisions relative to proposed management measures by applying bycatch rates and tracking anticipated discards (based on bycatch rates and landing limits) from the total catch OY. The NMFS analysis compares current bycatch and discard assumptions with alternatives and provides a rationale for considering alternatives. The EA/RIR provides a range of bycatch rate estimates for constraining stocks to develop trip limit tables and specifications assuming variable bycatch rates and season structures.

The Council task is to decide final ABCs, adopt the bycatch and discard rates applied to each fishing strategy, and final species allocations between 2002 commercial, recreational, and tribal fisheries. The Council is advised to review the EA/RIR before deciding these final specifications because final management measures are sensitive to harvest levels , applied rates of bycatch and discard, and allocation. Depending on which fishing strategy the Council adopts under agendum C.4, the bycatch and discard rates will be somewhat different. The Council may want to anticipate how these specifications (and uncertainty relative to bycatch and discard rate ranges) affect management measures and then weigh potential economic and conservation risks and benefits before deciding these specifications. The final task for this agenda item is to decide the final allocations between commercial (including limited entry and open access sectors), tribal, and recreational fisheries. Preliminary allocations were adopted at the September meeting, but the GMT has developed projections that may warrant reconsideration by the Council. For example, the Council adopted 11 mt coastwide as a preliminary total catch OY for yelloweye rockfish, with a preliminary allocation of 2 mt to commercial fisheries and 9 mt to recreational fisheries. Since then, the GMT has received tribal catch projections of 1.5 mt - 2 mt of yelloweye rockfish for 2002 tribal fisheries.

Council Task:

1. **Adopt final ABCs and total catch OYs for 2002.**
2. Adopt bycatch and discard rates.
3. Adopt final species allocations between commercial (including limited entry and open access sectors), tribal, and recreational fisheries.

Reference Materials:

1. Alternative Acceptable Biological Catch (ABC) and Total Catch Optimum Yield (OY) Recommendations for 2002 for the Washington, Oregon, and California Region (Exhibit C.3, Attachment 1).
2. 2001 Specifications of Acceptable Biological Catch (ABC), Optimum Yields (OYs) and Limited Entry and Open Access Allocations, by International North Pacific Fisheries Commission (INPFC) Areas (Exhibit C.3, Attachment 2).
3. Environmental Assessment/Regulatory Impact Review of Proposed 2002 Groundfish Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the Pacific Coast Groundfish Fishery (Exhibit C.4, Supplemental Attachment 1).

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP supports establishing an allowable level of catch that prevents overfishing while achieving OY based on best available science (Sec. II.A.2). The GFSP also supports establishing and maintaining a management process that is transparent, participatory, understandable, accessible, consistent, effective, and adaptable (Sec. II.C). The Council process of adopting harvest levels and other specifications is consistent with these GFSP principles.

Since the Groundfish Fishery Management Plan (FMP) went into effect in 1982, the Council has taken a number of steps designed to improve the manner in which annual specifications account for discard mortality, and to reduce discard mortality through changes in the fishery's management and regulatory environment. The following summarizes the major changes that have transpired in both of these areas since the FMP's inception.

Actions intended to reduce discard mortality

One of the original objectives of the FMP was to "provide a favorable climate for existing domestic commercial and recreational groundfish fisheries within the limitations of other objectives and guidelines. When change is necessary, institute the regulation which accomplishes the change while minimizing disruption of current domestic fishing practices, marketing procedures and environment" (PFMC, 1982). "Minimizing disruption of current domestic fishing practices" has remained a management objective through various iterations of the FMP, and it has been combined with current objectives to "promote year round availability of quality seafood to the consumer" and "promote year round marketing opportunities and establish management policies that extend those sectors (for which year round marketing is beneficial) fishing and marketing opportunities as long as practicable during the fishing year" (PFMC, 1982; PFMC, 1990). Taken together, these objectives have resulted in the Council's enduring policy of year-round trip limit management for most groundfish fisheries.

Active groundfish management began in 1983, when the Council introduced the first numerical OYs for several managed species, along with trip limits for widow rockfish, the *Sebastes* complex, and sablefish. The first landing limits the Council used were "per trip" limits, which were intended to slow landings somewhat so that the fleet would not achieve species' annual harvest guidelines early in the year. Almost all domestic discards in the early years of groundfish management were market-induced, where fishers discarded unmarketable species or unmarketable sizes of targeted species. Domestic fisheries management did not account for these discards; targets for landed catch were set equal to ABC.

Over time, the Council introduced trip limits for a greater number of species taken in the domestic fisheries. Effort increased in the domestic fishery, and trip limits became more restrictive to control harvest rates. The Council realized that managing a variety of species under trip limits could lead to increased discarding of some species. Bycatch and discards can result from a regime of multiple trip limits because a fisher might target an assemblage of species, and then find that in order to catch the full limit of one species, he has to exceed the limit on another species, discarding the excess. To address this issue, the Council shifted away from per trip limits, converting most to monthly cumulative limits by the 1994 season. Cumulative limits were preferable to per trip limits because a fisher could accumulate species at different rates over different trips, without having to discard fish each trip because of exceeding per trip limits. In an effort to further reduce the likelihood that fishermen would have to discard overages of particular species within a multi-species fishery, the Council began extending the cumulative limit period length to two months for most major species throughout most of the 1997 season.

In addition to these efforts to reduce discards through modification of the trip limit regime, the Council used several regulatory measures to reduce incidental catch of juvenile fish that would be discarded as unmarketable. In the early 1990s, the Council experimented with different combinations of gear regulations, at first requiring larger trawl mesh sizes in net codends, and then moving to requirements for larger mesh sizes throughout trawl nets. By 1995, bottom trawl nets were required to have a minimum of 4.5 inch mesh, double-walled (lined) codends were prohibited, and the use of chafing gear was restricted (60 FR 13377, March 13, 1995, codified at 50 CFR 660.322.) All of these measures were intended to give smaller-size fish the opportunity to escape from the trawl net, reducing the likelihood that those fish would be caught and then discarded.

Additional gear restrictions were also introduced during the 2000 fishery. Previously, fishers had been allowed to use footropes equipped with large rollers--often truck tires--to target shelf rockfish species (see 2000 management description, below) residing in high-relief habitat. Beginning in 2000, trawl landings of shelf rockfish were prohibited if large footrope trawls (gear with footropes or rollers greater than 8 inches in diameter) were onboard the vessel; small amounts of shelf rockfish bycatch were allowed to be landed if footropes less than 8 inches in diameter were onboard; and, higher limits were provided for targeting

healthy shelf rockfish stocks when only midwater nets were onboard. Although the effect of these gear requirements on bycatch of depleted rockfish species has yet to be validated through observation, a review of tow locations from 1999 and 2000 trawl logbooks does suggest that many areas where canary rockfish were previously caught are no longer being trawled.

In addition to changes in trip limit duration and gear usage, management measures have incorporated a variety of other strategies to reduce bycatch in the groundfish fishery. For trawl vessels, cumulative landings limits for the "DTS complex" have been constrained by management-imposed ratios between two or more species in the complex, which are Dover sole, thornyheads (shortspine and longspine), and sablefish. These ratios reflect the species mix in the fishery catch data. In circumstances where an imbalance has been observed between species OY ratios and species catch ratios, basing trip limits on catch ratios reduces the likelihood of discard occurring for a species whose proportion of assemblage catch is greater than its proportion of the assemblage OY. In the DTS complex, these constraints have resulted in substantial amounts of OYs for more abundant species going unharvested, in order to reduce the chances of over-harvesting shortspine thornyhead. As examples, during 1999 and 2000, less than 46% of the available longspine thornyhead OY was harvested in either year, and only 84% and 77% of the trawl sablefish allocations were taken in the two years, respectively.

For the 2000 fishery, the Council also revised its historical practice of managing the "minor" *Sebastes* complex species through two broad northern and southern units. Since rockfish generally cannot be released alive, regardless of the method of catch, the Council's challenge has been to eliminate targeting of depleted species and to reduce the likelihood of their incidental catch, while still allowing small amounts of these species to be retained when they are incidentally caught in other target fisheries. In previous years, rockfish species without assessments and those with less rigorous assessments were managed under generic *Sebastes* complex landings limits for the northern and southern areas. In 2000, each of these geographic areas was divided into three sub-groups of rockfish -- Nearshore, Shelf, and Slope--for the Northern (U.S. Vancouver, Columbia and Eureka subareas combined) and Southern (Monterey and Conception subareas combined) areas. Rockfish occupy a wide variety of habitats along the west coast, from shallow kelp forests and nearshore reefs to depths beyond the continental shelf that reach 600 fathoms or more. They also exhibit varying degrees of mobility, with regard to geographic location and position in the water column. The assignment of species to one of these categories was based on the depth strata in which they are most commonly found--shallow nearshore areas, moderate depths along the continental shelf, or the greater depths descending to the deep-sea floor--and also upon the tendency of species to be caught with other species in a group. Most of the species currently designated as overfished are found primarily in rocky habitat along the continental shelf.

Cumulative limits for minor shelf rockfish were set at minimal levels for all gear groups, in order to reduce incidental catch of canary and bocaccio rockfish and lingcod. During 2000, these restrictions resulted in less than 10% of the commercial OYs for minor shelf rockfish being landed in both the southern and northern areas. The fishery is projected to utilize a similar percentage in 2001, and an even lower percentage in 2002, in order to protect yelloweye rockfish. In 2001, similar limit reductions were implemented for the northern slope sub-group in order to protect darkblotched rockfish. Commercial landings of the northern slope species are expected to comprise less than one-third of their 2001 OY. Similarly, constraining ratios were used in 1999 in establishing cumulative limits for the healthy chilipepper rockfish stock, in an effort to protect bocaccio. As a result, less than 800 mt of the 3,700 mt chilipepper commercial OY was landed. Beginning in 2000, the Council also reduced the chilipepper OY from 3,700 mt to 2,000 mt, however the restrictive limits approved by the Council allowed landings of just 400 mt.

Logbook data have been used by the Council's Groundfish Management Team (GMT) in estimating coincident catch rates of depleted rockfish species that may occur during the prosecution of small-footrope fisheries for species such as flatfish. However, interpretation of these data is complicated by several factors: 1) the absence of recorded discards; 2) changes in gear used by the fleet; 3) unreliable recording of the gear type used prior to 2000; and 4) substantial changes in retention limits, and thus targeting opportunities, for many species. Although considerable inference and filtering of these data, and input from fishers, is required to develop coincident catch rates that reflect the current fishery, these rates are grounded in the best available information regarding fishing practices. The data have been

used to develop trip limit recommendations for target species, through assessment of the expected, associated catches of depleted species, and comparison of those amounts with limit opportunities for the depleted species. As a result, shelf flatfish fisheries which previously had no management limits now have overall flatfish limits, in conjunction with lower sub-limits on species which have exhibited higher historic coincident catch of depleted rockfish species. These types of analyses, as well as the knowledge of fishers, have also been used to craft seasonal variations in limit opportunities, in an effort to harvest healthy stocks when they can be most cleanly targeted. An example of this would be the structure of Dover sole limits. Dover sole reside primarily in deeper slope areas throughout the winter and are distributed through the continental shelf during the summer. This migrational pattern factors into the scheduling of larger trip limits for Dover sole at the beginning of the year rather than during the summer, in order to reduce impacts on depleted shelf rockfish.

Actions taken to better account for discard mortality

Prior to the 2001 fishing season, the domestic commercial groundfish fishery off the west coast has not been subject to routine at-sea monitoring by scientific observers. However, two studies, which included fishing vessels carrying observers on a voluntary basis, have provided information on catch rates and discards under the prevailing trip limits. The first study included observations during the 1985-87 seasons (Pikitch, et al., 1988). Observations for the second study (Enhanced Data Collection Project, EDCP) occurred about 10 years later, beginning in late 1995 and continuing through 1998.

The Pikitch study observed the following five major fishing strategies: 1) bottom rockfish trawling (BRF), using roller gear; 2) midwater trawling (MID); 3) deepwater Dover sole trawling (DWD), using a mix of gears, generally outside of 100 fathoms; 4) nearshore-mixed trawling (NSM), using mud (small footrope) gear primarily to target flatfish, and 5) shrimp trawling (SHP), for pink shrimp. The survey sampled 1,470 tows during 139 trips, over a range of tow locations from roughly Cape Blanco, in Oregon, to the Canadian border.

In the text of the Pikitch report, widow rockfish is the only rockfish species for which discard rates are discussed. Ratios of estimated total catch-to-landings are reported for 1985,1986, and 1987 as being 1.19, 1.13, and 1.15, respectively, representing an average of 1.157 across these three years. Since 1991, this 16% rate has been employed by the Council as an estimate for discarded widow rockfish, as well as an increasing number of other *Sebastes* (rockfish) species. Over time, as the number of rockfish species with assessments has increased, the Council has removed additional species from the generic *Sebastes* complex and assigned individual OYs incorporating this discard rate. For example, the Council first specified an OY for canary rockfish individually in 1994, and management has incorporated an assumed discard rate at or near 16% since. For bocaccio, the 16% rate was used in 1993 and 1994, but discontinued from 1995-99, based on GMT analysis that vessel landings had been consistently less than the trip limit amounts. Beginning in 2000, the 16% discard assumption was re-instituted in conjunction with imposition of lower trip limits needed to rebuild bocaccio.

In recent years, excess fleet capacity and declining trends for many groundfish stocks have forced the Council to lower cumulative limits substantially, in order to preserve year-round supplies of groundfish to harvesters and processors while constraining catches to allowable levels. This pattern of trip limit reductions has led some to question the current appropriateness of the 16% discard estimate, which was derived from a period in which limits were far higher. One finding reported by Pikitch, that the estimated discard rate for widow rockfish rose from 5.7% to 52.3% when limits were reduced from 30,000 lb per week to 3,000 lb per week, has been cited to support this concern.

In 2001, the GMT re-evaluated the basis for this finding and its relevance to the current fishery. Several key issues were considered including gear usage on observed trips vs. that in the current fishery, alternative shelf target opportunities available during low-limit periods, and changes in relative biomass of species over time.

The predominant gear for on-bottom targeting of widow and most other rockfish in 1985-87 would have been some form of roller gear, which allows greater access to rocky habitat than the small footrope gear now required for landing any shelf rockfish. Within the Pikitch study, the nearshore-mixed strategy, targeting primarily flatfish with smaller footrope gear, represents the best analogy to the current shelf fishery. Data from the Pikitch study were obtained, and tows where "mud gear" was used in a "nearshore-mixed" strategy were examined separately, with regard to coincident catch rates of shelf *Sebastes* species in general and widow and canary rockfish in particular.

Table 1a displays raw catch and discard amounts for lingcod, canary and darkblotched rockfish, and Pacific ocean perch, organized using target fishery criteria described in the next section (and shown in Table 2). The percentage of the catch of each species that was discarded is also calculated within each fishery. This summary reveals that the vast majority of lingcod, canary, and POP discard occurred in bottom trawl target fisheries for yellowtail, canary, and widow rockfish. Since 2000, bottom-trawl targets for these species have been all but eliminated through gear and trip-limit restrictions.

The second issue is the magnitude of alternative rockfish fishing opportunities that were available during the portions of these years in which the 3,000 lb per-trip limits were in place for widow rockfish. Limits for widow rockfish were lowered during September-December in 1985 and during October-December in 1986-87. During these periods, however, limits for other rockfish species remained, in general, very similar to their levels earlier in each year. Limits for the *Sebastes* complex were as high as 40,000 lb per trip in the southern management area, and 30,000 lb once per week in the northern area. Additionally, there were no landing limits on lingcod during these years. Therefore, it is likely that significant fishing effort utilizing roller gear continued to be directed towards species in rocky habitat during these periods of reduced widow limits. With continuing opportunity to target all other rockfish species, it is not surprising that discard rates for widow increased dramatically during these periods.

In contrast, during the 2000 fishery, the small footrope limits for minor shelf rockfish did not exceed 1,000 lb per month throughout the year. Other shelf limits included widow rockfish (1,000 lb per month), yellowtail rockfish in the north (1,500 lb per month), POP (500-2,500 lb per month), bocaccio (300-500 lb per month), canary rockfish (100-300 lb per month), chilipepper rockfish (3,750 lb per month), and lingcod (0-400 lb per month). Thus, not only was much of the gear used during the Pikitch study more suitable for on-bottom targeting of most rockfish than that with which shelf rockfish can be landed today, but also the opportunities that existed for targeting other rockfish species when widow limits were low are not comparable to the present trip limit regime. When the limit for a single component species of an assemblage is lowered, relative to the remainder of the assemblage, it is reasonable to conclude that discard of the single species will tend to increase. However, when all limits within the assemblage are reduced in concert, it is considerably more difficult to infer that, for any of the species individually, the mere presence of a lower limit will result in a higher discard rate.

A third consideration involves changes in relative biomasses since the Pikitch study. Flatfish now represent the bulk of on-bottom trawling effort on the shelf. And flatfish abundance is currently believed to have been relatively stable, and perhaps even increased, since the mid-1980s. On the other hand, recent assessments suggest that the current exploitable biomass of canary rockfish is less than one-third of what it was during the mid-1980s. Other rockfish species currently viewed as "overfished" have experienced similar, if not greater, declines over this period. In addition to changes in gear restrictions and targeting opportunities, changes in relative abundance suggest that rockfish encounter rates in other target, small-footrope fisheries on the shelf should be lower now than during the Pikitch study period.

The later EDCP study was also focused on the fishery off Oregon, with some observations off northern California and Washington. Data from this study were analyzed during 1999 and 2000, and a preliminary report of findings presented to the Council in September of 2000 (Methot, et al.). Because the major focus of vessels participating in the voluntary study was DTS species, the first analytical efforts focused on these four species. The analysis went beyond a simple calculation of discard rates on observed trips to the development of models that projected discard amounts for all trawl trips in which DTS species were landed, based upon DTS volume and the amount of individual limits that remained at the time of each trip. The projected fleet discards were then combined with documented landings to estimate overall trawl discard rates for the four species. The Council promptly incorporated these new assumed discard rates in its recommendations for landed-catch OYs for the 2001 season.

Table 1b displays raw catch and discard amounts for lingcod, canary and slope rockfish and Pacific ocean perch, and is also organized using target fishery criteria shown in Table 2. As with the Pikitch data, substantial amounts of canary and POP discard are associated with bottom trawl rockfish target fisheries that do not exist to any significant degree under current management. It may also be noted that two-thirds of the observed lingcod catch during this study is assigned to a lingcod target strategy using the criteria in Table 2. And this strategy is no longer supported by the bycatch limits that are currently in place.

In addition to utilizing results from these major studies in setting landed-catch targets for the fishery, the Council has also incorporated findings from analyses conducted by the GMT and other scientists into this process. In 1997, independent projects examined potential discards in the fisheries for shortspine thornyheads and lingcod. The shortspine analysis was motivated by concerns over size-related discards and was based on comparison of length distributions in the survey and fishery landings. The lingcod

analysis arose from concerns over management-induced discard that might be associated with drastic limit reductions anticipated for lingcod rebuilding. This analysis used logbook data to identify the extent to which lingcod had been targeted, and landings data to assess the degree to which previous cumulative limits had been attained [Rickey, WDFW, 1997]. As a result of these efforts, the Council adjusted its discard mortality assumptions for shortspine from 8% in 1997 to 30% in 1998, and from 0% to 25% for lingcod. The 2001 OYs for landed catch assume 20% discard mortality rates for both species, based on the EDCP results, in the case of shortspine, and subsequent analysis by the GMT, in the case of lingcod.

A comprehensive, ongoing program of observer monitoring was implemented by NMFS for the West Coast groundfish fishery in August 2001. Although this new program will not observe all fishing trips, it is expected to provide estimates of discards under current management and fishing practices that are more reliable than existing assumptions. However, it will take time to compile a sufficient sample of observations and also to develop sound methods for expanding observed amounts of discard to the entire fleet. In an effort to allow continuance of a summer target fishery for arrowtooth flounder, the Council supported, in June of 2001, a request by the State of Washington to conduct an experimental fishery during the months of August and September. Vessels participating in the program must carry observers on all trips during this period and, in return, fishers gain the opportunity to land higher amounts of arrowtooth flounder, provided they can remain within their canary rockfish allowance. For 2002, the Council has also supported a request by the State of California to conduct an experimental fishery to measure the rate of bocaccio bycatch in the small footrope trawl chilipepper fishery. Data from these experiments as well as the NMFS observer program should provide an improved basis for evaluating the appropriateness of current management assumptions regarding discard and bycatch rates. If successful, these experimental programs may also lay a foundation for designing other such programs that would allow healthy species to be targeted while providing a full accounting of the discard other species.

Evaluation of bycatch and discards for setting annual specifications for 2002

This section provides an overview of the methodology used to evaluate bycatch and discards and a summary of findings. The need for review of these issues as part of the 2002 annual specification process has allowed a very short time frame for conducting the analysis. The scope of this investigation has also been constrained by the availability of data. The trawl fleet is the only sector of the groundfish fishery included in the two previous studies (Pikitch and EDCP)of bycatch that included at-sea observation, and those observations are limited to the area north of Cape Mendocino. It is also the only sector for which comprehensive logbook data are available. As a consequence, bycatch and discard in other sectors cannot be quantitatively assessed at this time. Furthermore, the use of an approach along the lines of that developed by Methot, et al. for estimating total species discards was not feasible within the available time. Therefore, the analysis focused on estimating the catch of overfished species that were encountered as bycatch in target fisheries for other species, and on evaluating the degree to which those catches would exceed the available landing limits for the overfished species. Thus, what is being estimated is the regulatory-induced discard of these species. Also, some overfished species, such as darkblotched, yelloweye, and cowcod rockfish, were not previously identified in fishtickets or logbooks, nor by EDCP observers. As a result, the analysis focused on lingcod, canary and bocaccio rockfish, and Pacific ocean perch. Darkblotched rockfish is included in the analysis by assuming that it comprises a constant 50% of all slope rockfish caught north of Cape Mendocino.

Although the NMFS Trawl Surveys can provide useful insights regarding trends in the relative co-occurrence of species, these survey data were not drawn upon in constructing analytical bycatch ranges within this analysis, for a number of reasons. One key reason is the difference between the random design for selecting survey tow locations and the siting decisions of fishers, faced with a matrix of regulatory/market limits and differential prices among species. If the survey were to provide a reasonable approximation of species mix in the fishery, it would suggest that commercial fishing is an activity where the choices fishers make have little impact on their success or species mix. If fishers were truly unable to affect their likelihood of success, then we would expect to see totally random patterns of success and species mix across vessels. Instead, we see many vessels that are able to specialize in certain species, and we see some vessels/operators that consistently out-perform or under-perform other members of the fleet. Examination of survey data and EDCP observations from 1998 also suggest that the survey is not a

particularly good indicator of species mix in the commercial fishery. Other important operational differences between the conduct of survey and the fishery include: net design and volume, trawl door deployment, and use of codend liners, which all affect species selectivity and retention; footrope diameter; tow duration and speed, and the horsepower of the vessel; and the seasonal and day-night distribution of trawl effort. After reviewing these considerations at the September 2001 Council meeting, the SSC recommended that survey data not be used for determining commercial fishery bycatch rates.

This exercise represents an expedited reappraisal of bycatch and discards in the groundfish trawl fishery. It is widely agreed that an ongoing program of scientific observation and data collection from the full range of fisheries that encounter groundfish is necessary to conduct a reliable analysis of bycatch and discards, given the fundamental ongoing changes in gear and trip limits in these fisheries. With the initiation of the NMFS observer program in 2001, it is hoped that sufficient data to conduct a more thorough and rigorous analysis will become available within the next 1-2 years. Until then, the approach reported below serves not only as an indicator of management performance, but also as a building block in the development of a more comprehensive analytical framework, which will be developed by members of NMFS and the extended Council family over the coming months.

Methodology

A schematic overview of the process used to evaluate bycatch and discards is provided in Figure 1. The process includes several major components: projection of target species amounts for vessels in 2002; identification of average bycatch rates for overfished species, by area, target fishery and time of year; estimation of vessel bycatch, and amounts in excess of trip limits; and summation of estimated bycatch and discard (amounts over trip limits) for the entire fleet. The use of average bycatch rates, in this manner is most appropriate for estimating discard in circumstances where bycatch rates for individual tows are constant, or distributed in a very narrow range around the mean. However, bycatch of some species is more likely to be characterized by many tows with little or no bycatch, and a few tows that are several times the mean value. In such cases, analysis based on use of mean bycatch rates may underestimate discard, because it is unable to capture the amounts in excess of trip limits that occasional large catches would be more likely to produce. In an effort to assess the extent of this possible bias, an additional comparison was made between results from the use of mean rates and the amount of discard estimated from a monte carlo simulation, utilizing bycatch-per-tow observations from the EDCP study. Finally, discard estimates using the mean-rate approach were calculated, retrospectively, using the actual trawl landings data from each of the years: 1999, 2000, and 2001.

Evaluation of management measures proposed for 2002 is based upon projected vessel participation and landings of target species during each 2-month period of the year. These projections were created using actual landings from the 1999-2001 seasons, with greater weight assigned to more recent data, in periods where they were available. The raw projected landings of target species were then constrained by the preliminary trip limits adopted by the Council in September. The resulting total fleet landings of target species were then compared to the landed catch targets available to the trawl fleet. The initial vectors of trip limits were then adjusted, and the process repeated until landings were aligned with targets.

The 1999-2001 fishticket data used to project target poundage were also employed to estimate the distribution of target species, for each vessel, among target fisheries in each period. These distributions were then used as the basis for apportioning projected 2002 landings among target fisheries. This was an important step because the bycatch rates of overfished species in tows where any individual target species is present vary greatly, depending upon the assemblage of species with which the target species is caught. Furthermore, since multiple target species are routinely caught in the same tow, estimation of total bycatch by applying a bycatch rate to the total pounds of each individual target species would overestimate total bycatch.

The target fishery categories and criteria were refined, drawing upon previous analysis of logbook data. Table 2 shows the target categories used in the analysis, along with the target species and criteria used in making the assignments. Fishticket, and not logbook data, were used in distributing species to target fisheries in this exercise because of data availability and time considerations. Logbook data were not available for the 2000 fishery when the analysis began. To the extent that vessels participated in multiple

target strategies on a single trip, this approach will tend to distort the true distribution of species catch among target fisheries. A comparison of tonnage assigned to target categories using fishticket and logbook tow data from 1999 is provided in Table 3.

Data from the EDCP and Pikitch studies, as well as the 1999 logbook data, were evaluated in compiling ranges of bycatch rates for inclusion in the analysis. Since neither of the former sources contained observations from south of Cape Mendocino, they were of use in evaluating rates only in the northern management area. To the extent possible, the same target criteria were used to assign target fishery designations to tows in all three data sets. Within each target fishery and 2-month period, bycatch rates were calculated by dividing the poundage of overfished species by the poundage of all target species in the stratum. A summary of those rates for the northern area is provided in Table 4a. Bycatch rates for target fisheries in the southern area were available only from logbooks and are shown in Table 4b. Please note that only the Pikitch study provides identification of darkblotched rockfish. The other rates in that column represent bycatch of slope rockfish, and darkblotched is assumed here to represent roughly 50% of those fish based on species composition sampling of trawl landings in recent fisheries.

None of these data sources provides a definitive view of bycatch in the current fishery. All three predate the implementation of the small footrope requirement for shelf species. The logbook data contain far more observations from throughout the geographic range of all target fisheries, but they do not include estimates of discards, and could therefore yield underestimates of total bycatch. To reduce this source of bias, only tows where the limit of a bycatch species was not already achieved were included in the analysis. It should be noted that with lower limits for several overfished species in 2000 and beyond, the usefulness of logbook data for determining bycatch rates will be compromised further. The two data sets that included at-sea observation of discards are better suited for estimating total bycatch, but have fewer observations, have more limited geographic ranges, and were compiled at times when limits were much higher for the species that are now considered overfished. This is also true, to a somewhat lesser extent, with the logbook data. As a result, at the times the data were collected, there were incentives for vessels to target these species that are absent in the current fishery. None of these sources is able to provide insight into the degree to which fishers can lower their bycatch of selected species when it is in their interest to do so.

Due to the lack of a clear "best source" for bycatch rates, the analysis examined a range of rates based on all available data. In the northern area, this range reflects the dispersion of values from the three sources, but taking into account the number of observations contributing to a rate and trends in the rates from the three time periods. Due to the lack of alternative sources in the southern area, rates 50% larger and smaller than the average were used as the endpoints of the ranges. The bycatch rate ranges used for the northern area are shown in Table 5a and in Table 5b for the southern area. It is important to note that, particularly in the northern area, the ranges examined may not encompass current bycatch rates. If the effect of gear restriction and avoidance strategies by fishers have reduced bycatch encounters since the 1999 fishery, the true bycatch rates would fall below the range examined.

Applying these ranges to the projected vessel target poundages yielded amounts of estimated bycatch for each vessel, in each period and target fishery. These were summed across fisheries, resulting in a total vessel bycatch in each period. These amounts were then compared, for each vessel, to the proposed bycatch limits, with "discard" calculated as the amount above the limit. Amounts of total and discarded bycatch were then summed across the fleet. Where the total catch of individual overfished species appeared likely to exceed their targets, target species' limits were lowered or restructured to include greater seasonality in target opportunities. These new catch projections were then redistributed to target fisheries and bycatch re-assessed.

A range of trip limits and approaches, based on the Councils preferred OYs, was developed. Differences between alternatives primarily involve limits for flatfish and DTS species. The complete set of baseline limits are presented in Table 6a, while the DTS and flatfish differences between it and the other approaches are highlighted in Table 6b. Target tonnages associated with each alternative are presented in Tables 7a-7d, with the ranges of estimated bycatch and discard presented in Tables 8a-8d. Alternative 1, in Table 7a/8a, reflects no seasonal or area variation in target limits throughout the year and represents the baseline limits that would achieve the target species OYs (Council preferred, where there is a range),

without additional reduction due to bycatch concerns. In Alternative 2 (Table 7b/8b), minimal seasonal variation in flatfish limits is introduced, along with reductions in DTS and flatfish limits. The final two tables in this group incorporate progressively more segmentation of the DTS and flatfish opportunities, and also introduce regional differences in flatfish limits. When evaluating these results, It is important to remain aware of the total amounts of expected bycatch in addition to the estimated discard rates. It should also be noted that for lingcod, the discard rate is not assumed to equal the discard mortality rate. The current discard mortality assumption of 20%, is based on an assumed 40% discard rate and a mortality rate of 50% for those that are discarded.

These tables illustrate that a substantial proportion of the expected lingcod discard for the year occurs during the months in which retention of any lingcod bycatch is currently prohibited. Table 8e compares the discard implications of this closure, across all four alternatives, with allowing the 400 lb/month bycatch limit to be extended into the currently closed months. The percentage of annual lingcod bycatch that would have to be discarded, is reduced by 50-60% at the high end of the bycatch rate range and by even more at lower rates of assumed bycatch.

Within the northern management area, the target projections for the last two trip-limit scenarios were subjected to further simulation analysis, using four procedural variations for estimating bycatch and discard. For each projected vessel target poundage, the number of tows needed to catch the poundage was determined by randomly sampling target catches-per-tow from logbook data until the sum of those poundages was greater than or equal to the projected amount. This process was repeated 500 times, generating a distribution for the number of tows by each vessel in each target fishery and period. Catch-per-tow amounts were drawn from the same 2-month period and target fishery as the projected catch, unless the total number of tows within that stratum was less than 20; in which case, samples were drawn from all tows in that target fishery during the entire year.

Following the creation of the tow distributions, four variations in bycatch estimation were used. In one pair, bycatch amounts for lingcod, canary rockfish and POP were sampled from EDCP tows assigned to the target fishery. In the first phase, each of the 500 realizations had been assigned a specific number of tows. The same target fishery in the EDCP data was then sampled that number of times, for each of the three bycatch species, and the total bycatch of each was summed for that realization. In one variation, these samples were drawn from the same period if sufficient data were present, otherwise they were drawn from the annual pool for the target fishery. In the other variation, all samples were drawn from the annual pools of each target fishery. In the second pair of methods, the mean bycatch per tow, from the same EDCP target fishery, was applied to each tow within each realization. This pair also had the same variations reflecting period-specific bycatch amounts-per-tow or drawing from the annual bycatch per tow within a target fishery.

Summary bycatch and discard results from these simulations are presented in Table 9. In that they apply mean bycatch rates per tow from the same period as the target catch, Models 2 and 7 most closely resemble the approach used in the main part of the analysis. By comparing the discard conclusions of Model 2 with those of Model 4 (or Model 7 with Model 9), insight can be drawn regarding the degree to which application of a mean rate can mask the discard that is generated as a result of occasional large bycatch tows. For all three species, discard as a percentage of total bycatch is considerably higher when bycatch is modeled as a random tow occurrence (Models 4 and 9) than when mean bycatch rates are applied to each tow (Models 2 and 7).

Model 5 reflects the use of an alternative criteria for determining the number of tows in the first phase of the simulation. In all of the other models, tows are accumulated until the projected target poundage has been met or exceeded. In some instances, this resulted in realized poundage well above the projected amount. In Model 5, tows are accumulated through the last tow before projected poundage is achieved, except in instances where the first tow exceeded the target. A minimum of one tow is retained for all vessels with any projected target poundage in a period. All other methods used in Model 5 are the same as in Model 4. Comparing results from these two models reveals that although bycatch amounts are roughly 10% lower in Model 5, the discard percentages remain very similar. Figure 2 provides a comparison of the distributions of expected fleet discard poundage between Models 4 and 5.

Several cautions are recommended in interpreting these results. First, the underlying distribution of bycatch amounts (per tow) is drawn from only one of the available data sets (EDCP) used in the first part of the analysis. These data do not reflect the full range of mean strata bycatch rates examined above. Further, this data set has relatively small numbers of observed tows, and very few in some assigned target fisheries. As a result, it is not the ideal data from which to draw large numbers of replicate samples for simulation purposes. Finally, the simulation attempts to integrate several complex processes in a manageable framework, given the available time. It is unrealistic to expect that the structure of the simulation model, or the target projections that feed into it, provide the best possible representation fleet and bycatch dynamics.

The final three sets of tables summarize the application of the mean-rate approach to actual landings data from 1999-2001. Tables 10a-10c show the distribution of target species among the assigned target fisheries for each year. In Table 11a, the actual catches of lingcod, canary, POP, and bocaccio are distributed among target fisheries using the previously described criteria. The percentage distribution of each bycatch species among the assigned targets is shown in Table 11b. Tables 12a-12c report the results of applying the bycatch rate ranges to the target poundage in each of the target categories. The ranges for current target fisheries used previously were augmented by addition of the mean logbook bycatch rates for bottom trawl rockfish and lingcod targets not used in the 2002 projections. As with the projection analysis, the estimated bycatches in each year are also evaluated at the vessel/period level to ascertain poundage in excess of trip limits. At the bottom of each table, the estimated bycatch amounts, and implied retained landings, are compared to actual landings. For each discard rate, the difference between estimated catch and actual landings is also expressed as a percentage of estimated catch and would represent a measure of discard **if** the bycatch rates represented by that column had been realized in each target fishery.

Findings

The results of the mean bycatch rate analysis presented in Tables 8a-8d do not suggest that regulatory induced discards are likely to exceed the currently assumed percentages, provided that all fish that can be landed are. However, the total amounts of these species, particularly canary and darkblotched, could exceed the available targets at the higher end of the modeled bycatch ranges. Where the true bycatch rates lie, relative to the ranges modeled, remains an open question. The reduction in target opportunities and imposition of gear restrictions argue for rates within or even below the low end of the range. Conversely, the absence of observed corroboration of the effects of these changes on overall bycatch rates and the frequency of occasional large bycatch tows may suggest a more conservative interpretation. Comparison of the estimated bycatch and discard amounts in 2000 and 2001 fisheries (Tables 12b and 12c) is not inconsistent with a hypothesis that bycatch rates are towards the low end of the ranges.

The difficulty of the current management circumstance can be illustrated clearly by the range of canary bycatch projections in Table 8a. Given the existing number of trawl vessels, 58 mt of canary would be caught using these target limits and the middle bycatch rate, however, only 5 mt (9%) of that would need to be discarded as a result of trip limits that range from just 100-300 pounds per month throughout the year. When actual landings are lower than the estimated catches, given the range of rates (as they are in 2000 and 2001), the following three possible explanations merit consideration: 1) the landed amounts reflect lower true bycatch rates; 2) vessels are discarding fish before they encounter limits; or 3) the mean analysis is masking discarding that is really taking place as a result of infrequent large amounts of bycatch.

With regard to this last possibility, inference can be drawn from the simulated results as to whether there is a sufficient difference between the discard rates using mean and random-tow approaches to account for the difference between estimated bycatch and fishticket landings in recent fisheries. Consider the results from the application of the mean approach to the partial 2001 fishery data shown in Table 12c. The estimated bycatch amounts of lingcod, canary, and POP, using the high end of the bycatch range, are 120 mt, 57.1 mt and 255.3 mt, respectively. However, landings for these species were 33.2 mt, 17.5 mt, and 116.3 mt, respectively. If the entire difference between these amounts were really discarded, the associated discard rates would have been 72% for lingcod, 69% for canary, and 54% for POP. These

percentages are dramatically higher than the discard rates generated by the random-tow analysis using the EDCP observed bycatch rates, which were 48% for lingcod, 27% for canary, and 7% for POP in Model 9. Hence, the distributional nature of bycatch encounters does not appear to provide a reasonable explanation for the difference between the high-end of estimated bycatch range and actual landings during 2000 and 2001.

The results of the simulation analysis do not imply that more bycatch will occur than is projected using the mean analysis. They address the manner in which a given amount of bycatch is likely to be distributed among participants in the various segments of the groundfish fishery, and the effects of that distribution on limit-induced discard. Reflecting only bycatch amounts from a limited number of observations in one study (EDCP), which was conducted during a period with different fishery restrictions and economic incentives, the simulation does not tell us how discard would change if the observations were distributed in a similar manner, but around a much lower mean value. However, the results, as noted above, provide the basis for evaluating some hypotheses regarding the relevant range, and they also serve to raise our awareness that the mean analysis approach is likely to underestimate the amount of discard that will occur, for any amount of total bycatch, due to the distributional nature of bycatch encounters.

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Figure 1.--Overview of approach for evaluating discards of over-fished species in the 2002 groundfish trawl fishery

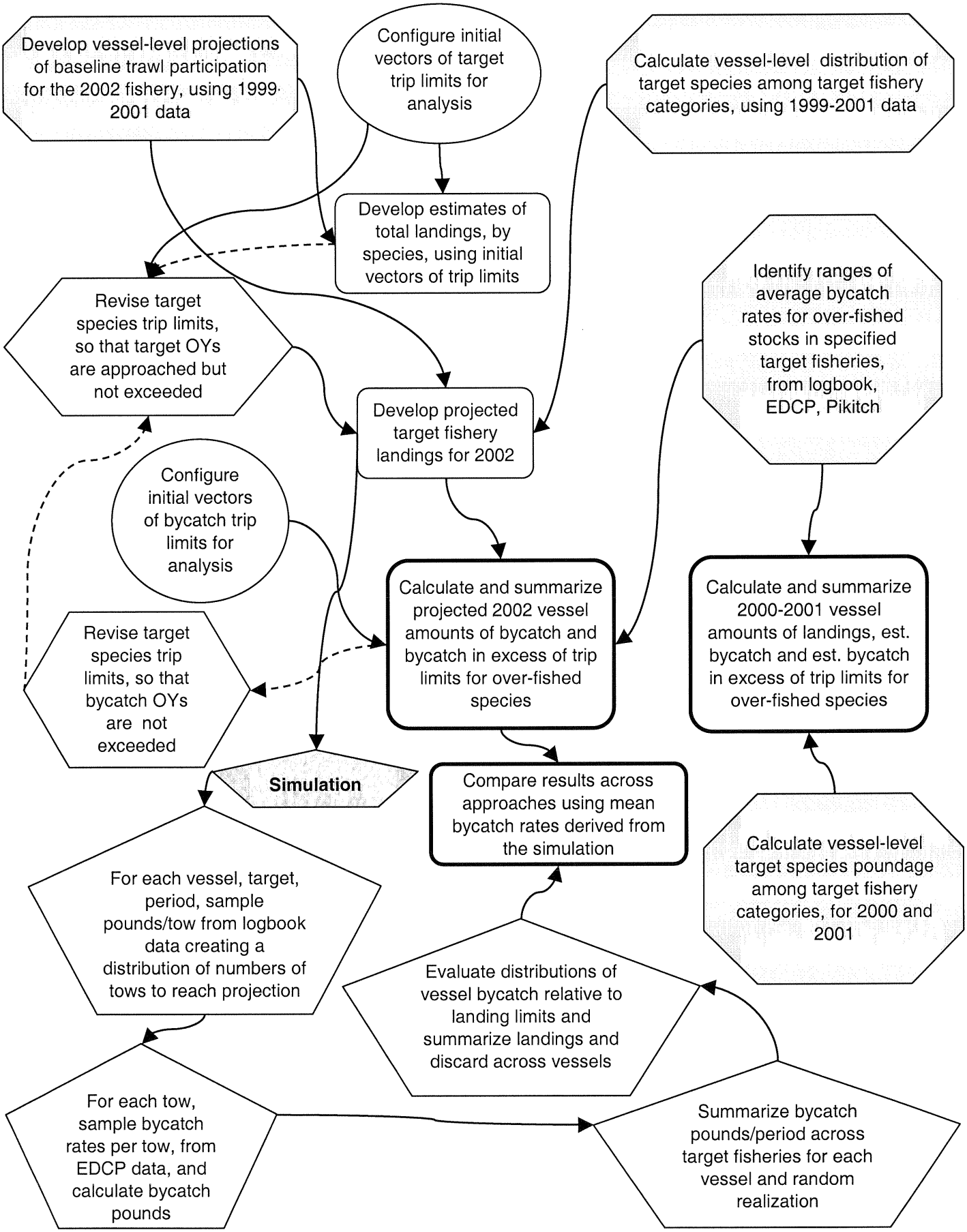
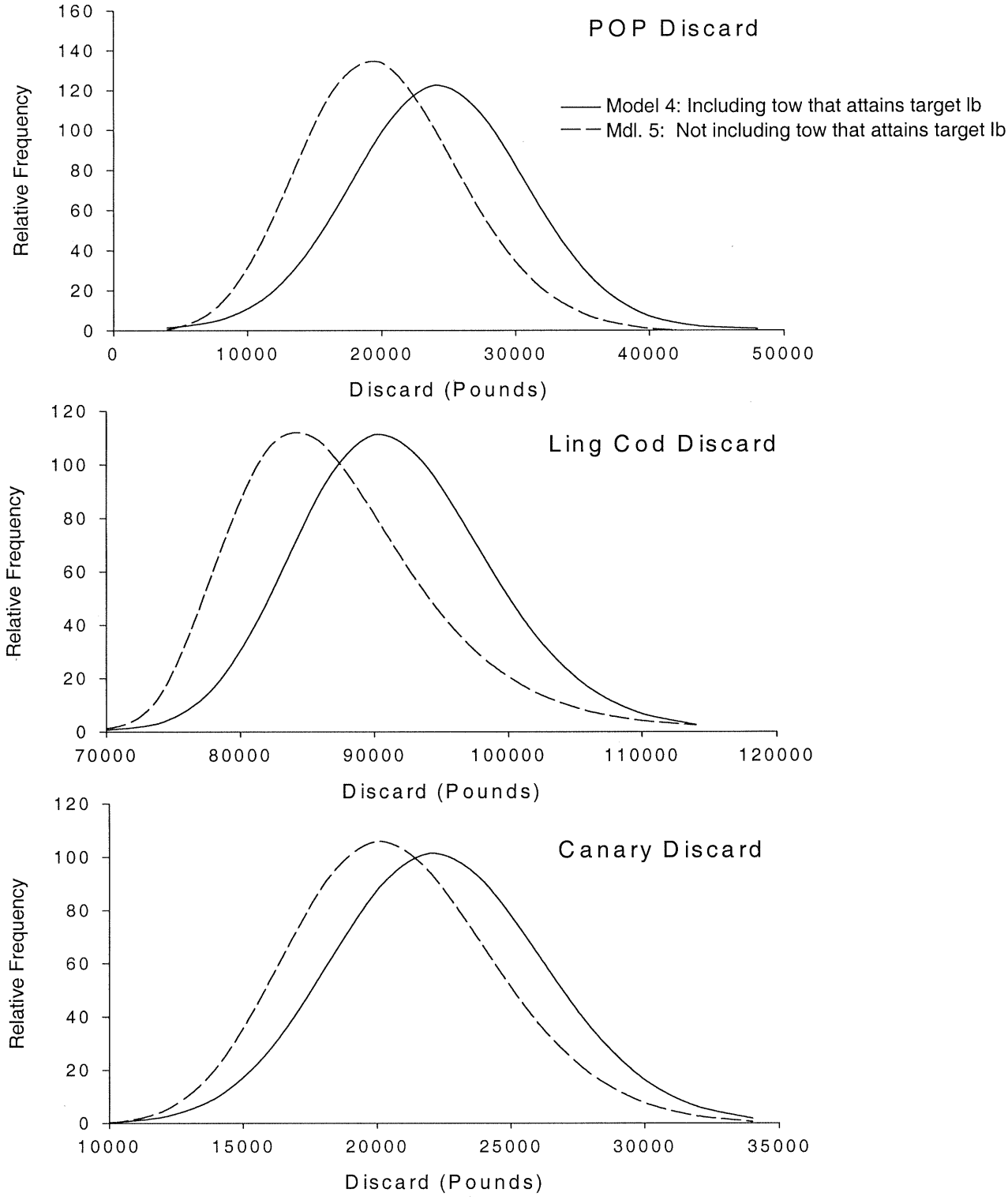


Figure 2.--Comparison of the distributions of simulated fleet discard for POP, lingcod, and canary, obtained by including or not including the tow which attains or exceeds the projected target poundage for a vessel in each stratum.



Note: if the first tow exceeds the target poundage, it is included in both distributions.

Table 1a.--Raw catch and discard amounts of four overfished species from tows observed during the Pikitch study, assigned to target strategies using the criteria employed in the projected bycatch analysis for 2002.

Target	#	Target	Lingcod			Canary rockfish			POP			Darkblotched rockfish		
fishery	of tows	catch (lb)	catch (lb)	discard (lb)	disc. (%)	catch (lb)	discard (lb)	disc. (%)	catch (lb)	discard (lb)	disc. (%)	catch (lb)	discard (lb)	disc. (%)
Arrowtooth	5	15,329	100.0	0.0	0.00%	52.1	52.1	100.00%	1,226.8	0.0	0.00%	1,078.9	0.0	0.00%
Petrale	37	36,565	939.4	22.0	2.34%	21.1	0.0	0.00%	1,722.5	28.4	1.65%	1,540.1	28.2	1.83%
Flatfish	330	325,919	9,782.9	39.2	0.40%	5,926.7	87.7	1.48%	11,688.8	71.5	0.61%	18,127.2	647.1	3.57%
Widow/Ytail	29	395,617	49.0	0.0	0.00%	122.2	0.0	0.00%	5,871.2	0.0	0.00%	0.0	0.0	
DTS	364	611,474	4,891.2	22.0	0.45%	1,163.2	0.0	0.00%	32,488.7	122.1	0.38%	32,312.4	882.2	2.73%
Slope rock	62	41,033	5,242.9	0.0	0.00%	2,475.7	0.0	0.00%	11,103.5	134.2	1.21%	9,767.8	174.2	1.78%
Leftover	74	139,848	3,529.0	9.9	0.28%	2,359.3	30.0	1.27%	27,018.6	24.0	0.09%	66,852.4	2,216.7	3.32%
POP	9	11,179	150.0	0.0	0.00%	122.7	0.0	0.00%	11,219.0	39.9	0.36%	1,192.5	147.9	12.40%
Widow	29	109,755	2,106.0	0.0	0.00%	8,134.5	0.0	0.00%	2,930.2	2,194.3	74.89%	482.9	42.4	8.78%
Ytail	107	181,008	6,206.2	58.7	0.95%	18,737.5	145.0	0.77%	446.5	162.7	36.44%	69.3	28.5	41.09%
Canary	25	47,124	2,554.3	0.0	0.00%	48,010.7	887.2	1.85%	0.0	0.0		0.0	0.0	
Lingcod	21	13,273	13,272.6	0.0	0.00%	1,525.9	0.0	0.00%	0.0	0.0		85.6	9.5	11.08%
Rockfish	32	32,755	4,394.6	241.4	5.49%	7,150.9	0.0	0.00%	5,524.2	3.3	0.06%	1,752.2	1,007.7	57.51%
Total	1,124	1,960,877	53,218.0	393.1	0.74%	95,802.5	1,201.8	1.25%	111,240.0	2,780.5	2.50%	133,261.2	5,184.3	3.89%

Table 1b.--Raw catch and discard amounts of four overfished species from tows observed during the EDCP study, assigned to target strategies using the criteria employed in the projected bycatch analysis for 2002.

Target	#	Target	Lingcod			Canary rockfish			POP			All slope rockfish		
fishery	of tows	catch (lb)	catch (lb)	discard (lb)	disc. (%)	catch (lb)	discard (lb)	disc. (%)	catch (lb)	discard (lb)	disc. (%)	catch (lb)	discard (lb)	disc. (%)
Arrowtooth	40	228,500	1,052.0	307.0	29.18%	297.0	257.0	86.53%	10,207.0	1,362.0	13.34%	1,882.0	232.0	12.33%
Petrale	63	74,027	444.0	14.0	3.15%	0.0	0.0		1,043.0	183.0	17.55%	4,883.9	688.9	14.11%
Flatfish	320	458,248	10,314.0	3,948.0	38.28%	2,672.0	552.0	20.66%	14,610.0	1,110.0	7.60%	12,489.7	4,619.7	36.99%
Widow/Ytail	43	260,480	115.0	0.0	0.00%	855.0	0.0	0.00%	0.0	0.0		1.5	1.5	100.00%
DTS	627	976,633	4,050.0	655.0	16.17%	3,012.0	627.0	20.82%	7,939.0	429.0	5.40%	43,502.2	6,865.2	15.78%
Slope rock	85	75,430	5,775.0	440.0	7.62%	1,979.0	119.0	6.01%	11,069.0	1,071.0	9.68%	118,958.0	43,528.2	36.59%
Leftover	97	135,130	5,603.0	3,658.0	65.29%	4,575.0	0.0	0.00%	11,066.0	1,754.0	15.85%	3,408.2	2,258.2	66.26%
Subtotal: current targets			27,353.0	9,022.0	32.98%	13,390.0	1,555.0	11.61%	55,934.0	5,909.0	10.56%	185,125.5	58,193.8	31.43%
POP	20	20,610	107.0	7.0	6.54%	0.0	0.0		22,533.0	1,923.0	8.53%	6,791.2	1,031.2	15.18%
Widow	79	192,635	3,224.0	99.0	3.07%	5,605.0	859.0	15.33%	11,766.0	2,926.0	24.87%	5,245.0	1,725.0	32.89%
Ytail	164	258,093	10,813.0	2,227.0	20.60%	28,788.0	7,153.0	24.85%	5,614.0	789.0	14.05%	3,193.2	1,096.2	34.33%
Canary	28	39,870	5,877.0	2,204.0	37.50%	45,985.0	6,115.0	13.30%	0.0	0.0		524.1	24.1	4.60%
Lingcod	64	109,241	115,639.0	6,398.0	5.53%	2,352.0	2.0	0.09%	5.0	5.0	100.00%	1,521.0	806.0	52.99%
Rockfish	94	59,141	1,907.0	1,337.0	70.11%	2,667.0	732.0	27.45%	14,762.0	2,682.0	18.17%	2,506.8	656.8	26.20%
Total	1,724	2,888,038	164,920	21,294	12.91%	98,787	16,416	16.62%	110,614	14,234	12.87%	204,907	63,533	31.01%

Table 2.--Hierarchical criteria used to assign "target fishery" designations for fishticket, logbook, EDCP, and Pikitch data.

Target Assignment	Conditions for Assignment, in hierarchical Order
Arrowtooth	Arrowtooth > 5,000 lbs, or 60% of groundfish
Petrale	Petrale sole > 40% of groundfish
Flatfish	All flatfish (including Dover sole) > 70% of groundfish and sablefish and thornyheads < 10%
DTS	Sum of DTS species > 60% of groundfish
Widow/Yellowtail MidWater	Widow and yellowtail rockfish > 60% of groundfish (and midwater gear used, if identifiable)
POP	POP > 60% of groundfish
Slope Rock	Other rockfish in depths greater than 100 fathoms > 30% of groundfish
Chillipepper	Chillipepper > 30% of groundfish
Yellowtail	Yellowtail rockfish > 30% of groundfish
Canary	Canary rockfish > 30% of groundfish
WDOW	Widow rockfish > 30% of groundfish
Other Rock	All rockfish > 60% of groundfish
Lingcod	Lingcod > 30% of groundfish
Secondary flatfish or DTS	If flatfish > 30% or DTS > 30%, assign to Flatfish or DTS, based on the larger total
Leftover	all remaining groundfish

Table 3.--Comparison of the distributions of target species into target fishery categories, using fishticket (FT) and logbook (LB) data from 1999.

	Sablefish		Longspine		Shortspine		Dover sole		Arrowtooth		Petrale		All Flatfish		Widow		Yellowtail		Chillipepper		Slope rockfish		All *Sebastes*	
	FT	LB	FT	LB	FT	LB	FT	LB	FT	LB	FT	LB	FT	LB	FT	LB	FT	LB	FT	LB	FT	LB	FT	LB
North of Cape Mendocino																								
Arrowtooth	6%	4%	3%	0%	3%	2%	3%	3%	67%	80%	7%	6%	26%	31%	3%	1%	9%	3%	0%	0%	0%	7%	6%	4%
Petrale	1%	0%	0%	0%	1%	0%	1%	0%	0%	0%	32%	42%	4%	4%	0%	0%	0%	0%	0%	0%	0%	3%	1%	0%
Flatfish	12%	11%	5%	2%	13%	12%	29%	51%	20%	14%	34%	43%	30%	40%	4%	1%	17%	3%	39%	21%	15%	21%	13%	8%
Widow/Ytail	3%	0%	1%	0%	2%	0%	2%	0%	0%	0%	3%	0%	1%	0%	62%	86%	23%	11%	0%	2%	0%	0%	37%	36%
DTS	67%	81%	83%	98%	72%	84%	57%	44%	8%	4%	17%	3%	32%	23%	7%	1%	10%	1%	61%	1%	35%	14%	13%	4%
Slope rock	0%	1%	0%	0%	0%	1%	0%	1%	0%	0%	0%	1%	0%	1%	0%	1%	0%	0%	0%	14%	0%	50%	0%	6%
Leftover	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	1%
POP	0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		0%		1%	
Widow	4%	0%	3%	0%	4%	0%	4%	0%	1%	0%	3%	0%	3%	0%	18%	0%	2%	0%	0%	0%	0%	2%	10%	4%
Ytail	3%	1%	2%	0%	3%	1%	2%	0%	1%	1%	2%	1%	2%	1%	3%	9%	26%	77%	0%	3%	0%	1%	9%	29%
Canary	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	2%	0%	41%	0%	0%	1%	5%
Lingcod	3%	0%	1%	0%	2%	0%	2%	0%	1%	0%	1%	0%	1%	0%	4%	0%	8%	0%	0%	0%	4%	0%	8%	0%
Rockfish	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	18%	46%	2%	1%	3%
South of Cape Mendocino																								
Petrale	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	20%	18%	2%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%
Flatfish	10%	10%	6%	2%	7%	3%	22%	31%	2%	49%	40%	53%	39%	52%	6%	4%	0%	4%	13%	8%	28%	15%	15%	11%
Widow/Ytail	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%	0%	39%	62%	0%	33%	1%	1%	0%	0%	10%	11%
DTS	78%	85%	89%	98%	85%	96%	72%	67%	84%	29%	20%	4%	50%	41%	11%	0%	100%	3%	18%	1%	28%	9%	19%	3%
Chillipepper	5%	2%	3%	0%	3%	0%	3%	1%	4%	20%	12%	16%	5%	4%	18%	30%	0%	25%	61%	86%	23%	5%	37%	56%
Slope rock	0%	2%	0%	0%	0%	0%	0%	1%	0%	0%	0%	8%	0%	2%	0%	3%	0%	6%	0%	4%	6%	70%	0%	16%
Leftover	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Widow	2%		1%		1%		1%		0%		0%		1%		22%		0%		3%		0%		8%	0%
Canary	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	15%	0%	0%	0%	0%	0%	1%
Lingcod	2%	0%	1%	0%	1%	0%	1%	0%	6%	0%	5%	0%	2%	0%	3%	0%	0%	0%	4%	0%	13%	0%	8%	0%
Rockfish	0%	0%	0%	0%	1%	0%	0%	0%	4%	1%	1%	0%	0%	0%	0%	0%	0%	14%	0%	0%	0%	0%	1%	2%

Table 4a.--Summary of annual and bi-monthly average bycatch rates from Pikitch observed tows (all years), EDCP observed tows (all years), and 1999 trawl logbook data, with assignments to target fishery categories based on species poundage and gear for the area **north** of Cape Mendocino.

Target fishery	2-mo period	Source	# of Tows	Average bycatch rate (bycatch lb / target lb) lingcod	canary	POP	darkblotched (Pik.) all slope rockfish (EDCP, LB)
DTS	Year	Pikitch	364	0.80%	0.19%	5.31%	6.08%
		EDCP	627	0.41%	0.31%	0.81%	4.45%
		LB	6,744				
	1	Pikitch	41	0.01%	0.00%	2.10%	2.46%
		EDCP	131	0.01%	0.00%	0.06%	3.36%
		LB	423	0.04%	0.11%	0.83%	0.67%
	2	Pikitch	42	0.53%	0.03%	11.78%	10.92%
		EDCP	97	0.04%	0.00%	0.58%	1.01%
		LB	1,313	0.09%	0.05%	1.03%	0.57%
	3	Pikitch	40	1.02%	0.02%	19.18%	20.00%
		EDCP	77	0.37%	0.00%	1.41%	3.20%
		LB	1,332	0.28%	0.16%	2.36%	2.34%
	4	Pikitch	74	0.80%	0.87%	2.37%	5.43%
		EDCP	119	0.94%	1.06%	2.43%	4.29%
		LB	1,504	0.64%	0.27%	1.33%	1.53%
	5	Pikitch	79	2.16%	0.20%	4.75%	3.93%
		EDCP	116	1.23%	0.84%	0.36%	4.61%
		LB	1,489	0.32%	0.18%	0.95%	0.78%
	6	Pikitch	88	0.04%	0.00%	1.59%	3.13%
		EDCP	87	0.01%	0.00%	0.61%	11.70%
		LB	683	0.08%	0.01%	0.53%	0.44%
Petrale	Year	Pikitch	37	2.57%	0.06%	4.71%	2.27%
		EDCP	63	0.60%	0.00%	1.41%	6.60%
		LB	876				
	1	Pikitch	13	0.62%	0.00%	4.69%	3.29%
		EDCP	44	0.60%	0.00%	0.64%	7.32%
		LB	295	0.62%	0.08%	1.60%	4.67%
	2	Pikitch	1	0.00%	0.00%	0.00%	0.00%
		EDCP	1	0.00%	0.00%	0.00%	0.00%
		LB	87	0.68%	0.45%	5.31%	3.30%
	3	Pikitch	3	38.44%	0.00%	0.00%	0.00%
		LB	172	1.99%	1.74%	0.32%	0.70%
	4	Pikitch	13	1.89%	0.00%	0.00%	0.00%
		EDCP	2	0.00%	0.00%	0.00%	0.00%
		LB	98	1.34%	1.01%	0.45%	3.24%
	5	EDCP	1	0.00%	1.14%	0.00%	0.00%
		LB	71	0.99%	0.44%	1.73%	3.23%
	6	Pikitch	6	0.00%	0.00%	10.16%	3.95%
		EDCP	14	0.62%	0.00%	4.63%	3.94%
		LB	153	0.64%	0.09%	1.46%	1.50%

Table 4a.--Summary of annual and bi-monthly average bycatch rates from Pikitch observed tows (all years), EDCP observed tows (all years), and 1999 trawl logbook data, with assignments to target fishery categories based on species poundage and gear (cont.).

Target fishery	2-mo period	Source	# of Tows	Average bycatch rate (bycatch lb / target lb) lingcod	canary	POP	darkblotched (Pik.) all slope rockfish (EDCP, LB)
Flatfish	Year	Pikitch	330	3.00%	1.82%	3.59%	2.16%
		EDCP	320	2.25%	0.58%	3.19%	2.73%
		LB	7,966				
	1	Pikitch	30	0.23%	0.18%	13.66%	7.76%
		EDCP	69	0.61%	0.32%	0.46%	2.41%
		LB	435	0.10%	0.07%	2.13%	1.88%
	2	Pikitch	12	3.07%	1.86%	2.49%	3.68%
		EDCP	46	2.93%	0.00%	4.16%	2.04%
		LB	1,298	0.49%	0.19%	2.76%	1.92%
	3	Pikitch	11	2.37%	0.50%	13.57%	2.06%
		EDCP	37	2.17%	0.18%	6.59%	2.74%
		LB	2000	1.52%	1.11%	3.09%	3.16%
	4	Pikitch	155	3.37%	1.19%	0.57%	1.73%
		EDCP	66	2.24%	1.37%	3.72%	1.70%
		LB	2,149	1.16%	1.05%	2.76%	1.71%
	5	Pikitch	94	5.16%	4.26%	3.06%	1.38%
		EDCP	79	4.55%	1.08%	4.71%	4.94%
		LB	1,604	0.88%	0.51%	2.34%	1.15%
	6	Pikitch	28	0.13%	0.07%	1.80%	1.11%
		EDCP	23	1.80%	0.03%	1.33%	3.80%
		LB	480	0.44%	0.16%	1.88%	0.87%
Widow / Yellowtail (midwater gear)	Year	Pikitch	29	0.01%	0.03%	1.48%	0.00%
		EDCP	43	0.04%	0.33%	0.00%	0.00%
		LB	360				
	1	Pikitch	9	0.00%	0.12%	0.00%	0.00%
		EDCP	14	0.11%	0.10%	0.00%	0.00%
		LB	50	0.00%	0.02%	0.00%	0.00%
	2	Pikitch	13	0.00%	0.01%	0.00%	0.00%
		EDCP	4	0.00%	0.00%	0.00%	0.00%
		LB	64	0.00%	0.03%	0.08%	0.00%
	3	Pikitch	1	0.00%	0.00%	0.00%	0.00%
		LB	18	0.00%	2.76%	0.00%	
	4	EDCP	8	0.00%	1.85%	0.00%	0.00%
		LB	28	0.02%	1.82%	0.00%	0.00%
	5	Pikitch	4	0.06%	0.00%	6.71%	0.00%
		EDCP	8	0.00%	0.00%	0.00%	0.00%
		LB	97	0.01%	0.48%	0.12%	0.01%
	6	Pikitch	2	0.00%	0.00%	0.00%	0.00%
		EDCP	9	0.00%	0.00%	0.00%	0.00%
		LB	103	0.00%	0.00%	0.03%	0.03%

Table 4a.--Summary of annual and bi-monthly average bycatch rates from Pikitch observed tows (all years), EDCP observed tows (all years), and 1999 trawl logbook data, with assignments to target fishery categories based on species poundage and gear (cont.).

Target fishery	2-mo period	Source	# of Tows	Average bycatch rate (bycatch lb / target lb) lingcod	canary	POP	darkblotched (Pik.) all slope rockfish (EDCP, LB)
Arrowtooth	Year	Pikitch	5	0.65%	0.34%	8.00%	0.70%
		EDCP	40	0.46%	0.13%	4.45%	0.82%
		LB	1,236				
	1	Pikitch	2	0.00%	0.00%	6.26%	0.00%
		LB	6	0.00%	0.01%	0.72%	0.67%
	2	EDCP	1	0.00%	0.00%	14.50%	0.00%
		LB	77	0.22%	0.02%	0.72%	1.27%
	3	Pikitch	2	0.97%	0.50%	10.28%	1.04%
		EDCP	31	0.39%	0.03%	4.43%	0.81%
		LB	411	0.24%	1.03%	2.09%	1.28%
	4	Pikitch	1	0.00%	0.00%	0.00%	0.00%
		EDCP	5	1.08%	0.77%	0.29%	0.01%
		LB	540	0.20%	0.52%	1.26%	0.38%
	5	Pikitch	1	0.00%	0.00%	0.00%	0.00%
		EDCP	1	0.00%	0.67%	20.00%	10.92%
		LB	196	0.11%	1.17%	1.79%	1.07%
	6	LB	6	0.00%	0.00%	0.37%	0.47%
Slope rockfish	Year	Pikitch	62	12.78%	6.03%	27.06%	170.78%
		EDCP	85	7.66%	2.62%	14.67%	157.71%
		LB	450				
	1	Pikitch	1	0.00%	0.00%	43.47%	100.37%
		EDCP	7	2.08%	0.00%	6.13%	111.51%
		LB	31	0.55%	0.09%	8.50%	100.00%
	2	Pikitch	23	3.40%	0.00%	26.01%	173.78%
		EDCP	16	7.66%	0.00%	7.58%	111.04%
		LB	91	1.21%	0.72%	14.29%	100.00%
	3	Pikitch	11	0.00%	0.00%	27.83%	102.53%
		EDCP	1	0.00%	0.00%	428.57%	398.71%
		LB	137	3.22%	0.61%	8.31%	100.00%
	4	Pikitch	5	224.91%	220.05%	18.31%	1405.90%
		EDCP	21	26.83%	7.69%	47.66%	362.72%
		LB	140	2.72%	2.19%	14.56%	100.00%
	5	Pikitch	12	68.45%	20.79%	61.24%	386.39%
		EDCP	22	5.88%	8.29%	17.53%	155.93%
		LB	47	2.78%	1.21%	15.46%	100.00%
	6	Pikitch	10	15.47%	9.66%	10.27%	114.76%
		EDCP	18	0.89%	0.00%	1.41%	115.17%
		LB	4	11.92%	0.08%	9.18%	100.00%

Summary of annual and bi-monthly average bycatch rates from Pikitch observed tows (all years), EDCP observed tows (all years), and 1999 trawl logbook data, with assignments to target fishery categories based on species poundage and gear (cont.).

Target fishery	2-mo period	Source	# of Tows	Average bycatch rate (bycatch lb / target lb) lingcod	canary	POP	darkblotched (Pik.) all slope rockfish (EDCP, LB)
Other	Year	Pikitch	74	2.52%	1.69%	19.32%	10.40%
		EDCP	97	4.15%	3.39%	8.19%	2.52%
		LB	383				
	1	Pikitch	3	0.00%	0.00%	16.17%	14.36%
		EDCP	9	3.12%	0.00%	66.27%	5.43%
		LB	8	0.33%	1.11%	3.01%	14.11%
	2	Pikitch	13	0.33%	0.15%	35.52%	17.21%
		EDCP	18	0.71%	0.72%	0.57%	0.00%
		LB	66	0.54%	0.97%	1.68%	2.71%
	3	Pikitch	10	1.27%	0.10%	16.18%	9.51%
		EDCP	14	0.55%	0.00%	5.89%	0.00%
		LB	184	0.83%	1.23%	3.10%	2.01%
	4	Pikitch	19	5.56%	4.28%	16.71%	5.07%
		EDCP	9	23.94%	20.94%	21.31%	9.76%
		LB	86	0.82%	1.04%	1.37%	1.92%
	5	Pikitch	17	4.05%	3.30%	27.35%	16.58%
		EDCP	12	7.34%	0.18%	3.89%	0.69%
		LB	31	1.32%	0.26%	2.46%	1.03%
	6	Pikitch	12	1.64%	0.85%	8.13%	4.14%
		EDCP	35	2.34%	8.84%	1.29%	9.84%
		LB	8	2.40%	0.00%	13.70%	0.00%

Table 4b.--Summary of annual and bi-monthly average bycatch rates from 1999 trawl logbook data, with assignments to target fishery categories based on species poundage and gear for the Area **south** of Cape Mendocino.

Target fishery	2-mo period	# of Tows	Average bycatch rate (bycatch lb / target lb)			
			lingcod	canary	bocaccio	POP
Petrale	year	174				
	1	47	0.55%	0.00%	0.02%	0.00%
	2	9	1.98%	0.00%	1.12%	0.00%
	3	24	1.63%	0.00%	0.00%	0.00%
	4	26	11.68%	0.00%	1.48%	0.00%
	5	40	0.66%	0.05%	0.05%	0.00%
	6	28	0.74%	0.00%	0.00%	0.00%
Flatfish	year	4,627				
	1	708	0.20%	0.02%	0.30%	0.00%
	2	857	0.27%	0.09%	0.33%	0.23%
	3	801	0.81%	0.06%	0.55%	0.00%
	4	910	0.60%	0.05%	0.23%	0.00%
	5	800	0.62%	0.08%	0.29%	0.00%
	6	551	0.49%	0.05%	0.35%	0.00%
Widow/Yellowtail	year	21				
(midwater)	1	6	0.10%	0.55%	0.02%	0.00%
	2	6	0.21%	0.03%	0.08%	0.00%
	3					
	4					
	5	4	0.00%	0.11%	0.00%	0.00%
	6	5	0.00%	0.00%	0.24%	0.00%
DTS	year	1,909				
	1	315	0.01%	0.00%	0.00%	0.00%
	2	349	0.01%	0.02%	0.02%	0.00%
	3	210	0.06%	0.00%	0.09%	0.00%
	4	331	0.05%	0.01%	0.03%	0.00%
	5	359	0.08%	0.00%	0.06%	0.00%
	6	345	0.05%	0.00%	0.00%	0.00%
Chillipepper	year	1,006				
	1	134	1.72%	2.87%	2.58%	0.00%
	2	135	1.85%	1.49%	2.24%	0.06%
	3	109	3.50%	1.19%	3.15%	0.00%
	4	308	4.28%	1.12%	2.89%	0.00%
	5	253	2.85%	0.66%	2.15%	0.00%
	6	67	5.32%	1.14%	2.80%	0.00%
Slope Rockfish	year	284				
	1	75	2.29%	0.47%	0.87%	0.00%
	2	52	2.75%	0.11%	1.52%	0.00%
	3	42	0.91%	0.02%	1.00%	0.00%
	4	45	1.65%	0.21%	0.71%	0.00%
	5	35	0.49%	0.04%	1.12%	0.00%
	6	35	1.15%	0.02%	0.13%	0.00%
Leftover	year	16				
	1	1	0.37%	0.00%	0.93%	0.00%
	2	4	3.27%	0.00%	0.00%	0.00%
	3	3	6.10%	0.00%	14.13%	0.00%
	4					
	5	2	0.00%	0.00%	0.00%	0.00%
	6	6	0.84%	0.00%	0.41%	0.00%

Table 5a.--Bycatch rate ranges used in estimating bycatch, by target fishery and period for the area **north** of Cape Mendocino

Target fishery	2-month period	Lingcod			Canary rockfish			POP			Darkblotched rockfish		
		low	mid	high	low	mid	high	low	mid	high	low	mid	high
Arrowtooth	1	0.01%	0.03%	0.05%	0.01%	0.03%	0.05%	0.60%	2.30%	4.00%	0.01%	0.18%	0.35%
	2	0.10%	0.20%	0.30%	0.01%	0.03%	0.05%	0.70%	2.85%	5.00%	0.20%	0.50%	0.80%
	3	0.25%	0.63%	1.00%	0.05%	0.53%	1.00%	2.00%	3.50%	5.00%	0.60%	0.80%	1.00%
	4	0.20%	0.65%	1.10%	0.50%	0.65%	0.80%	0.70%	1.35%	2.00%	0.10%	0.20%	0.30%
	5	0.05%	0.08%	0.10%	0.65%	0.93%	1.20%	1.00%	3.00%	5.00%	0.50%	1.05%	1.60%
	6	0.01%	0.03%	0.05%	0.01%	0.03%	0.05%	0.60%	2.30%	4.00%	0.25%	0.50%	0.75%
Petrale	1	0.50%	0.60%	0.70%	0.01%	0.06%	0.10%	0.70%	1.25%	1.80%	2.00%	3.00%	4.00%
	2	0.35%	0.68%	1.00%	0.20%	0.45%	0.70%	3.00%	5.00%	7.00%	1.60%	3.30%	5.00%
	3	1.20%	2.10%	3.00%	0.90%	1.70%	2.50%	0.15%	0.30%	0.45%	0.30%	0.65%	1.00%
	4	1.10%	1.50%	1.90%	0.50%	1.00%	1.50%	0.20%	0.45%	0.70%	1.00%	1.65%	2.30%
	5	0.50%	1.00%	1.50%	0.40%	0.80%	1.20%	0.90%	1.70%	2.50%	0.75%	1.53%	2.30%
	6	0.50%	0.60%	0.70%	0.01%	0.06%	0.10%	1.40%	3.20%	5.00%	0.75%	1.88%	3.00%
Flatfish	1	0.10%	0.35%	0.60%	0.05%	0.18%	0.30%	0.50%	1.75%	3.00%	0.75%	2.38%	4.00%
	2	0.50%	1.75%	3.00%	0.15%	0.58%	1.00%	2.40%	3.20%	4.00%	0.80%	1.90%	3.00%
	3	1.30%	1.75%	2.20%	0.25%	0.68%	1.10%	2.80%	4.40%	6.00%	1.40%	1.70%	2.00%
	4	1.00%	2.00%	3.00%	0.90%	1.15%	1.40%	1.00%	2.25%	3.50%	0.80%	1.25%	1.70%
	5	0.80%	2.40%	4.00%	0.40%	1.05%	1.70%	2.30%	3.40%	4.50%	0.60%	1.50%	2.40%
	6	0.40%	1.20%	2.00%	0.05%	0.13%	0.20%	1.20%	1.55%	1.90%	0.40%	1.15%	1.90%
Widow/Yellowta	1	0.01%	0.06%	0.10%	0.01%	0.08%	0.15%	0.01%	0.03%	0.05%	0.01%	0.03%	0.05%
	6	0.01%	0.06%	0.10%	0.01%	0.03%	0.05%	0.01%	0.03%	0.05%	0.01%	0.03%	0.05%
DTS	1	0.01%	0.03%	0.05%	0.01%	0.06%	0.10%	0.05%	0.53%	1.00%	0.30%	1.15%	2.00%
	2	0.05%	0.28%	0.50%	0.01%	0.03%	0.05%	0.60%	1.30%	2.00%	0.30%	1.15%	2.00%
	3	0.30%	0.65%	1.00%	0.01%	0.08%	0.15%	1.40%	2.20%	3.00%	1.20%	2.10%	3.00%
	4	0.60%	0.80%	1.00%	0.30%	0.65%	1.00%	1.30%	1.90%	2.50%	0.80%	1.65%	2.50%
	5	0.30%	1.15%	2.00%	0.80%	0.55%	0.30%	0.40%	0.70%	1.00%	0.40%	1.35%	2.30%
	6	0.01%	0.06%	0.10%	0.01%	0.03%	0.05%	0.50%	1.00%	1.50%	0.30%	2.65%	5.00%
Slope Rockfish	1	0.10%	0.55%	1.00%	0.10%	0.55%	1.00%	5.00%	7.50%	10.00%	50.00%	65.00%	80.00%
	2	0.10%	0.55%	1.00%	0.10%	0.55%	1.00%	10.00%	17.50%	25.00%	50.00%	65.00%	80.00%
	3	0.10%	0.55%	1.00%	0.10%	0.55%	1.00%	10.00%	17.50%	25.00%	50.00%	75.00%	100.00%
	4	0.10%	0.55%	1.00%	0.10%	0.55%	1.00%	15.00%	27.50%	40.00%	50.00%	75.00%	100.00%
	5	0.10%	0.55%	1.00%	0.10%	0.55%	1.00%	15.00%	27.50%	40.00%	50.00%	65.00%	80.00%
	6	0.10%	0.55%	1.00%	0.10%	0.55%	1.00%	5.00%	7.50%	10.00%	50.00%	65.00%	80.00%
Leftover	1	0.30%	1.65%	3.00%	0.01%	0.51%	1.00%	3.00%	11.50%	20.00%	2.50%	5.25%	8.00%
	2	0.30%	0.50%	0.70%	0.10%	0.55%	1.00%	0.50%	2.75%	5.00%	1.00%	3.50%	6.00%
	3	0.50%	0.85%	1.20%	0.50%	0.90%	1.30%	3.00%	5.00%	7.00%	1.00%	3.50%	6.00%
	4	0.80%	2.90%	5.00%	1.00%	3.00%	5.00%	1.50%	10.75%	20.00%	1.00%	3.00%	5.00%
	5	1.30%	3.15%	5.00%	0.15%	0.58%	1.00%	2.50%	4.25%	6.00%	0.50%	2.25%	4.00%
	6	1.50%	1.95%	2.40%	0.10%	1.05%	2.00%	1.30%	5.65%	10.00%	3.50%	4.25%	5.00%

Notes: The range for darkblotched reflects the assumption that 50% of the slope rockfish bycatch identified in logbook and EDCP tows was darkblotched rockfish.
Bycatch rates are multiplied by the projected target pounds in each target fishery to estimated the poundage of bycatch species.

Table 5b.--Bycatch rate ranges used in estimating bycatch, by target fishery and period for the area **south** of Cape Mendocino

Target fishery	2-month period	Lingcod			Canary rockfish			POP			Bocaccio rockfish		
		low	mid	high	low	mid	high	low	mid	high	low	mid	high
Petrale	1	0.28%	0.55%	0.83%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.02%	0.05%
	2	0.99%	1.98%	2.96%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.56%	1.12%	1.68%
	3	0.82%	1.63%	2.45%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%
	4	5.84%	11.68%	17.52%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.74%	1.48%	2.22%
	5	0.33%	0.66%	0.99%	0.03%	0.05%	0.08%	0.01%	0.00%	0.05%	0.03%	0.05%	0.08%
	6	0.37%	0.74%	1.10%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%
Flatfish	1	0.10%	0.20%	0.30%	0.01%	0.02%	0.05%	0.01%	0.00%	0.05%	0.15%	0.30%	0.45%
	2	0.14%	0.27%	0.41%	0.05%	0.09%	0.14%	0.12%	0.23%	0.35%	0.16%	0.33%	0.49%
	3	0.41%	0.81%	1.22%	0.03%	0.06%	0.09%	0.01%	0.00%	0.05%	0.28%	0.55%	0.83%
	4	0.30%	0.60%	0.91%	0.02%	0.05%	0.07%	0.01%	0.00%	0.05%	0.11%	0.23%	0.34%
	5	0.31%	0.62%	0.93%	0.04%	0.08%	0.12%	0.01%	0.00%	0.05%	0.14%	0.29%	0.43%
	6	0.24%	0.49%	0.73%	0.02%	0.05%	0.07%	0.01%	0.00%	0.05%	0.17%	0.35%	0.52%
Widow/Yellowta	1	0.05%	0.10%	0.15%	0.27%	0.55%	0.82%	0.01%	0.00%	0.05%	0.01%	0.02%	0.05%
	6	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.12%	0.24%	0.37%
DTS	1	0.01%	0.01%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%
	2	0.01%	0.01%	0.05%	0.01%	0.02%	0.05%	0.01%	0.00%	0.05%	0.01%	0.02%	0.05%
	3	0.03%	0.06%	0.09%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.05%	0.09%	0.14%
	4	0.03%	0.05%	0.08%	0.01%	0.01%	0.05%	0.01%	0.00%	0.05%	0.02%	0.03%	0.05%
	5	0.04%	0.08%	0.12%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.03%	0.06%	0.08%
	6	0.02%	0.05%	0.07%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%
Chillipepper	1	0.86%	1.72%	2.58%	1.44%	2.87%	4.31%	0.01%	0.00%	0.05%	1.29%	2.58%	3.87%
	2	0.92%	1.85%	2.77%	0.74%	1.49%	2.23%	0.03%	0.06%	0.10%	1.12%	2.24%	3.36%
	3	1.75%	3.50%	5.25%	0.60%	1.19%	1.79%	0.01%	0.00%	0.05%	1.57%	3.15%	4.72%
	4	2.14%	4.28%	6.41%	0.56%	1.12%	1.68%	0.01%	0.00%	0.05%	1.45%	2.89%	4.34%
	5	1.43%	2.85%	4.28%	0.33%	0.66%	0.99%	0.01%	0.00%	0.05%	1.08%	2.15%	3.23%
	6	2.66%	5.32%	7.98%	0.57%	1.14%	1.71%	0.01%	0.00%	0.05%	1.40%	2.80%	4.21%
Slope Rockfish	1	1.15%	2.29%	3.44%	0.23%	0.47%	0.70%	0.01%	0.00%	0.05%	0.43%	0.87%	1.30%
	2	1.38%	2.75%	4.13%	0.05%	0.11%	0.16%	0.01%	0.00%	0.05%	0.76%	1.52%	2.28%
	3	0.45%	0.91%	1.36%	0.01%	0.02%	0.05%	0.01%	0.00%	0.05%	0.50%	1.00%	1.50%
	4	0.83%	1.65%	2.48%	0.11%	0.21%	0.32%	0.01%	0.00%	0.05%	0.36%	0.71%	1.07%
	5	0.24%	0.49%	0.73%	0.02%	0.04%	0.06%	0.01%	0.00%	0.05%	0.56%	1.12%	1.68%
	6	0.57%	1.15%	1.72%	0.01%	0.02%	0.05%	0.01%	0.00%	0.05%	0.07%	0.13%	0.20%
Leftover	1	0.18%	0.37%	0.55%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.47%	0.93%	1.40%
	2	1.63%	3.27%	4.90%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%
	3	3.05%	6.10%	9.15%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	7.06%	14.13%	21.19%
	4	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%
	5	0.42%	0.84%	1.26%	0.01%	0.00%	0.05%	0.01%	0.00%	0.05%	0.21%	0.41%	0.62%
	6	0.43%	0.86%	1.29%	0.12%	0.24%	0.36%	0.01%	0.00%	0.05%	0.05%	0.11%	0.16%

Note: Bycatch rates are multiplied by the projected target pounds in each target fishery to estimated the poundage of bycatch species.

Table 6a. Trip limits for constraining target species landings in the limited entry trawl for 2002, under the GMT year round fishery season alternative. (These do NOT reflect restrictions needed for bycatch species)

Species/groups	Landed catch	JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
Minor slope rockfish							
North of Cape Mend.	low	1,500 lb/2 months					
	med	1,800 lb/2 months					
	high	2,000 lb/2 months					
South of Cape Mend.		25,000 lb/2 months					
Splitnose-South		1,000 lb/2 months		2,000 lb/2 months			1,000 lbs/2 months
POP	244	1,800 lb/month		3,600 lb/month			1,800 lb/month
	294	2,000 lb/month		4,000 lb/month			2,000 lb/month
	344	2,500 lb/month		4,500 lb/month			2,500 lb/month
DTS							
Dover sole	5,244	13,500 lb/2 months					
	6,090	17,000 lb/2 months					
	7,068	22,000 lb/2 months					
Sablefish	1,180	2,800 lb/2 months					
	1,476	3,600 lb/2 months					
	1,660	4,500 lb/2 months					
Shortspine	614	1,700 lb/2 months					
	759	2,000 lb/2 months					
Longspine	low	7,000 lb/2 months					
	high	9,000 lb/2 months					
Arrowtooth		20,000 lb/trip		Sm. Footrope: 7,500 lb/trip, up to 30,000 lb/mo			20,000 lb/trip
Petrale sole		No restriction		Small footrope: 45,000 lb/mo for all non-Dover flatfish species combined using small footrope, no more than 15,000 lb of which may be petrale			No restriction
Rex sole		No limit					No limit
All other flatfish		Small Footrope: 45,000 lb/mo | Large footrope: 1,000 lb/trip					Small Footrope: 45,000 lb/mo | Large footrope: 1,000 lb/trip
Shoreside whiting [a)]		20,000 lb/trip		Open			20,000 lb/trip
Use of small footrope required for landing all shelf and near-shore rockfish							
Minor Shelf rockfish							
North of Cape Mend.		300 lb/month		1,000 lb/month			300 lb/month
South of Cape Mend.		500 lb/month		1,000 lb/month			500 lb/month
Canary-Coastwide		100 lb/month		300 lb/month			100 lb/month
Widow-Coastwide							
(mid-water only)	low	Closed		with >=10,000 lb whiting, 2,500 lb/mo; combined widow+yellowtail of 500 lb/trip			Evaluate remaining widow OY
	high	10,000 lb/2 months	Closed	with >=10,000 lb whiting, 1,500 lb/mo; combined widow+yellowtail of 500 lb/trip			Evaluate remaining widow OY
Small footrope	low	1000 lb/month					
	high	800 lb/month					
Yellowtail-North							
(mid-water only)	low	Closed		with >=10,000 lb whiting, 2,500 lb/mo; combined widow+yellowtail of 500 lb/trip			Evaluate remaining widow OY
	high	20,000 lb/2 months	Closed	with >=10,000 lb whiting, 2,000 lb/mo; combined widow+yellowtail of 500 lb/trip			Evaluate remaining widow OY
Small footrope		1,000 lb/month					
as flatfish bycatch		Up to 33% of all flatfish (excluding arrowtooth) plus 10% of weight of Arrowtooth not to exceed:					
		2,500 lbs/trip		7,500 lb/trip			2,500 lb/trip
		<---------- and 20,000 lb/2 months ---------->					
Bocaccio-South		300 lb/month		500 lb/month			300 lb/month
Chilipepper-South							
(mid-water only)		25,000 lb/2 months					
Small footrope		7,500 lb/2 months					
Cowcod		No retention					
Minor Nearshore rockfish							
North of Cape Mend.		300 lb/month		1,000 lb/month			300 lb/month
South of Cape Mend.		300 lb/month		1,000 lb/month			300 lb/month
Lingcod		No retention		400 lb/month			No retention

[a)] Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb/trip throughout the year.

(highlighted rows indicate Council-preferred OYs, where there is a range)

Table 6b. Alternative trip limits regimes for DTS and flatfish, with the baseline based on the preferred Council OYs for these target species in 2002, without modification due to bycatch results.

Species/groups	JN-FB | MAR-APR	MY-JN | JL-AG	SEP-OCT	NOV-DEC
Alternative 1: Table 6a. - Baseline				
DTS				
Dover sole	17,000 lb/2 months			
Sablefish	3,600 lb/2 months			
Shortspine	2,000 lb/2 months			
Longspine	9,000 lb/2 months			
Arrowtooth	20,000 lb/trip	Sm. Ft: 7,500 lb/trip; <= 30,000 lb/mo		20,000 lb/trip
Petrale sole	No restriction	Small footrope: 45,000 lb/mo; no more than 15,000 lb petrale		No restriction
Rex sole	No limit			No limit
All other flatfish (Sm. Ftrope.)	45,000 lb/mo			45,000 lb/mo
Alternative 2: Table 6b.				
DTS				
Dover sole	15,000 lb/2 months			
Sablefish	3,200 lb/2 months			
Shortspine	1,800 lb/2 months			
Longspine	8,000 lb/2 months			
Arrowtooth	20,000 lb/trip	Sm. Ft: 7,500 lb/trip; <= 25,000 lb/mo		20,000 lb/trip
Petrale sole	No restriction	Small footrope: 20,000 lb/mo; no more than 10,000 lb petrale		No restriction
Rex sole	No limit			No limit
All other flatfish (Sm. Ftrope.)	30,000 lb/mo			30,000 lb/mo
Alternative 3: Table 6c.				
DTS				
Dover sole	22,000 lb/2 months	13,000 lb/2 months		22,000 lb/2 months
Sablefish	8,000 lb/2 months	2,000 lb/2 months		8,000 lb/2 months
Shortspine	2,800 lb/2 months	1,500 lb/2 months		2,800 lb/2 months
Longspine	14,000 lb/2 months	2,000 lb/2 months		14,000 lb/2 months
Arrowtooth	20,000 lb/trip	Sm. Ft: 7,500 lb/trip; <= 25,000 lb/mo		20,000 lb/trip
North				
Petrale sole	No restriction	Small footrope: 25,000 lb/mo; no more than 5,000 lb petrale		No restriction
Rex sole	No limit			No limit
All other flatfish (Sm. Ftrope.)	40,000 lb/mo			40,000 lb/mo
South				
Petrale sole	No restriction	Small footrope: 40,000 lb/mo; no more than 15,000 lb petrale		No restriction
Rex sole	No limit			No limit
All other flatfish (Sm. Ftrope.)	50,000 lb/mo			50,000 lb/mo
Alternative 4: Table 6d.				
DTS				
Dover sole	24,000 lb/2 months	13,000 lb/2 mo.	10,000 lb/2 mo.	24,000 lb/2 months
Sablefish	9,000 lb/2 months	2,000 lb/2 months		9,000 lb/2 months
Shortspine	2,800 lb/2 months	1,500 lb/2 months		2,800 lb/2 months
Longspine	14,000 lb/2 months	2,000 lb/2 months		14,000 lb/2 months
Arrowtooth	20,000 lb/trip	Sm. Ft: 7,500 lb/trip; <= 10,000 lb/mo		20,000 lb/trip
North				
Petrale sole	No restriction	25,000 lb/mo; <= 5,000 lb petrale	20,000 lb/mo; <= 5,000 lb petrale	No restriction
Rex sole	No limit			No limit
All other flatfish (Sm. Ftrope.)	2,500 lb/mo			2,500 lb/mo
South				
Petrale sole	No restriction	Small footrope: 40,000 lb/mo; no more than 15,000 lb petrale		No restriction
Rex sole	No limit			No limit
All other flatfish (Sm. Ftrope.)	50,000 lb/mo			50,000 lb/mo

Table 7a.--Projected target species landings (mt) under Trip-limit Alternative 1

Region/ Species Group	Bimonthly Period						
	Jan/Feb	Mar/Apr	May/Jun	Jul/Aug	Sep/Oct	Nov/Dec	Total
North of C. Mendocino							
DTS Complex	924	1,254	1,378	1,370	1,508	1,138	7,572
Sablefish	126	181	238	219	235	164	1,164
Longspines	143	222	176	174	172	189	1,076
Shortspines	70	96	105	98	115	90	574
Dover Sole	586	755	859	879	985	694	4,758
Arrowtooth	207	320	639	681	436	100	2,383
Petrale Sole	543	123	187	232	118	253	1,454
Other Flatfish	111	224	334	363	296	109	1,437
Total Flatfish	1,446	1,421	2,020	2,154	1,835	1,156	10,032
Widow	253	51	52	49	66	47	519
Yellowtail	183	147	207	247	229	119	1,132
Minor Slope Rockfish	36	34	62	58	54	40	282
POP	26	31	65	75	64	20	280
South of C. Mendocino							
DTS Complex	337	408	313	332	355	393	2,138
Sablefish	35	48	45	43	46	53	270
Longspines	73	77	51	60	56	89	406
Shortspines	29	29	24	25	25	31	162
Dover Sole	200	253	194	204	228	221	1,301
Arrowtooth	2	1	0	0	0	4	8
Petrale Sole	60	25	20	28	36	56	226
Other Flatfish	112	140	99	215	247	123	937
Total Flatfish	375	419	314	448	512	405	2,472
Widow	19	7	6	8	8	8	55
Chilipepper	39	58	62	94	84	54	390
Minor Slope Rockfish	17	19	21	18	30	37	142
POP	1	0	0	0	1	0	2
Coastwide Total							
DTS Complex	1,261	1,662	1,691	1,702	1,864	1,530	9,710
Sablefish	161	230	283	262	281	217	1,434
Longspines	216	299	227	233	228	278	1,481
Shortspines	99	125	128	123	141	120	737
Dover Sole	786	1,008	1,053	1,083	1,214	915	6,059
Arrowtooth	210	320	640	681	436	104	2,391
Petrale Sole	603	148	207	260	154	309	1,680
Other Flatfish	223	364	434	578	543	232	2,374
Total Flatfish	1,821	1,839	2,333	2,602	2,347	1,561	12,503
Widow	272	58	58	57	74	55	575
Yellowtail	188	147	207	249	233	122	1,147
Chilipepper	40	60	65	94	92	57	408
Minor Slope Rockfish	53	52	83	75	84	77	424
POP	26	31	65	75	64	20	282

Table 7b.--Projected target species landings (mt) under Trip-limit Alternative 2

Region/ Species Group	Bimonthly Period						
	Jan/Feb	Mar/Apr	May/Jun	Jul/Aug	Sep/Oct	Nov/Dec	Total
North of C. Mendocino							
DTS Complex	858	1,160	1,290	1,273	1,400	1,048	7,028
Sablefish	117	166	214	196	213	149	1,055
Longspines	141	219	176	173	172	181	1,063
Shortspines	66	90	98	92	107	82	535
Dover Sole	535	685	802	811	907	635	4,376
Arrowtooth	207	320	604	634	418	100	2,283
Petrale Sole	543	123	182	196	118	253	1,414
Other Flatfish	111	224	323	294	290	109	1,350
Total Flatfish	1,395	1,351	1,911	1,935	1,733	1,097	9,423
Widow	253	51	52	49	66	47	518
Yellowtail	183	141	204	233	219	112	1,092
Minor Slope Rockfish	36	34	62	58	54	40	282
POP	26	31	65	75	64	20	280
South of C. Mendocino							
DTS Complex	319	381	293	310	329	364	1,996
Sablefish	33	45	40	40	42	49	250
Longspines	72	76	51	60	56	85	400
Shortspines	27	27	22	23	24	28	150
Dover Sole	187	232	180	187	208	202	1,196
Arrowtooth	2	1	0	0	0	4	8
Petrale Sole	60	25	20	28	36	56	226
Other Flatfish	112	119	87	170	192	123	802
Total Flatfish	362	377	287	385	435	386	2,233
Widow	19	7	6	8	8	8	55
Chilipepper	39	58	62	94	84	54	390
Minor Slope Rockfish	17	19	21	18	30	37	142
POP	1	0	0	0	1	0	2
Coastwide Total							
DTS Complex	1,177	1,541	1,583	1,582	1,729	1,412	9,024
Sablefish	150	211	255	236	255	198	1,305
Longspines	213	296	227	233	228	267	1,463
Shortspines	92	117	119	115	131	111	685
Dover Sole	722	917	982	998	1,115	837	5,571
Arrowtooth	210	320	605	634	418	104	2,291
Petrale Sole	603	148	202	225	154	309	1,641
Other Flatfish	223	343	410	464	481	232	2,153
Total Flatfish	1,757	1,728	2,199	2,321	2,168	1,483	11,656
Widow	272	57	58	57	74	55	573
Yellowtail	188	141	204	235	223	115	1,106
Chilipepper	40	60	65	94	92	57	408
Minor Slope Rockfish	53	52	83	75	84	77	424
POP	26	31	65	75	64	20	282

Table 7c.--Projected target species landings (mt) under Trip-limit Alternative 3

Region/ Species Group	Bimonthly Period						
	Jan/Feb	Mar/Apr	May/Jun	Jul/Aug	Sep/Oct	Nov/Dec	Total
North of C. Mendocino							
DTS Complex	1,088	1,504	1,059	1,017	1,142	1,422	7,232
Sablefish	165	256	139	126	139	291	1,116
Longspines	144	223	98	83	93	195	835
Shortspines	82	113	86	81	93	114	569
Dover Sole	697	912	737	727	817	822	4,711
Arrowtooth	207	320	417	428	316	100	1,788
Petrale Sole	543	123	158	142	110	253	1,329
Other Flatfish	111	224	332	323	294	109	1,393
Total Flatfish	1,557	1,578	1,644	1,620	1,538	1,284	9,220
Widow	253	51	50	47	62	47	510
Yellowtail	183	162	192	207	199	133	1,077
Minor Slope Rockfish	36	34	50	44	43	42	249
POP	26	31	65	75	64	20	280
South of C. Mendocino							
DTS Complex	361	476	235	243	263	473	2,052
Sablefish	38	67	28	28	30	80	270
Longspines	73	77	25	26	28	91	321
Shortspines	36	35	19	20	21	39	169
Dover Sole	215	297	163	169	185	264	1,292
Arrowtooth	2	1	0	0	0	4	8
Petrale Sole	60	25	20	28	36	56	226
Other Flatfish	112	144	99	206	238	123	923
Total Flatfish	390	467	283	403	459	448	2,450
Widow	19	7	5	7	7	9	54
Chilipepper	39	58	62	94	84	54	390
Minor Slope Rockfish	17	19	21	18	30	37	142
POP	1	0	0	0	1	0	2
Coastwide Total							
DTS Complex	1,450	1,980	1,294	1,259	1,405	1,895	9,284
Sablefish	203	323	166	154	169	371	1,386
Longspines	217	300	123	108	121	286	1,156
Shortspines	118	148	105	101	114	152	738
Dover Sole	911	1,209	900	896	1,002	1,086	6,004
Arrowtooth	210	320	417	428	317	104	1,795
Petrale Sole	603	148	178	170	147	309	1,555
Other Flatfish	223	368	432	529	532	232	2,316
Total Flatfish	1,947	2,045	1,926	2,023	1,997	1,732	11,670
Widow	272	58	55	54	69	56	564
Yellowtail	188	162	192	210	203	137	1,091
Chilipepper	40	60	65	94	92	57	408
Minor Slope Rockfish	53	52	71	62	72	79	390
POP	26	31	65	75	64	20	282

Table 7d.--Projected target species landings (mt) under Trip-limit Alternative 4

Region/ Species Group	Bimonthly Period						
	Jan/Feb	Mar/Apr	May/Jun	Jul/Aug	Sep/Oct	Nov/Dec	Total
North of C. Mendocino							
DTS Complex	1,129	1,563	1,059	1,017	987	1,482	7,237
Sablefish	167	258	139	126	139	310	1,138
Longspines	144	223	98	83	93	195	835
Shortspines	82	113	86	81	93	114	569
Dover Sole	736	969	737	727	662	863	4,695
Arrowtooth	207	320	417	428	280	100	1,752
Petrale Sole	543	123	158	142	110	253	1,329
Other Flatfish	84	133	332	323	290	93	1,254
Total Flatfish	1,570	1,544	1,644	1,620	1,343	1,309	9,029
Widow	253	51	50	47	60	47	508
Yellowtail	183	164	192	207	179	136	1,062
Minor Slope Rockfish	36	34	50	44	43	42	249
POP	26	31	65	75	64	20	280
South of C. Mendocino							
DTS Complex	364	492	235	243	228	491	2,054
Sablefish	38	68	28	28	30	83	275
Longspines	73	77	25	26	28	91	321
Shortspines	36	35	19	20	21	39	169
Dover Sole	218	311	163	169	150	279	1,289
Arrowtooth	2	1	0	0	0	4	8
Petrale Sole	60	25	20	28	36	56	226
Other Flatfish	112	144	99	206	238	123	923
Total Flatfish	392	481	283	403	424	463	2,447
Widow	19	7	5	7	7	9	53
Chilipepper	39	58	62	94	84	54	390
Minor Slope Rockfish	17	19	21	18	30	37	142
POP	1	0	0	0	1	0	2
Coastwide Total							
DTS Complex	1,494	2,055	1,294	1,259	1,216	1,973	9,291
Sablefish	205	326	166	154	169	393	1,413
Longspines	217	300	123	108	121	286	1,156
Shortspines	118	148	105	101	114	152	738
Dover Sole	954	1,281	900	896	812	1,142	5,984
Arrowtooth	210	320	417	428	281	104	1,760
Petrale Sole	603	148	178	170	147	309	1,555
Other Flatfish	196	277	432	529	528	216	2,178
Total Flatfish	1,962	2,026	1,926	2,023	1,767	1,772	11,476
Widow	272	57	55	54	66	55	561
Yellowtail	188	164	192	210	182	140	1,076
Chilipepper	40	60	65	94	92	57	408
Minor Slope Rockfish	53	52	71	62	72	79	390
POP	26	31	65	75	64	20	282

Table 8a.--Ranges of estimated bycatch (mt) and discard (mt) for trip limit Alternative 1

	Lingcod			Canary			POP			Darkblotched			Bocaccio		
	Bycatch range			Bycatch range			Bycatch range			Bycatch range			Bycatch range		
	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
Coastwide Full Year															
Target fishery															
Arrowtooth	0.1	0.1	0.0	0.0	0.0	0.0	2.0	1.1	0.3	0.3	0.2	0.1			
Petrale	7.2	5.5	3.8	2.9	1.9	0.9	13.2	8.8	4.5	17.5	12.5	7.5	0.2	0.2	0.1
Flatfish	131.9	86.7	41.4	54.1	36.5	18.9	202.0	144.1	86.7	114.9	78.6	42.3	4.9	3.3	1.7
Widow/Ytail	0.4	0.2	0.1	0.7	0.4	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
DTS	49.5	31.2	13.2	16.9	14.4	12.8	101.8	70.9	41.1	153.9	92.4	30.9	1.2	0.6	0.4
Chillipepper	11.3	7.6	3.8	4.2	2.8	1.4	0.1	0.0	0.0				9.0	6.0	3.0
Other rock	1.1	0.7	0.3	0.2	0.1	0.0	2.6	1.8	1.0	7.8	6.0	4.3	0.6	0.4	0.2
Leftover	4.1	2.6	1.2	2.7	1.7	0.7	13.2	8.3	3.4	7.8	4.7	1.6	0.7	0.4	0.2
Total	205.6	134.6	63.8	81.7	57.7	34.7	335.0	235.1	137.0	302.4	194.6	86.7	16.6	10.8	5.5
LE total catch OY	208	208	208	36	36	36	350	350	350	163	163	163	27	27	27
All Targets															
North of C. Mendocino															
1	6.5	4.3	2.1	3.3	1.9	0.4	30.2	17.9	5.5	46.9	29.4	11.9			
2	26.8	15.6	4.3	8.2	4.7	1.3	50.6	37.3	23.9	41.9	25.7	9.5			
3	37.5	28.2	18.9	16.3	10.0	3.8	104.1	76.2	48.3	58.0	43.6	29.2			
4	48.6	33.8	18.9	28.9	21.7	14.4	73.2	49.5	25.8	50.8	35.4	20.0			
5	56.7	33.5	10.3	17.5	15.0	12.6	49.9	36.9	24.0	48.4	29.4	10.4			
6	6.2	3.9	1.6	1.2	0.7	0.2	24.8	16.9	9.0	56.3	31.0	5.7			
Year	182.2	119.1	56.0	75.3	54.0	32.7	332.8	234.6	136.5	302.4	194.6	86.7			
South of C. Mendocino															
1	1.4	0.9	0.5	1.2	0.7	0.4	0.2	0.0	0.1				1.6	1.0	0.5
2	2.5	1.6	0.8	1.3	0.8	0.4	0.9	0.5	0.3				2.6	1.7	0.9
3	4.3	2.8	1.4	1.0	0.6	0.3	0.2	0.0	0.0				4.0	2.6	1.3
4	6.4	4.3	2.1	1.2	0.8	0.4	0.3	0.0	0.1				3.4	2.3	1.1
5	5.0	3.4	1.7	1.0	0.5	0.3	0.3	0.0	0.1				3.2	2.1	1.1
6	3.8	2.6	1.3	0.8	0.4	0.2	0.3	0.0	0.1				2.0	1.2	0.6
Year	23.4	15.5	7.8	6.4	3.7	2.0	2.2	0.5	0.5				16.6	10.8	5.5
Coastwide total bycatch ranges															
1	7.9	5.2	2.5	4.5	2.5	0.8	30.4	17.9	5.6	46.9	29.4	11.9	1.6	1.0	0.5
2	29.3	17.1	5.1	9.4	5.5	1.7	51.5	37.7	24.2	41.9	25.7	9.5	2.6	1.7	0.9
3	41.7	31.0	20.3	17.3	10.6	4.1	104.3	76.2	48.4	58.0	43.6	29.2	4.0	2.6	1.3
4	55.0	38.0	21.0	30.1	22.4	14.8	73.5	49.5	25.8	50.8	35.4	20.0	3.4	2.3	1.1
5	61.7	36.8	11.9	18.4	15.6	12.9	50.2	36.9	24.0	48.4	29.4	10.4	3.2	2.1	1.1
6	10.0	6.5	2.9	2.0	1.1	0.4	25.1	16.9	9.1	56.3	31.0	5.7	2.0	1.2	0.6
Year	205.6	134.6	63.8	81.7	57.7	34.7	335.0	235.1	137.0	302.4	194.6	86.7	16.6	10.8	5.5
Coastwide bycatch in excess of trip limits (assumed discard)															
1	7.9	5.2	2.5	0.2	0.0	0.0	0.0	0.0	0.0	14.0	3.1	0.1	0.0	0.0	0.0
2	29.3	17.1	5.1	1.9	0.5	0.0	2.7	0.7	0.0	5.1	1.1	0.0	0.1	0.0	0.0
3	7.5	3.5	1.0	1.8	0.3	0.0	5.7	1.4	0.0	9.9	5.0	1.5	0.3	0.0	0.0
4	18.1	8.2	1.3	6.2	3.6	1.7	2.0	0.0	0.0	9.3	4.0	0.4	0.0	0.0	0.0
5	16.1	5.4	0.2	3.1	1.0	0.0	1.5	0.1	0.0	6.3	2.0	0.0	0.0	0.0	0.0
6	10.0	6.5	2.9	0.1	0.0	0.0	0.1	0.0	0.0	15.2	1.3	0.1	0.2	0.0	0.0
Year	88.9	45.9	13.0	13.2	5.4	1.7	12.0	2.2	0.0	59.7	16.4	2.1	0.6	0.0	0.0
Implicit discard rates															
1	100%	100%	100%	4%	1%	0%	0%	0%	0%	30%	10%	1%	1%	0%	0%
2	100%	100%	100%	20%	8%	0%	5%	2%	0%	12%	4%	0%	4%	0%	0%
3	18%	11%	5%	10%	3%	0%	5%	2%	0%	17%	12%	5%	7%	0%	0%
4	33%	22%	6%	21%	16%	11%	3%	0%	0%	18%	11%	2%	0%	0%	0%
5	26%	15%	2%	17%	7%	0%	3%	0%	0%	13%	7%	0%	0%	0%	0%
6	100%	100%	100%	7%	2%	0%	1%	0%	0%	27%	4%	2%	11%	2%	0%
Year	43%	34%	20%	16%	9%	5%	4%	1%	0%	20%	8%	2%	4%	0%	0%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table 8b.--Ranges of estimated bycatch and discard for trip limit Alternative 2

	Lingcod			Canary			POP			Darkblotched			Bocaccio		
	Bycatch range			Bycatch range			Bycatch range			Bycatch range			Bycatch range		
	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
Coastwide Full Year															
Target fishery															
Arrowtooth	0.1	0.1	0.0	0.0	0.0	0.0	2.0	1.1	0.3	0.3	0.2	0.1			
Petrale	7.0	5.3	3.7	2.6	1.7	0.8	13.1	8.8	4.5	17.3	12.3	7.3	0.2	0.2	0.1
Flatfish	121.8	80.0	38.1	50.0	33.6	17.1	188.6	134.8	81.5	107.8	73.7	39.5	4.3	2.9	1.4
Widow/Ytail	0.4	0.2	0.1	0.7	0.4	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
DTS	46.1	29.1	12.3	15.8	13.4	11.8	95.0	66.1	38.3	143.2	86.1	28.9	1.2	0.6	0.3
Chillipepper	11.3	7.6	3.8	4.2	2.8	1.4	0.1	0.0	0.0				9.0	6.0	3.0
Other rock	1.1	0.7	0.3	0.2	0.1	0.0	2.6	1.8	1.0	7.8	6.0	4.3	0.6	0.4	0.2
Leftover	3.7	2.4	1.1	2.5	1.5	0.6	12.1	7.6	3.1	7.3	4.4	1.5	0.6	0.4	0.2
Total	191.5	125.3	59.4	76.0	53.5	31.9	313.7	220.4	128.8	283.9	182.7	81.6	15.9	10.3	5.2
LE total catch OY	208	208	208	36	36	36	350	350	350	163	163	163	27	27	27
All Targets															
North of C. Mendocino															
1	6.3	4.2	2.0	3.2	1.8	0.4	29.1	17.2	5.4	45.2	28.4	11.6			
2	25.6	14.9	4.1	7.8	4.5	1.2	48.2	35.5	22.8	39.9	24.5	9.1			
3	35.4	26.6	17.9	15.4	9.5	3.6	98.3	72.0	45.7	54.7	41.2	27.6			
4	43.1	30.0	16.8	25.8	19.3	12.8	65.6	44.5	23.3	46.2	32.2	18.1			
5	53.2	31.4	9.7	16.5	14.1	11.8	47.1	34.8	22.6	45.4	27.6	9.8			
6	5.9	3.7	1.6	1.1	0.7	0.2	23.4	16.0	8.5	52.4	28.9	5.4			
Year	169.4	110.7	52.1	69.8	49.9	30.0	311.7	220.0	128.3	283.9	182.7	81.6			
South of C. Mendocino															
1	1.4	0.9	0.5	1.2	0.7	0.4	0.2	0.0	0.1				1.5	0.9	0.5
2	2.4	1.5	0.8	1.2	0.8	0.4	0.8	0.4	0.2				2.5	1.6	0.8
3	4.1	2.7	1.4	1.0	0.6	0.3	0.2	0.0	0.0				3.8	2.5	1.3
4	6.0	4.0	2.0	1.2	0.8	0.4	0.2	0.0	0.1				3.2	2.1	1.1
5	4.5	3.0	1.5	0.9	0.5	0.3	0.3	0.0	0.1				2.9	2.0	1.0
6	3.8	2.5	1.3	0.7	0.4	0.2	0.3	0.0	0.1				1.9	1.2	0.6
Year	22.1	14.6	7.3	6.2	3.6	1.9	2.0	0.4	0.5				15.9	10.3	5.2
Coastwide total bycatch ranges															
1	7.7	5.1	2.5	4.4	2.5	0.8	29.3	17.2	5.4	45.2	28.4	11.6	1.5	0.9	0.5
2	28.0	16.4	4.9	9.0	5.3	1.6	49.0	36.0	23.1	39.9	24.5	9.1	2.5	1.6	0.8
3	39.4	29.3	19.2	16.4	10.0	3.9	98.5	72.0	45.7	54.7	41.2	27.6	3.8	2.5	1.3
4	49.1	33.9	18.8	27.0	20.0	13.2	65.9	44.5	23.4	46.2	32.2	18.1	3.2	2.1	1.1
5	57.7	34.4	11.1	17.4	14.6	12.1	47.4	34.8	22.7	45.4	27.6	9.8	2.9	2.0	1.0
6	9.7	6.3	2.8	1.9	1.1	0.4	23.7	16.0	8.5	52.4	28.9	5.4	1.9	1.2	0.6
Year	191.5	125.3	59.4	76.0	53.5	31.9	313.7	220.4	128.8	283.9	182.7	81.6	15.9	10.3	5.2
Coastwide bycatch in excess of trip limits (assumed discard)															
1	7.7	5.1	2.5	0.2	0.0	0.0	0.0	0.0	0.0	12.5	2.7	0.1	0.0	0.0	0.0
2	28.0	16.4	4.9	1.7	0.4	0.0	2.4	0.6	0.0	4.5	1.0	0.0	0.0	0.0	0.0
3	6.1	2.6	0.6	1.2	0.1	0.0	3.7	0.5	0.0	8.2	3.9	0.9	0.3	0.0	0.0
4	13.1	5.1	0.3	3.9	1.8	0.6	0.1	0.0	0.0	6.2	2.2	0.1	0.0	0.0	0.0
5	14.1	4.6	0.1	2.6	0.7	0.0	0.9	0.0	0.0	5.3	1.5	0.0	0.0	0.0	0.0
6	9.7	6.3	2.8	0.1	0.0	0.0	0.1	0.0	0.0	11.7	1.2	0.1	0.2	0.0	0.0
Year	78.6	39.9	11.1	9.6	3.2	0.6	7.3	1.1	0.0	48.4	12.5	1.3	0.5	0.0	0.0
Implicit discard rates															
1	100%	100%	100%	4%	1%	0%	0%	0%	0%	28%	10%	1%	1%	0%	0%
2	100%	100%	100%	19%	8%	0%	5%	2%	0%	11%	4%	0%	2%	0%	0%
3	15%	9%	3%	7%	1%	0%	4%	1%	0%	15%	10%	3%	7%	0%	0%
4	27%	15%	2%	14%	9%	5%	0%	0%	0%	13%	7%	1%	0%	0%	0%
5	24%	13%	1%	15%	5%	0%	2%	0%	0%	12%	5%	0%	0%	0%	0%
6	100%	100%	100%	7%	2%	0%	1%	0%	0%	22%	4%	2%	11%	2%	0%
Year	41%	32%	19%	13%	6%	2%	2%	0%	0%	17%	7%	2%	3%	0%	0%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table 8c.--Ranges of estimated bycatch and discard for trip limit Alternative 3

	Lingcod			Canary			POP			Darkblotched			Bocaccio		
	Bycatch range			Bycatch range			Bycatch range			Bycatch range			Bycatch range		
	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
Coastwide Full Year															
Target fishery															
Arrowtooth	0.1	0.1	0.0	0.0	0.0	0.0	2.0	1.1	0.3	0.3	0.2	0.1			
Petrale	6.4	4.9	3.4	2.2	1.4	0.6	12.9	8.7	4.4	16.8	12.0	7.1	0.2	0.2	0.1
Flatfish	110.9	72.1	33.2	44.0	29.1	14.3	170.5	122.0	74.0	104.3	70.0	35.7	4.9	3.3	1.6
Widow/Ytail	0.4	0.2	0.1	0.7	0.4	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
DTS	39.3	24.6	10.1	13.3	11.0	9.6	92.3	63.3	35.2	149.8	88.0	26.1	1.1	0.5	0.3
Chillipepper	11.3	7.6	3.8	4.2	2.8	1.4	0.1	0.0	0.0				9.0	6.0	3.0
Other rock	1.0	0.7	0.3	0.2	0.1	0.0	2.0	1.4	0.8	6.6	5.2	3.7	0.6	0.4	0.2
Leftover	3.1	2.0	0.9	2.1	1.3	0.5	10.2	6.3	2.5	6.1	3.7	1.3	0.6	0.4	0.2
Total	172.6	112.0	51.8	66.6	46.1	26.5	290.2	202.9	117.3	284.1	179.1	74.1	16.4	10.6	5.4
LE total catch OY	208	208	208	36	36	36	350	350	350	163	163	163	27	27	27
All Targets															
North of C. Mendocino															
1	6.9	4.5	2.2	3.6	2.0	0.5	32.9	19.4	5.9	51.1	31.9	12.6			
2	29.7	17.2	4.7	9.0	5.2	1.4	56.5	41.5	26.6	47.2	28.9	10.5			
3	28.6	21.5	14.4	12.4	7.7	2.9	79.3	58.1	36.8	44.0	33.2	22.3			
4	33.7	23.4	13.1	20.2	15.1	10.0	51.4	34.8	18.2	35.8	24.9	14.0			
5	43.8	25.9	8.0	13.7	11.6	9.5	39.0	28.9	18.8	36.9	22.4	8.0			
6	6.9	4.3	1.8	1.4	0.8	0.3	28.9	19.7	10.5	69.1	38.0	6.8			
Year	149.5	96.8	44.1	60.3	42.4	24.5	288.0	202.4	116.8	284.1	179.1	74.1			
South of C. Mendocino															
1	1.5	0.9	0.5	1.2	0.7	0.4	0.3	0.0	0.1				1.6	1.0	0.5
2	2.6	1.6	0.8	1.3	0.8	0.4	1.0	0.5	0.3				2.7	1.8	0.9
3	4.1	2.7	1.4	0.9	0.6	0.3	0.2	0.0	0.0				3.7	2.5	1.2
4	6.2	4.2	2.1	1.2	0.8	0.4	0.2	0.0	0.1				3.3	2.2	1.1
5	4.8	3.2	1.6	0.9	0.5	0.3	0.3	0.0	0.1				3.1	2.0	1.0
6	3.9	2.6	1.3	0.8	0.4	0.2	0.3	0.0	0.1				2.0	1.2	0.6
Year	23.1	15.2	7.6	6.3	3.7	2.0	2.2	0.5	0.6				16.4	10.6	5.4
Coastwide total bycatch ranges															
1	8.3	5.4	2.6	4.8	2.7	0.8	33.2	19.4	5.9	51.1	31.9	12.6	1.6	1.0	0.5
2	32.3	18.9	5.6	10.3	6.0	1.8	57.5	42.1	26.9	47.2	28.9	10.5	2.7	1.8	0.9
3	32.7	24.2	15.8	13.4	8.2	3.2	79.5	58.1	36.9	44.0	33.2	22.3	3.7	2.5	1.2
4	39.9	27.6	15.2	21.4	15.8	10.4	51.6	34.8	18.3	35.8	24.9	14.0	3.3	2.2	1.1
5	48.5	29.1	9.6	14.6	12.2	9.8	39.2	28.9	18.8	36.9	22.4	8.0	3.1	2.0	1.0
6	10.8	6.9	3.1	2.2	1.2	0.5	29.2	19.7	10.6	69.1	38.0	6.8	2.0	1.2	0.6
Year	172.6	112.0	51.8	66.6	46.1	26.5	290.2	202.9	117.3	284.1	179.1	74.1	16.4	10.6	5.4
Coastwide bycatch in excess of trip limits (assumed discard)															
1	8.3	5.4	2.6	0.2	0.0	0.0	0.0	0.0	0.0	17.8	4.3	0.1	0.0	0.0	0.0
2	32.3	18.9	5.6	2.2	0.5	0.0	3.4	1.1	0.0	7.1	1.5	0.0	0.1	0.0	0.0
3	2.0	0.4	0.0	0.2	0.0	0.0	0.2	0.0	0.0	3.3	1.1	0.0	0.2	0.0	0.0
4	6.2	1.4	0.0	1.0	0.2	0.0	0.0	0.0	0.0	1.7	0.3	0.0	0.0	0.0	0.0
5	8.7	2.0	0.0	1.0	0.1	0.0	0.0	0.0	0.0	2.1	0.3	0.0	0.0	0.0	0.0
6	10.8	6.9	3.1	0.1	0.0	0.0	0.2	0.0	0.0	27.4	4.1	0.4	0.2	0.0	0.0
Year	68.3	34.9	11.2	4.7	1.0	0.0	3.7	1.1	0.0	59.5	11.6	0.5	0.6	0.0	0.0
Implicit discard rates															
1	100%	100%	100%	4%	1%	0%	0%	0%	0%	35%	14%	1%	1%	0%	0%
2	100%	100%	100%	21%	9%	0%	6%	3%	0%	15%	5%	0%	5%	0%	0%
3	6%	2%	0%	1%	0%	0%	0%	0%	0%	8%	3%	0%	6%	0%	0%
4	16%	5%	0%	5%	2%	0%	0%	0%	0%	5%	1%	0%	0%	0%	0%
5	18%	7%	0%	7%	1%	0%	0%	0%	0%	6%	1%	0%	0%	0%	0%
6	100%	100%	100%	6%	2%	0%	1%	0%	0%	40%	11%	6%	11%	2%	0%
Year	40%	31%	22%	7%	2%	0%	1%	1%	0%	21%	6%	1%	4%	0%	0%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table 8d.--Ranges of estimated bycatch and discard for trip limit Alternative 4.

	Lingcod			Canary			POP			Darkblotched			Bocaccio		
	Bycatch range			Bycatch range			Bycatch range			Bycatch range			Bycatch range		
	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
Coastwide Full Year															
Target fishery															
Arrowtooth	0.1	0.1	0.0	0.0	0.0	0.0	2.0	1.1	0.3	0.3	0.2	0.1			
Petrale	6.4	4.9	3.4	2.2	1.4	0.6	12.9	8.7	4.4	16.8	12.0	7.1	0.2	0.2	0.1
Flatfish	119.1	79.9	40.7	50.1	34.3	18.6	172.2	122.8	74.1	79.2	57.2	35.3	6.7	4.5	2.2
Widow/Ytail	0.4	0.2	0.1	0.7	0.4	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
DTS	12.4	7.2	2.2	4.1	2.5	1.5	59.9	38.3	17.5	114.7	63.6	12.5	0.6	0.1	0.1
Chillipepper	11.3	7.6	3.8	4.2	2.8	1.4	0.1	0.0	0.0				9.0	6.0	3.0
Other rock	1.0	0.7	0.3	0.2	0.1	0.0	2.0	1.4	0.8	6.6	5.2	3.7	0.6	0.4	0.2
Leftover	3.0	1.9	0.9	2.0	1.2	0.5	9.9	6.2	2.4	5.9	3.6	1.3	0.6	0.4	0.2
Total	153.7	102.4	51.3	63.4	42.7	22.7	259.2	178.6	99.5	223.6	141.8	60.0	17.6	11.5	5.8
LE total catch OY	208	208	208	36	36	36	350	350	350	163	163	163	27	27	27
All Targets															
North of C. Mendocino															
1	3.6	2.6	1.6	2.2	1.2	0.2	18.7	10.9	3.2	34.0	21.6	9.2			
2	10.9	6.2	1.5	2.4	1.4	0.4	34.8	23.4	12.0	32.2	19.0	5.9			
3	30.1	23.6	17.2	15.4	9.6	3.7	81.7	59.8	37.9	32.1	25.9	19.6			
4	38.9	26.1	13.2	19.3	15.5	11.6	49.3	31.6	14.0	26.8	19.4	12.1			
5	40.7	24.4	8.1	16.7	10.6	4.6	45.1	33.9	22.8	26.5	16.6	6.7			
6	3.7	2.4	1.1	1.1	0.7	0.2	27.6	18.3	9.1	72.0	39.2	6.5			
Year	127.8	85.3	42.7	57.0	38.9	20.7	257.1	178.0	99.0	223.6	141.8	60.0			
South of C. Mendocino															
1	1.5	0.9	0.5	1.2	0.7	0.4	0.3	0.0	0.1				1.6	1.0	0.5
2	2.6	1.7	0.8	1.3	0.8	0.4	1.0	0.5	0.3				2.7	1.8	0.9
3	5.3	3.6	1.8	1.0	0.6	0.3	0.2	0.0	0.0				4.4	2.9	1.5
4	7.2	4.8	2.4	1.2	0.8	0.4	0.2	0.0	0.0				3.6	2.4	1.2
5	5.4	3.6	1.8	0.9	0.6	0.3	0.2	0.0	0.0				3.3	2.2	1.1
6	3.9	2.6	1.3	0.8	0.4	0.2	0.3	0.0	0.1				2.0	1.2	0.7
Year	25.9	17.1	8.6	6.4	3.9	2.0	2.1	0.5	0.5				17.6	11.5	5.8
Coastwide total bycatch ranges															
1	5.0	3.5	2.1	3.3	1.8	0.6	18.9	10.9	3.2	34.0	21.6	9.2	1.6	1.0	0.5
2	13.5	7.8	2.3	3.7	2.2	0.8	35.8	24.0	12.3	32.2	19.0	5.9	2.7	1.8	0.9
3	35.4	27.2	18.9	16.4	10.2	4.0	81.8	59.8	38.0	32.1	25.9	19.6	4.4	2.9	1.5
4	46.1	30.8	15.6	20.5	16.2	12.0	49.5	31.6	14.0	26.8	19.4	12.1	3.6	2.4	1.2
5	46.0	28.0	9.9	17.6	11.2	4.9	45.3	33.9	22.8	26.5	16.6	6.7	3.3	2.2	1.1
6	7.6	5.0	2.4	1.9	1.0	0.4	27.9	18.3	9.2	72.0	39.2	6.5	2.0	1.2	0.7
Year	153.7	102.4	51.3	63.4	42.7	22.7	259.2	178.6	99.5	223.6	141.8	60.0	17.6	11.5	5.8
Coastwide bycatch in excess of trip limits (assumed discard)															
1	5.0	3.5	2.1	0.2	0.0	0.0	0.0	0.0	0.0	4.6	1.1	0.1	0.0	0.0	0.0
2	13.5	7.8	2.3	0.2	0.0	0.0	0.2	0.0	0.0	0.8	0.0	0.0	0.1	0.0	0.0
3	2.1	0.4	0.0	0.2	0.0	0.0	0.2	0.0	0.0	3.0	0.9	0.0	0.3	0.0	0.0
4	6.9	1.5	0.0	1.0	0.2	0.0	0.0	0.0	0.0	1.3	0.1	0.0	0.0	0.0	0.0
5	6.2	1.2	0.0	0.6	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0
6	7.6	5.0	2.4	0.1	0.0	0.0	0.2	0.0	0.0	29.9	4.8	0.4	0.2	0.0	0.0
Year	41.4	19.5	6.8	2.3	0.3	0.0	0.6	0.0	0.0	40.6	6.9	0.5	0.6	0.0	0.0
Implicit discard rates															
1	100%	100%	100%	5%	2%	0%	0%	0%	0%	13%	5%	1%	1%	0%	0%
2	100%	100%	100%	4%	2%	0%	1%	0%	0%	2%	0%	0%	5%	0%	0%
3	6%	2%	0%	1%	0%	0%	0%	0%	0%	9%	4%	0%	6%	0%	0%
4	15%	5%	0%	5%	1%	0%	0%	0%	0%	5%	1%	0%	0%	0%	0%
5	13%	4%	0%	4%	0%	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%
6	100%	100%	100%	7%	2%	0%	1%	0%	0%	42%	12%	6%	11%	2%	0%
Year	27%	19%	13%	4%	1%	0%	0%	0%	0%	18%	5%	1%	4%	0%	0%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table 8e.--Estimated impact on discare of allowing trawl vessels to land up to 400 lb of lingcod per month throughout the entire year, as opposed to only in periods 3,4, and 5.

	Alternative 1			Alternative 2			Alternative 3			Alternative 4		
	Bycatch range			Bycatch range			Bycatch range			Bycatch range		
	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
With 400 lb/mo limit in periods 1,2, and 6												
Coastwide total bycatch ranges												
1	7.9	5.2	2.5	7.7	5.1	2.5	8.3	5.4	2.6	5.0	3.5	2.1
2	29.3	17.1	5.1	28.0	16.4	4.9	32.3	18.9	5.6	13.5	7.8	2.3
3	41.7	31.0	20.3	39.4	29.3	19.2	32.7	24.2	15.8	35.4	27.2	18.9
4	55.0	38.0	21.0	49.1	33.9	18.8	39.9	27.6	15.2	46.1	30.8	15.6
5	61.7	36.8	11.9	57.7	34.4	11.1	48.5	29.1	9.6	46.0	28.0	9.9
6	10.0	6.5	2.9	9.7	6.3	2.8	10.8	6.9	3.1	7.6	5.0	2.4
Year	205.6	134.6	63.8	191.5	125.3	59.4	172.6	112.0	51.8	153.7	102.4	51.3
Coastwide bycatch in excess of trip limits (assumed discard)												
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	3.4	0.6	0.0	3.2	0.6	0.0	4.2	0.9	0.0	0.0	0.0	0.0
3	7.5	3.5	1.0	6.1	2.6	0.6	2.0	0.4	0.0	2.1	0.4	0.0
4	18.1	8.2	1.3	13.1	5.1	0.3	6.2	1.4	0.0	6.9	1.5	0.0
5	16.1	5.4	0.2	14.1	4.6	0.1	8.7	2.0	0.0	6.2	1.2	0.0
6	0.8	0.3	0.0	0.8	0.3	0.0	0.8	0.3	0.0	0.8	0.3	0.0
Year	45.9	18.1	2.5	37.2	13.1	0.9	21.8	4.9	0.0	16.0	3.4	0.0
Implicit discard rates												
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	12%	4%	0%	11%	3%	0%	13%	5%	0%	0%	0%	0%
3	18%	11%	5%	15%	9%	3%	6%	2%	0%	6%	2%	0%
4	33%	22%	6%	27%	15%	2%	16%	5%	0%	15%	5%	0%
5	26%	15%	2%	24%	13%	1%	18%	7%	0%	13%	4%	0%
6	8%	4%	0%	8%	4%	0%	7%	4%	0%	10%	6%	0%
Year	22%	13%	4%	19%	10%	2%	13%	4%	0%	10%	3%	0%
With no retention during periods 1,2, and 6												
Coastwide bycatch in excess of trip limits (assumed discard)												
1	7.9	5.2	2.5	7.7	5.1	2.5	8.3	5.4	2.6	5.0	3.5	2.1
2	29.3	17.1	5.1	28.0	16.4	4.9	32.3	18.9	5.6	13.5	7.8	2.3
3	7.5	3.5	1.0	6.1	2.6	0.6	2.0	0.4	0.0	2.1	0.4	0.0
4	18.1	8.2	1.3	13.1	5.1	0.3	6.2	1.4	0.0	6.9	1.5	0.0
5	16.1	5.4	0.2	14.1	4.6	0.1	8.7	2.0	0.0	6.2	1.2	0.0
6	10.0	6.5	2.9	9.7	6.3	2.8	10.8	6.9	3.1	7.6	5.0	2.4
Year	88.9	45.9	13.0	78.6	39.9	11.1	68.3	34.9	11.2	41.4	19.5	6.8
Implicit discard rates												
1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	18%	11%	5%	15%	9%	3%	6%	2%	0%	6%	2%	0%
4	33%	22%	6%	27%	15%	2%	16%	5%	0%	15%	5%	0%
5	26%	15%	2%	24%	13%	1%	18%	7%	0%	13%	4%	0%
6	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Year	43%	34%	20%	41%	32%	19%	40%	31%	22%	27%	19%	13%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table 9.--Summary of bycatch and discard estimated using alternative simulation methods, utilizing logbook catches-per-tow and bycatches-per-tow from the EDCP data set.

Limit Structure			Lingcod				Canary				POP			
Bycatch modelling			Catch	Ret.	Discard		Catch	Ret.	Discard		Catch	Ret.	Discard	
Tow pool	Period	N	mt	mt	mt	%	mt	mt	mt	%	mt	mt	mt	%
Alternative 4														
Annual Mean Annual														
[Model 1]	1	1	5.0	0.0	5.0	100%	1.4	1.4	0.0	0%	16.7	16.7	0.0	0%
	2	1	5.9	0.0	5.9	100%	2.3	2.3	0.1	2%	15.4	15.3	0.1	1%
	3	1	41.8	35.8	6.0	14%	12.9	12.9	0.0	0%	55.2	55.2	0.0	0%
	4	1	39.6	33.1	6.5	16%	12.2	12.2	0.0	0%	51.3	51.3	0.0	0%
	5	1	28.7	26.9	1.8	6%	8.9	8.9	0.0	0%	36.2	36.2	0.0	0%
	6	1	4.4	0.0	4.4	100%	1.6	1.6	0.0	0%	13.6	13.6	0.0	0%
	Year		125.4	95.8	29.6	**24%**	39.2	39.2	0.1	**0%**	188.6	188.5	0.1	**0%**
Annual Mean Period														
[Model 2]	1	1	2.9	0.0	2.9	100%	0.6	0.6	0.0	0%	14.1	14.0	0.2	1%
	2	1	7.0	0.0	7.0	100%	0.3	0.3	0.0	4%	11.8	11.7	0.1	1%
	3	1	29.8	28.3	1.4	5%	2.9	2.9	0.0	0%	88.3	88.3	0.0	0%
	4	1	49.2	37.5	11.7	24%	30.4	25.4	5.0	16%	63.3	63.3	0.0	0%
	5	1	32.1	29.4	2.7	9%	5.7	5.7	0.0	0%	32.4	32.4	0.0	0%
	6	1	1.8	0.0	1.8	100%	0.0	0.0	0.0	0%	7.5	7.5	0.0	0%
	Year		122.8	95.2	27.6	**22%**	39.8	34.8	5.0	**13%**	217.5	217.3	0.2	**0%**
Random draw Annual														
[Model 3]	1	500	5.3	0.0	5.3	100%	1.0	0.7	0.3	27%	18.6	15.5	3.1	17%
	2	500	6.2	0.0	6.2	100%	1.7	1.2	0.5	30%	17.9	15.6	2.3	13%
	3	500	43.1	32.2	10.9	25%	13.1	11.2	1.9	14%	57.1	55.8	1.3	2%
	4	500	41.0	30.0	11.0	27%	12.4	10.5	1.9	15%	53.5	52.3	1.1	2%
	5	500	30.3	25.0	5.3	17%	9.3	8.2	1.2	12%	38.2	37.9	0.3	1%
	6	500	4.1	0.0	4.1	100%	0.7	0.5	0.2	26%	14.7	12.4	2.2	15%
	Year		129.9	87.2	42.8	**33%**	38.3	32.4	5.9	**15%**	200.0	189.6	10.4	**5%**
Random draw Period														
[Model 4]	1	500	3.3	0.0	3.3	100%	0.8	0.7	0.1	8%	15.6	11.7	3.9	25%
	2	500	9.0	0.0	9.0	100%	0.3	0.1	0.2	52%	14.6	13.4	1.3	9%
	3	500	31.7	28.5	3.2	10%	2.7	2.7	0.0	0%	82.9	80.1	2.9	3%
	4	500	47.7	29.7	17.9	38%	28.9	19.0	9.9	34%	66.7	64.0	2.7	4%
	5	500	33.4	27.6	5.7	17%	6.0	6.0	0.0	0%	34.8	34.6	0.3	1%
	6	500	2.1	0.0	2.1	100%	0.0	0.0	0.0	2%	7.2	7.0	0.1	2%
	Year		127.2	85.8	41.4	**33%**	38.7	28.6	10.2	**26%**	221.9	210.7	11.2	**5%**
Same, but:														
Constraining number of tows to not exceed projected vessel target poundage														
[Model 5]	1	500	2.7	0.0	2.7	100%	0.6	0.5	0.0	6%	13.2	9.8	3.4	25%
	2	500	6.7	0.0	6.7	100%	0.2	0.1	0.1	50%	11.4	10.5	0.9	8%
	3	500	29.5	26.7	2.8	10%	2.5	2.5	0.0	0%	77.1	74.7	2.4	3%
	4	500	44.8	28.1	16.6	37%	27.2	18.0	9.2	34%	61.0	58.7	2.3	4%
	5	500	30.3	25.3	5.1	17%	5.5	5.5	0.0	0%	31.3	31.1	0.2	1%
	6	500	1.7	0.0	1.7	100%	0.0	0.0	0.0	1%	6.0	6.0	0.1	1%
	Year		115.7	80.1	35.5	**31%**	36.0	26.6	9.4	**26%**	200.1	190.8	9.3	**5%**

Table 9.--Summary of bycatch and discard estimated using alternative simulation methods, utilizing logbook catches-per-tow and bycatches-per-tow from the EDCP data set (cont.).

Limit Structure			Lingcod				Canary				POP			
Bycatch modelling			Catch	Ret.	Discard		Catch	Ret.	Discard		Catch	Ret.	Discard	
Tow pool	Period	N	mt	mt	mt	%	mt	mt	mt	%	mt	mt	mt	%
Alternative 3														
Annual Mean														
Annual														
[Model 6]	1	1	9.7	0.0	9.7	100%	2.8	2.8	0.0	0%	21.4	21.4	0.0	0%
	2	1	13.7	0.0	13.7	100%	4.6	4.2	0.4	9%	23.7	23.2	0.5	2%
	3	1	31.1	25.9	5.2	17%	9.8	9.8	0.0	0%	44.9	44.9	0.0	0%
	4	1	28.7	23.2	5.4	19%	9.1	9.1	0.0	0%	40.8	40.8	0.0	0%
	5	1	20.7	18.1	2.6	12%	6.7	6.7	0.0	0%	29.7	29.7	0.0	0%
	6	1	6.6	0.0	6.6	100%	2.2	2.2	0.0	0%	15.8	15.8	0.0	0%
	Year		110.5	67.3	43.2	**39%**	35.2	34.7	0.4	**1%**	176.3	175.8	0.5	**0%**
Annual Mean														
Period														
[Model 7]	1	1	4.7	0.0	4.7	100%	1.9	1.9	0.0	0%	15.7	15.5	0.2	1%
	2	1	22.3	0.0	22.3	100%	0.3	0.3	0.0	4%	27.6	26.2	1.4	5%
	3	1	22.9	21.7	1.3	6%	2.1	2.1	0.0	0%	68.3	68.3	0.0	0%
	4	1	37.9	28.1	9.9	26%	24.7	20.5	4.3	17%	60.8	60.8	0.0	0%
	5	1	23.3	19.7	3.6	16%	3.9	3.9	0.0	0%	25.7	25.7	0.0	0%
	6	1	3.1	0.0	3.1	100%	0.0	0.0	0.0	0%	9.0	9.0	0.0	0%
	Year		114.3	69.4	44.9	**39%**	32.9	28.6	4.3	**13%**	207.2	205.7	1.5	**1%**
Random draw														
Annual														
[Model 8]	1	500	10.2	0.0	10.2	100%	2.6	1.8	0.8	31%	23.4	19.9	3.5	15%
	2	500	14.4	0.0	14.4	100%	4.2	2.7	1.5	36%	26.2	22.8	3.5	13%
	3	500	31.7	23.2	8.5	27%	9.4	8.0	1.4	15%	46.9	45.7	1.2	3%
	4	500	29.2	20.8	8.3	29%	8.6	7.2	1.4	16%	42.8	41.8	1.1	3%
	5	500	20.9	16.0	5.0	24%	6.1	5.2	0.9	14%	31.0	30.5	0.5	2%
	6	500	6.3	0.0	6.3	100%	1.5	1.0	0.4	28%	17.1	14.6	2.5	15%
	Year		112.7	60.0	52.8	**47%**	32.4	26.0	6.4	**20%**	187.6	175.3	12.3	**7%**
Random draw														
Period														
[Model 9]	1	500	5.1	0.0	5.1	100%	2.1	1.8	0.3	16%	17.2	13.2	4.0	23%
	2	500	24.6	0.0	24.6	100%	0.3	0.1	0.2	51%	31.3	27.4	3.9	13%
	3	500	24.5	21.7	2.8	11%	1.9	1.9	0.0	0%	63.0	60.5	2.5	4%
	4	500	33.6	20.4	13.2	39%	19.9	12.8	7.1	36%	64.9	61.7	3.1	5%
	5	500	23.5	17.8	5.7	24%	4.0	4.0	0.0	0%	26.7	26.4	0.4	1%
	6	500	3.4	0.0	3.4	100%	0.0	0.0	0.0	2%	8.2	8.1	0.1	2%
	Year		114.7	59.9	54.8	**48%**	28.3	20.7	7.6	**27%**	211.4	197.3	14.1	**7%**
Annual model results														
Model 1			125.4	95.8	29.6	**24%**	39.2	39.2	0.1	**0%**	188.6	188.5	0.1	**0%**
Model 2			122.8	95.2	27.6	**22%**	39.8	34.8	5.0	**13%**	217.5	217.3	0.2	**0%**
Model 3			129.9	87.2	42.8	**33%**	38.3	32.4	5.9	**15%**	200.0	189.6	10.4	**5%**
Model 4			127.2	85.8	41.4	**33%**	38.7	28.6	10.2	**26%**	221.9	210.7	11.2	**5%**
Model 5			115.7	80.1	35.5	**31%**	36.0	26.6	9.4	**26%**	200.1	190.8	9.3	**5%**
Model 6			110.5	67.3	43.2	**39%**	35.2	34.7	0.4	**1%**	176.3	175.8	0.5	**0%**
Model 7			114.3	69.4	44.9	**39%**	32.9	28.6	4.3	**13%**	207.2	205.7	1.5	**1%**
Model 8			112.7	60.0	52.8	**47%**	32.4	26.0	6.4	**20%**	187.6	175.3	12.3	**7%**
Model 9			114.7	59.9	54.8	**48%**	28.3	20.7	7.6	**27%**	211.4	197.3	14.1	**7%**

Table 10a.--Distribution of target species among assigned target fishery categories in the 1999 trawl fishery

Area/ Target	Landings (mt) of species assigned to target fishery categories in 1999												
	Target species	Sable-fish	Long-spine	Short-spine	Dover sole	Arrow-tooth	Petrale sole	All flatfish	Widow rockfish	Yellow-tail	Chilli-pepper	ID-able slope rk	All *Sebastes*
North of Cape Mendocino													
Whiting	83,307	3	0	0	0	3	0	3	191	474	0	3	690
Arrowtooth	84	3	3	1	20	84	1	106	1	7	0	0	13
Petrale	384	24	5	6	89	15	384	542	10	6	0	0	47
Flatfish	8,244	456	92	81	2,122	4,495	496	8,244	225	412	0	1	1,310
Widow/Ytail	2,406	70	14	11	141	20	37	223	2,035	371	0	0	2,536
DTS	6,970	1,722	1,033	363	3,853	431	208	4,852	221	162	0	2	865
Leftover	324	9	1	1	3	6	7	24	1	8	0	0	16
POP	37	0	0	0	0	0	0	0	1	1	0	0	53
Widow	580	96	36	18	305	70	33	433	580	38	0	0	712
Ytail	418	83	29	14	127	63	20	236	86	418	0	0	648
Canary	66	9	2	2	12	12	4	31	4	9	0	0	100
Lingcod	3	0	0	0	0	0	0	0	0	0	0	0	0
Rockfish	608	75	24	10	133	61	23	244	122	155	0	3	608
Total	103,431	2,551	1,239	507	6,805	5,260	1,211	14,938	3,477	2,062	0	10	7,599
South of Cape Mendocino													
Arrowtooth	1	0	0	0	0	1	0	1	0	0	0	0	0
Petrale	51	5	2	1	7	0	51	73	0	0	3	1	14
Flatfish	1,395	58	31	13	468	0	100	1,395	23	0	93	13	235
Widow/Ytail	145	3	2	1	7	0	1	13	145	0	8	0	156
DTS	2,666	439	498	154	1,575	2	50	1,794	41	0	134	13	303
Chillipepper	451	27	15	6	62	0	31	178	67	0	451	11	585
Slope rock	3	0	0	0	0	0	0	0	0	0	1	3	4
Leftover	27	2	1	0	3	0	1	7	1	0	1	0	2
Widow	81	13	5	1	29	0	1	32	81	0	20	0	118
Canary	2	0	0	0	0	0	0	0	1	0	1	0	4
Lingcod	1	0	0	0	0	0	0	0	0	0	0	0	1
Rockfish	142	13	6	3	24	0	14	62	11	0	32	6	142
Total	4,963	561	559	180	2,175	3	249	3,554	368	0	744	47	1,563
Coastwide													
Whiting	83,307	3	0	0	0	3	0	3	191	474	0	3	690
Arrowtooth	85	3	3	1	20	85	1	107	1	7	0	0	13
Petrale	434	29	6	7	96	15	434	614	10	6	3	1	60
Flatfish	9,639	515	123	94	2,589	4,495	596	9,639	248	412	93	14	1,545
Widow/Ytail	2,551	73	16	12	148	20	39	235	2,180	371	8	0	2,692
DTS	9,636	2,161	1,531	516	5,428	433	257	6,646	262	163	135	15	1,168
Chillipepper	451	27	15	6	62	0	31	178	67	0	451	11	585
Slope rock	3	0	0	0	0	0	0	0	0	0	1	3	4
Leftover	351	10	2	2	6	6	7	31	2	8	1	0	18
POP	37	0	0	0	0	0	0	0	1	1	0	0	53
Widow	661	109	41	20	334	70	34	465	661	38	20	0	830
Ytail	418	83	29	14	127	63	20	236	86	418	0	0	648
Canary	68	9	2	2	12	12	4	31	5	9	1	0	105
Lingcod	4	0	0	0	0	0	0	1	0	0	0	0	1
Rockfish	750	88	30	13	156	61	37	306	133	155	32	10	750
Total	108,395	3,112	1,798	687	8,980	5,263	1,460	18,492	3,846	2,062	744	56	9,162

Table 10b.--Distribution of target species among assigned target fishery categories in the 2000 trawl fishery

Area/ Target	Landings (mt) of species assigned to target fishery categories in 2000												
	Target species	Sable-fish	Long-spine	Short-spine	Dover sole	Arrow-tooth	Petrale sole	All flatfish	Widow rockfish	Yellow-tail	Chilli-pepper	ID-able slope rk	All *Sebastes*
North of Cape Mendocino													
Whiting	85,749	2	1	2	3	4	1	10	82	188	0	18	323
Arrowtooth	11	1	0	0	5	11	0	17	0	0	0	0	0
Petrale	720	33	15	10	145	51	720	1,017	1	9	0	27	43
Flatfish	6,233	235	36	43	2,107	2,622	640	6,233	9	104	0	102	287
Widow/Ytail	5,791	1	0	0	2	0	0	3	3,386	2,404	1	7	5,832
DTS	7,931	1,923	1,099	383	4,525	558	264	5,651	8	11	1	316	448
Slope rock	19	5	1	1	7	1	2	12	1	0	0	19	23
Leftover	312	2	0	1	5	6	7	29	0	6	0	1	8
POP	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	16	0	0	0	5	1	0	6	16	0	0	0	28
Ytail	3	0	0	0	1	1	0	2	0	3	0	0	3
Canary	4	0	0	0	0	0	0	0	0	0	0	1	7
Lingcod	4	0	0	0	0	0	0	0	0	0	0	0	0
Rockfish	4	0	0	0	0	0	0	0	1	0	0	1	4
Total	106,797	2,201	1,151	441	6,805	3,257	1,635	12,980	3,504	2,726	2	492	7,005
South of Cape Mendocino													
Petrale	74	4	1	1	14	0	74	109	0	0	3	4	11
Flatfish	1,168	29	10	7	297	0	81	1,168	3	0	72	21	126
Widow/Ytail	224	0	0	0	0	0	0	0	211	13	17	0	241
DTS	2,487	372	448	140	1,527	1	40	1,694	6	0	56	74	190
Chillipepper	178	10	3	1	16	0	20	74	22	0	178	4	217
Slope rock	70	7	2	1	19	0	6	31	0	0	4	70	84
Leftover	17	1	2	0	0	0	1	4	0	0	3	2	7
Widow	23	0	1	0	2	0	0	3	23	0	4	0	38
Lingcod	0	0	0	0	0	0	0	0	0	0	0	0	0
Rockfish	26	0	0	0	0	0	1	2	3	0	2	1	26
Total	4,266	423	466	150	1,874	1	224	3,085	268	13	341	175	940
Coastwide													
Whiting	85,749	2	1	2	3	4	1	10	82	188	0	18	323
Arrowtooth	11	1	0	0	5	11	0	17	0	0	0	0	0
Petrale	794	36	16	11	159	51	794	1,126	1	9	3	31	54
Flatfish	7,402	264	45	50	2,404	2,622	721	7,402	13	104	72	123	413
Widow/Ytail	6,014	1	0	0	2	0	0	3	3,597	2,418	18	7	6,073
DTS	10,418	2,296	1,547	524	6,052	559	304	7,345	14	11	57	390	638
Chillipepper	178	10	3	1	16	0	20	74	22	0	178	4	217
Slope rock	89	12	3	2	25	1	8	43	1	0	4	89	107
Leftover	329	3	2	1	5	6	8	33	0	6	3	3	14
POP	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	38	1	1	0	7	1	0	9	38	0	4	0	66
Ytail	3	0	0	0	1	1	0	2	0	3	0	0	3
Canary	4	0	0	0	0	0	0	0	0	0	0	1	7
Lingcod	4	0	0	0	0	0	0	0	0	0	0	0	0
Rockfish	29	0	0	0	0	0	1	2	3	0	2	1	29
Total	111,064	2,625	1,617	591	8,678	3,258	1,859	16,065	3,772	2,739	342	667	7,945

Table 10c.--Distribution of target species among assigned target fishery categories in the 2001 trawl fishery

Area/ Target	Landings (mt) of species assigned to target fishery categories in 2001 (incomplete)												
	Target species	Sable-fish	Long-spine	Short-spine	Dover sole	Arrow-tooth	Petrale sole	All flatfish	Widow rockfish	Yellow-tail	Chilli-pepper	ID-able slope rk	All *Sebastes*
North of Cape Mendocino													
Whiting	62,649	44	0	0	0	1	0	1	34	88	0	7	131
Arrowtooth	35	1	1	0	14	35	1	51	0	0	0	1	1
Petrale	265	10	4	4	75	31	265	419	0	2	0	11	18
Flatfish	3,629	211	29	32	1,731	922	437	3,629	2	78	0	50	200
Widow/Ytail	1,391	0	0	0	0	0	0	0	619	773	0	1	1,402
DTS	3,417	1,096	472	167	1,682	359	143	2,378	1	12	0	88	180
Slope rock	1	0	0	0	0	0	0	0	0	0	0	1	1
Leftover	227	11	0	0	5	4	10	26	0	4	0	0	6
Canary	0	0	0	0	0	0	0	0	0	0	0	0	0
Lingcod	0	0	0	0	0	0	0	0	0	0	0	0	0
Rockfish	9	0	0	0	3	0	1	7	1	1	0	0	9
Total	71,623	1,373	506	204	3,510	1,353	856	6,511	657	957	0	159	1,947
South of Cape Mendocino													
Petrale	30	1	0	0	3	0	30	46	0	0	3	0	5
Flatfish	372	13	3	2	123	0	21	372	0	0	15	10	37
Widow/Ytail	1	0	0	0	0	0	0	0	1	0	0	0	1
DTS	1,023	194	144	43	642	1	12	704	0	0	17	51	91
Chillipepper	80	5	1	1	5	0	5	20	1	0	80	4	89
Slope rock	31	2	1	1	8	0	0	10	0	0	1	31	37
Leftover	1	0	0	0	0	0	0	0	0	0	0	0	0
Rockfish	10	1	1	1	0	0	0	0	0	0	0	5	10
Total	1,549	217	151	47	781	1	68	1,152	3	0	115	101	270
Coastwide													
Whiting	62,649	44	0	0	0	1	0	1	34	88	0	7	131
Arrowtooth	35	1	1	0	14	35	1	51	0	0	0	1	1
Petrale	295	11	4	4	78	31	295	465	0	2	3	11	22
Flatfish	4,001	224	33	34	1,854	922	458	4,001	2	78	15	60	237
Widow/Ytail	1,392	0	0	0	0	0	0	0	619	773	0	1	1,403
DTS	4,440	1,290	616	210	2,324	360	155	3,081	2	12	17	139	270
Chillipepper	80	5	1	1	5	0	5	20	1	0	80	4	89
Slope rock	33	2	1	1	8	0	0	10	0	0	1	33	38
Leftover	228	11	0	0	5	4	10	26	0	4	0	0	6
Canary	0	0	0	0	0	0	0	0	0	0	0	0	0
Lingcod	0	0	0	0	0	0	0	0	0	0	0	0	0
Rockfish	19	2	1	1	3	0	1	7	1	1	0	5	19
Total	73,172	1,590	657	251	4,291	1,353	924	7,663	660	957	116	260	2,217

Table 11a.--Distribution of landings (mts) for four overfished species among target fisheries, from application of the target fishery criteria using in projecting the 2002 fishery to trawl landings in 1999, 2000, and 2001.

	Target mts			Lingcod mts			Canary mts			POP mts			Bocaccio mts		
	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001
North of Cape Mendocino															
Whiting	83,307	85,749	62,649	0.6	0.9	0.6	1.9	1.1	1.3	1.7	0.2	0.0			
Arrowtooth	84.1	11.5	35.5	0.5	0.0	0.0	0.2	0.0	0.0	3.4	0.0	0.1			
Petrale	383.6	720.3	264.8	5.4	2.3	1.3	3.7	0.9	0.4	3.0	3.0	3.4			
Flatfish	8,243.7	6,233.4	3,629.0	59.5	24.0	15.1	142.1	11.5	7.9	188.6	35.0	43.5			
Widow/Ytail	2,406.3	5,790.6	1,391.2	9.9	0.6	0.1	31.3	5.8	1.2	26.5	3.1	0.1			
DTS	6,970.4	7,930.8	3,416.8	51.0	18.0	11.2	66.2	4.8	5.0	83.2	89.2	68.3			
Slope rock		19.4	1.4		0.5	0.0		0.1	0.0		2.7	0.0			
Leftover	324.4	312.1	226.6	0.5	0.7	0.5	2.5	0.2	0.2	1.9	0.1	0.9			
POP	37.5	0.1		0.0	0.0		0.0	0.0		37.5	0.1				
Widow	580.1	15.6		5.5	0.0		16.9	0.0		21.6	0.0				
Ytail	418.2	2.7		12.2	0.0		59.3	0.0		31.4	0.0				
Canary	66.0	4.2	0.0	3.1	0.0	0.0	66.0	4.2	0.0	7.1	1.2	0.0			
Lingcod	2.9	3.9	0.0	2.9	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Rockfish	607.8	3.8	8.9	10.5	0.0	0.3	63.3	0.7	0.2	44.0	0.6	0.0			
Total	103,431	106,797	71,623	161.7	50.9	29.1	453.5	29.4	16.2	449.9	135.3	116.3			
South of Cape Mendocino															
Petrale	50.9	74.0	30.0	0.5	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.4	0.1
Flatfish	1,394.9	1,168.2	371.9	8.6	3.3	1.6	1.6	0.7	0.4	0.8	0.0	0.0	6.6	5.6	1.8
Widow/Ytail	144.7	223.8	0.9	0.4	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
DTS	2,665.9	2,486.7	1,023.1	13.4	4.0	1.6	8.5	0.7	0.4	1.3	0.2	0.0	7.4	2.2	1.7
Chillipepper	451.1	178.1	80.0	12.1	2.4	1.0	6.8	0.5	0.5	0.0	0.0	0.0	11.1	5.1	2.2
Slope rock	2.6	69.7	31.5	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Leftover	27.1	16.9	1.2	0.1	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.4	0.0
Widow	80.6	22.8		1.7	0.0		5.1	0.0		0.0	0.0		1.0	0.1	
Canary	1.8			0.0			1.8			0.0			0.0		
Lingcod	0.8	0.4		0.8	0.4		0.0	0.0		0.0	0.0		0.2	0.0	
Rockfish	142.3	25.7	9.9	3.8	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.2
Total	4,963	4,266	1,549	41.5	10.6	4.2	27.3	2.2	1.3	2.1	0.2	0.0	29.9	14.0	6.0
Coastwide															
Whiting	83,307	85,749	62,649	0.6	0.9	0.6	1.9	1.1	1.3	1.7	0.2	0.0	0.0	0.0	0.0
Arrowtooth	84.7	11.5	35.5	0.5	0.0	0.0	0.2	0.0	0.0	3.4	0.0	0.1	0.0	0.0	0.0
Petrale	434.5	794.3	294.8	5.9	2.5	1.3	3.7	1.0	0.4	3.0	3.0	3.4	0.2	0.4	0.1
Flatfish	9,638.6	7,401.6	4,000.9	68.1	27.2	16.6	143.7	12.3	8.3	189.4	35.0	43.5	6.7	5.7	1.8
Widow/Ytail	2,551.1	6,014.4	1,392.1	10.3	0.6	0.1	31.6	5.8	1.2	26.5	3.1	0.1	0.2	0.1	0.0
DTS	9,636.3	10,418.0	4,439.9	64.4	22.1	12.8	74.8	5.5	5.4	84.5	89.4	68.4	7.4	2.2	1.7
Chillipepper	451.1	178.1	80.0	12.1	2.4	1.0	6.8	0.5	0.5	0.0	0.0	0.0	11.1	5.1	2.2
Slope rock	2.6	89.0	32.9	0.1	0.5	0.1	0.0	0.2	0.0	0.0	2.7	0.0	0.0	0.2	0.0
Leftover	351.4	329.0	227.8	0.6	0.9	0.5	2.5	0.3	0.2	1.9	0.1	0.9	0.1	0.4	0.0
POP	37.5	0.1		0.0	0.0		0.0	0.0		37.5	0.1		0.0	0.0	
Widow	660.6	38.4		7.2	0.0		21.9	0.0		21.6	0.0		1.0	0.1	
Ytail	418.2	2.7		12.2	0.0		59.3	0.0		31.4	0.0		0.0	0.0	
Canary	67.8	4.2	0.0	3.2	0.0	0.0	67.8	4.2	0.0	7.1	1.2	0.0	0.0	0.0	0.0
Lingcod	3.8	4.4	0.0	3.8	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Rockfish	750.1	29.4	18.9	14.3	0.0	0.3	66.5	0.7	0.2	44.0	0.6	0.0	3.2	0.0	0.2
Total	108,395	111,064	73,172	203.2	61.5	33.2	480.7	31.6	17.5	452.0	135.5	116.3	30.0	14.3	6.0

Table 11b.--Distribution of landings (%) for four overfished species among target fisheries, from application of the target fishery criteria using in projecting the 2002 fishery to trawl landings in 1999, 2000, and 2001.

	Target mts			Lingcod mts			Canary mts			POP mts			Bocaccio mts		
	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001
North of Cape Mendocino															
Whiting	81%	80%	87%	0%	2%	2%	0%	4%	8%	0%	0%	0%			
Arrowtooth	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%			
Petrale	0%	1%	0%	3%	5%	4%	1%	3%	2%	1%	2%	3%			
Flatfish	8%	6%	5%	37%	47%	52%	31%	39%	49%	42%	26%	37%			
Widow/Ytail	2%	5%	2%	6%	1%	0%	7%	20%	8%	6%	2%	0%			
DTS	7%	7%	5%	32%	35%	39%	15%	16%	31%	18%	66%	59%			
Slope rock	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	2%	0%			
Leftover	0%	0%	0%	0%	1%	2%	1%	1%	1%	0%	0%	1%			
POP	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%			
Widow	1%	0%	0%	3%	0%	0%	4%	0%	0%	5%	0%	0%			
Ytail	0%	0%	0%	8%	0%	0%	13%	0%	0%	7%	0%	0%			
Canary	0%	0%	0%	2%	0%	0%	15%	14%	0%	2%	1%	0%			
Lingcod	0%	0%	0%	2%	8%	0%	0%	0%	0%	0%	0%	0%			
Rockfish	1%	0%	0%	7%	0%	1%	14%	2%	1%	10%	0%	0%			
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%			
South of Cape Mendocino															
Petrale	1%	2%	2%	1%	2%	1%	0%	3%	4%	0%	0%	0%	1%	3%	2%
Flatfish	28%	27%	24%	21%	31%	37%	6%	33%	32%	37%	0%	0%	22%	40%	30%
Widow/Ytail	3%	5%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%	0%
DTS	54%	58%	66%	32%	38%	37%	31%	33%	28%	63%	100%	100%	25%	16%	29%
Chillipepper	9%	4%	5%	29%	23%	23%	25%	21%	36%	0%	0%	0%	37%	37%	36%
Slope rock	0%	2%	2%	0%	0%	1%	0%	6%	0%	0%	0%	0%	0%	2%	0%
Leftover	1%	0%	0%	0%	2%	0%	0%	3%	0%	0%	0%	0%	0%	2%	0%
Widow	2%	1%	0%	4%	0%	0%	19%	0%	0%	0%	0%	0%	3%	1%	0%
Canary	0%	0%	0%	0%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
Lingcod	0%	0%	0%	2%	4%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Rockfish	3%	1%	1%	9%	0%	0%	12%	0%	0%	0%	0%	0%	11%	0%	4%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Coastwide															
Whiting	77%	77%	86%	0%	1%	2%	0%	3%	7%	0%	0%	0%	0%	0%	0%
Arrowtooth	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%
Petrale	0%	1%	0%	3%	4%	4%	1%	3%	2%	1%	2%	3%	1%	3%	2%
Flatfish	9%	7%	5%	34%	44%	50%	30%	39%	47%	42%	26%	37%	22%	40%	30%
Widow/Ytail	2%	5%	2%	5%	1%	0%	7%	18%	7%	6%	2%	0%	1%	1%	0%
DTS	9%	9%	6%	32%	36%	38%	16%	17%	31%	19%	66%	59%	25%	16%	29%
Chillipepper	0%	0%	0%	6%	4%	3%	1%	1%	3%	0%	0%	0%	37%	36%	36%
Slope rock	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	2%	0%	0%	2%	0%
Leftover	0%	0%	0%	0%	1%	2%	1%	1%	1%	0%	0%	1%	0%	2%	0%
POP	0%	0%	0%	0%	0%	0%	0%	0%	0%	8%	0%	0%	0%	0%	0%
Widow	1%	0%	0%	4%	0%	0%	5%	0%	0%	5%	0%	0%	3%	1%	0%
Ytail	0%	0%	0%	6%	0%	0%	12%	0%	0%	7%	0%	0%	0%	0%	0%
Canary	0%	0%	0%	2%	0%	0%	14%	13%	0%	2%	1%	0%	0%	0%	0%
Lingcod	0%	0%	0%	2%	7%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Rockfish	1%	0%	0%	7%	0%	1%	14%	2%	1%	10%	0%	0%	11%	0%	4%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 12a.--Estimated bycatch of four species in the 1999 trawl fishery, using the range of bycatch rates applied to 2002 projections, comparison to actual reported landings, evaluation of estimated bycatch in excess of trip limits, and estimated discard, based on estimated overages.

	Lingcod			Canary			POP			Bocaccio		
2-month	Bycatch range (mt)			Bycatch range (mt)			Bycatch range (mt)			Bycatch range (mt)		
period	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
Coastwide total estimated bycatch ranges												
1	10.9	7.7	4.8	15.8	12.9	10.4	37.1	25.9	15.2	3.9	2.4	1.3
2	52.1	33.7	15.5	32.0	26.1	20.3	130.3	107.3	84.7	4.8	3.2	1.6
3	87.7	69.2	50.7	75.6	62.3	49.2	233.4	179.2	125.5	5.1	3.4	1.7
4	118.5	83.2	47.9	109.1	95.7	82.3	215.8	167.5	119.6	7.3	4.9	2.4
5	88.3	54.2	20.1	50.7	46.7	42.9	96.6	78.6	61.0	4.6	3.0	1.5
6	10.4	6.5	2.7	2.2	1.2	0.5	26.7	18.2	10.0	1.4	0.8	0.4
Total	367.9	254.6	141.6	285.4	244.9	205.7	739.9	576.6	415.9	27.1	17.7	8.9
Coastwide bycatch in excess of trip limits (assumed discard)												
1	0.3	0.2	0.0	0.6	0.6	0.6	2.0	1.3	0.5	0.0	0.0	0.0
2	13.9	4.5	1.6	3.2	3.2	3.2	10.5	7.9	5.5	0.0	0.0	0.0
3	38.0	26.3	16.3	2.1	1.9	1.7	48.7	24.0	4.5	0.0	0.0	0.0
4	65.0	36.3	13.2	13.0	10.0	8.3	67.6	48.7	36.2	0.0	0.0	0.0
5	30.3	13.1	1.9	5.2	5.2	5.1	7.7	3.2	0.3	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	147.4	80.3	32.9	24.2	20.8	18.8	136.6	85.0	46.9	0.0	0.0	0.0
Implicit discard rates												
1	3%	2%	0%	4%	4%	5%	5%	5%	3%	0%	0%	0%
2	27%	13%	10%	10%	12%	16%	8%	7%	7%	0%	0%	0%
3	43%	38%	32%	3%	3%	3%	21%	13%	4%	0%	0%	0%
4	55%	44%	28%	12%	10%	10%	31%	29%	30%	0%	0%	0%
5	34%	24%	9%	10%	11%	12%	8%	4%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	40%	32%	23%	8%	9%	9%	18%	15%	11%	0%	0%	0%
Implicit retained catch	220.5	174.2	108.7	261.3	224.0	186.9	603.3	491.6	369.0	27.1	17.7	8.9
Actual 2000 landings	203.2	203.2	203.2	480.7	480.7	480.7	452.0	452.0	452.0	30.0	30.0	30.0
Difference between implied and actual retained catch	17.3	-29.0	-94.5	-219.4	-256.7	-293.9	151.3	39.6	-83.0	-2.9	-12.3	-21.0
Difference between estimated total catch and actual retained catch	164.7	51.4	-61.6	-195.3	-235.8	-275.1	287.9	124.6	-36.1	-2.9	-12.3	-21.0
If this amount was discarded, the discard rate would be	45%	20%	-43%	-68%	-96%	-134%	39%	22%	-9%	-11%	-69%	-235%

Table 12b.--Estimated bycatch of four species in the 2000 trawl fishery, using the range of bycatch rates applied to 2002 projections, comparison to actual reported landings, evaluation of estimated bycatch in excess of trip limits, and estimated discard, based on estimated overages.

	Lingcod			Canary			POP			Bocaccio		
2-month	Bycatch range (mt)			Bycatch range (mt)			Bycatch range (mt)			Bycatch range (mt)		
period	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
Coastwide total estimated bycatch ranges												
1	10.0	6.6	3.4	5.4	3.0	0.9	43.9	25.7	8.0	0.9	0.5	0.3
2	42.4	24.7	7.2	12.8	7.5	2.4	81.8	58.8	36.3	3.6	2.3	1.2
3	44.3	32.9	21.4	23.2	16.1	9.3	114.8	84.3	54.1	4.8	3.2	1.6
4	95.6	66.6	37.6	49.7	37.7	25.8	128.4	84.6	41.2	2.2	1.5	0.7
5	64.3	38.4	12.5	18.3	16.5	14.8	52.6	38.7	25.2	2.9	1.9	1.0
6	13.8	8.8	3.7	3.5	1.9	0.7	36.5	24.5	12.9	2.6	1.6	0.8
Total	270.4	177.9	85.9	112.7	82.7	53.9	457.9	316.7	177.7	17.0	11.0	5.6
Coastwide bycatch in excess of trip limits (assumed discard)												
1	10.0	6.6	3.4	0.4	0.0	0.0	14.1	2.9	0.0	0.0	0.0	0.0
2	42.4	24.7	7.2	5.1	1.5	0.0	34.9	17.4	5.6	0.1	0.0	0.0
3	13.6	8.2	4.3	9.4	6.3	4.4	17.3	8.6	2.6	0.8	0.3	0.0
4	63.3	39.8	18.8	27.4	20.2	14.1	46.8	23.4	3.5	0.0	0.0	0.0
5	18.6	5.9	0.4	2.9	1.0	0.0	1.3	0.1	0.0	0.0	0.0	0.0
6	13.8	8.8	3.7	0.4	0.1	0.0	4.7	1.1	0.1	0.7	0.3	0.0
Total	161.8	94.0	37.9	45.7	29.1	18.5	119.1	53.6	11.7	1.6	0.5	0.0
Implicit discard rates												
1	100%	100%	100%	8%	0%	0%	32%	11%	0%	0%	0%	0%
2	100%	100%	100%	40%	20%	0%	43%	30%	15%	3%	0%	0%
3	31%	25%	20%	41%	39%	48%	15%	10%	5%	17%	8%	0%
4	66%	60%	50%	55%	54%	55%	36%	28%	9%	0%	0%	0%
5	29%	15%	3%	16%	6%	0%	3%	0%	0%	0%	0%	0%
6	100%	100%	100%	12%	5%	0%	13%	4%	0%	26%	17%	0%
Total	60%	53%	44%	41%	35%	34%	26%	17%	7%	9%	5%	0%
Implicit retained catch												
	108.7	84.0	48.0	67.0	53.6	35.4	338.7	263.1	166.0	15.5	10.4	5.6
Actual 2000 landings												
	61.5	61.5	61.5	31.6	31.6	31.6	135.5	135.5	135.5	14.3	14.3	14.3
Difference between implied and actual retained catch												
	47.2	22.5	-13.5	35.4	22.0	3.7	203.3	127.7	30.5	1.1	-3.9	-8.8
Difference between estimated total catch and actual retained catch												
	209.0	116.5	24.5	81.1	51.1	22.3	322.4	181.2	42.2	2.7	-3.4	-8.8
If this amount was discarded, the discard rate would be												
	77%	65%	28%	72%	62%	41%	70%	57%	24%	16%	-31%	-157%

Table 12c.--Estimated bycatch of four species in the incomplete 2001 trawl fishery, using the range of bycatch rates applied to 2002 projections, comparison to actual reported landings, evaluation of estimated bycatch in excess of trip limits, and estimated discard, based on estimated overages.

	Lingcod			Canary			POP			Bocaccio		
2-month	Bycatch range (mt)			Bycatch range (mt)			Bycatch range (mt)			Bycatch range (mt)		
period	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
Coastwide total estimated bycatch ranges												
1	9.2	5.8	2.4	5.1	2.9	0.8	41.1	24.0	7.0	0.8	0.5	0.3
2	35.0	20.5	6.1	11.7	6.8	2.0	57.6	43.5	29.6	1.7	1.1	0.6
3	34.9	25.4	16.0	14.2	8.8	3.5	91.3	66.6	42.1	3.1	2.1	1.0
4	40.9	28.9	16.9	26.1	19.0	11.9	65.4	45.4	25.6	1.2	0.8	0.4
Total	120.0	80.6	41.4	57.1	37.4	18.2	255.3	179.5	104.4	6.9	4.5	2.3
Coastwide bycatch in excess of trip limits (assumed discard)												
1	9.2	5.8	2.4	0.9	0.1	0.0	4.1	0.1	0.0	0.1	0.0	0.0
2	35.0	20.5	6.1	5.3	1.8	0.0	11.1	6.2	2.4	0.2	0.0	0.0
3	5.5	2.2	0.4	1.6	0.4	0.0	5.2	1.5	0.0	0.2	0.0	0.0
4	14.0	6.7	1.6	5.8	3.4	1.8	4.7	0.8	0.0	0.0	0.0	0.0
Total	63.7	35.2	10.5	13.5	5.7	1.8	25.0	8.5	2.4	0.4	0.0	0.0
Implicit discard rates												
1	100%	100%	100%	17%	4%	0%	10%	0%	0%	15%	0%	0%
2	100%	100%	100%	45%	26%	0%	19%	14%	8%	9%	1%	0%
3	16%	9%	2%	11%	4%	0%	6%	2%	0%	5%	0%	0%
4	34%	23%	10%	22%	18%	15%	7%	2%	0%	0%	0%	0%
Total	53%	44%	25%	24%	15%	10%	10%	5%	2%	6%	0%	0%
Implicit retained catch												
	56.3	45.5	30.9	43.6	31.8	16.4	230.3	171.0	102.0	6.4	4.5	2.3
Actual 2000 landings												
	33.2	33.2	33.2	17.5	17.5	17.5	116.3	116.3	116.3	6.0	6.0	6.0
Difference between implied and actual retained catch												
	23.1	12.2	-2.4	26.1	14.3	-1.1	114.0	54.7	-14.3	0.4	-1.5	-3.7
Difference estimated total catch and actual retained catch												
	86.8	47.4	8.1	39.7	20.0	0.7	139.0	63.1	-12.0	0.9	-1.5	-3.7
If this amount was discarded, the discard rate would be												
	72%	59%	20%	69%	53%	4%	54%	35%	-11%	13%	-33%	-165%

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON MANAGEMENT MEASURES FOR 2002 AND ENVIRONMENTAL ASSESSMENT

The Groundfish Advisory Subpanel (GAP) began by meeting jointly with the Groundfish Management Team and the Scientific and Statistical Committee to receive a presentation on bycatch and discard analysis from Dr. Jim Hastie. Following the joint session, the GAP convened separately to discuss the issues under this agenda topic.

In regard to the bycatch/discard analysis, the GAP recognizes the extensive work done in a very short period of time, using sparse data. However, the inclusion of 1999 trawl logbook data in determining bycatch rates provides an incorrect assessment of discards. As the GAP has stated previously, the fishery has changed significantly since 1999. Trawl gear has been modified and fishing strategies have changed significantly. If the 1999 trawl logbook data is excluded, what can be inferred from the existing analysis is that discard rates are actually below what is shown. The GAP believes management should be changed to reflect that fact.

In regard to initial decisions on 2002 management measures, the GAP was unanimous in supporting a year- round fishery with no seasonal components (other than existing seasons for Pacific whiting and fixed gear sablefish) for all segments of the fishery.

The GAP has discussed seasonal or reduced-time fisheries on numerous occasions. The same problem is identified every time: the groundfish fishery is not uniform by area, by participation, by vessel size, or by processor capability. Trying to impose a one-size-fits-all template on a diverse fishery does not work. While stocks can be managed as a unit throughout their ranges, fishermen, processors, and coastal communities can't be.

The GAP recognizes the Council is legally constrained from using the tools that might be available to allow fishermen and processors to maximize their opportunities and operate efficiently within the bounds of conservation requirements. If those tools become fully available, you can expect wide-spread industry support for a different system. In the meantime, the GAP continues to support a year-round fishery.

PFMC
10/30/01

Table 6e. Trip limits for constraining target species landings in the limited entry trawl for 2002, under the 6-month fishery alternative.

Species/groups	Landed catch	JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
Minor slope rockfish							
North of Cape Mend.	med	4,000 lb/2 months					4,000 lb/2 months
South of Cape Mend.		25,000 lb/2 months					25,000 lb/2 months
Splitnose-South		25,000 lb/2 months					25,000 lb/2 months
POP	294	6,000 lb/month					2,000 lb/month
DTS							
Dover sole	6,090	60,000 lb/2 months					60,000 lb/2 months
Sablefish	1,476	14,000 lb/2 months					14,000 lb/2 months
Shortspine	759	6,500 lb/2 months					6,500 lb/2 months
Longspine	high	30,000 lb/2 months					30,000 lb/2 months
Arrowtooth		20,000 lb/trip					20,000 lb/trip
Petrale sole		No restriction					No restriction
Rex sole		No limit					No limit
All other flatfish		No limit					No limit
Shoreside whiting [a]		20,000 lb/trip			**Open**		20,000 lb/trip
Use of small footrope required for landing all shelf and near-shore rockfish							
Minor Shelf rockfish							
North of Cape Mend.		500 lb/month					500 lb/month
South of Cape Mend.		500 lb/month					500 lb/month
Canary-Coastwide		400 lb/month					100 lb/month
Widow-Coastwide							
(mid-water only)	high	10,000 lb/2 months	Closed	with >=10,000 lb whiting, 1,500 lb/mo; combined widow+yellowtail of 500 lb/trip		Closed ?	Evaluate remaining widow OY
Small footrope	high	1,000 lb/month					1,000 lb/month
Yellowtail-North							
(mid-water only)	high	20,000 lb/2 months	Closed	with >=10,000 lb whiting, 2,000 lb/mo; combined widow+yellowtail of 500 lb/trip		Closed ?	Evaluate remaining widow OY
Small footrope		1,000 lb/month					1,000 lb/month
as flatfish bycatch		Up to 33% of all flatfish (excluding arrowtooth) plus 10% of weight of Arrowtooth not to exceed:					
		2,500 lbs/trip					2,500 lb/trip
		and 20,000 lb/2 months					and 20,000 lb/2 months
Bocaccio-South		500 lb/month					500 lb/month
Chilipepper-South							
(mid-water only)		25,000 lb/2 months					25,000 lb/2 months
Small footrope		7,500 lb/2 months					7,500 lb/2 months
Cowcod		No retention					No retention
Minor Nearshore rockfish							
North of Cape Mend.		300 lb/month					300 lb/month
South of Cape Mend.		300 lb/month					300 lb/month
Lingcod		500 lb/month					500 lb/month

Closed

[a] Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb/trip throughout the year.

Table 7e.--Projected target species landings (mt) under Trip-limit Alternative 5

Region/ Species Group	Bimonthly Period						
	Jan/Feb	Mar/Apr	May/Jun	Jul/Aug	Sep/Oct	Nov/Dec	Total
North of C. Mendocino							
DTS Complex	2,034	2,810	0	0	0	2,450	7,293
Sablefish	219	335	0	0	0	430	985
Longspines	331	512	0	0	0	448	1,292
Shortspines	134	179	0	0	0	216	529
Dover Sole	1,349	1,783	0	0	0	1,355	4,488
Arrowtooth	207	320	0	0	0	100	627
Petrale Sole	543	123	0	0	0	253	918
Other Flatfish	111	224	0	0	0	109	443
Total Flatfish	2,210	2,449	0	0	0	1,817	6,476
Widow	253	90	36	48	0	85	513
Yellowtail	183	230	53	66	0	193	725
Minor Slope Rockfish	36	35	0	0	0	43	114
POP	29	40	0	0	0	23	91
South of C. Mendocino							
DTS Complex	572	833	0	0	0	830	2,235
Sablefish	49	90	0	0	0	115	254
Longspines	169	177	0	0	0	209	556
Shortspines	59	57	0	0	0	75	191
Dover Sole	295	508	0	0	0	431	1,234
Arrowtooth	2	1	0	0	0	4	7
Petrale Sole	60	25	0	0	0	56	142
Other Flatfish	112	146	0	0	0	123	382
Total Flatfish	470	680	0	0	0	615	1,765
Widow	19	10	0	0	0	13	42
Chilipepper	39	58	0	0	0	54	151
Minor Slope Rockfish	17	19	0	0	0	37	73
POP	1	0	0	0	0	0	1
Coastwide Total							
DTS Complex	2,606	3,643	0	0	0	3,280	9,528
Sablefish	268	425	0	0	0	545	1,239
Longspines	500	690	0	0	0	658	1,847
Shortspines	193	236	0	0	0	291	721
Dover Sole	1,644	2,292	0	0	0	1,786	5,722
Arrowtooth	210	320	0	0	0	104	634
Petrale Sole	603	148	0	0	0	309	1,060
Other Flatfish	223	370	0	0	0	232	825
Total Flatfish	2,680	3,130	0	0	0	2,432	8,241
Widow	272	100	36	48	0	99	555
Yellowtail	188	230	53	66	0	199	735
Chilipepper	39	58	0	0	0	54	151
Minor Slope Rockfish	53	53	0	0	0	81	187
POP	30	40	0	0	0	23	93

Table 8f.--Ranges of estimated bycatch and discard for trip limit Alternative 5.

	Lingcod			Canary			POP			Darkblotched			Bocaccio		
	Bycatch range			Bycatch range			Bycatch range			Bycatch range			Bycatch range		
	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low	High	Mid	Low
Coastwide Full Year															
Target fishery															
Arrowtooth	0.1	0.1	0.0	0.0	0.0	0.0	2.0	1.1	0.3	0.3	0.2	0.1			
Petrale	3.6	2.9	2.2	0.6	0.3	0.1	12.2	8.2	4.2	15.3	11.0	6.6	0.2	0.1	0.1
Flatfish	52.0	30.7	9.3	16.6	9.6	2.7	88.4	63.5	38.8	85.9	52.5	19.1	2.8	1.9	0.9
Widow/Ytail	0.4	0.2	0.0	0.7	0.4	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0
DTS	12.6	6.9	1.5	3.9	1.9	0.7	78.0	49.3	21.8	159.1	86.9	14.6	0.9	0.1	0.2
Chillipepper	3.6	2.4	1.2	2.1	1.4	0.7	0.1	0.0	0.0				3.1	2.1	1.0
Other rock	0.6	0.4	0.2	0.1	0.1	0.0	0.6	0.5	0.3	3.8	3.1	2.4	0.2	0.1	0.1
Leftover	0.8	0.6	0.3	0.5	0.3	0.0	2.9	1.6	0.4	2.0	1.3	0.7	0.0	0.0	0.0
Total	73.9	44.2	14.9	24.5	13.9	4.3	184.4	124.4	65.8	266.6	155.1	43.6	7.2	4.3	2.3
LE total catch OY	208	208	208	36	36	36	350	350	350	163	163	163	27	27	27
All Targets															
North of C. Mendocino															
1	9.4	6.0	2.6	5.2	2.9	0.7	48.9	28.4	8.0	75.4	46.1	16.8			
2	46.0	26.6	7.2	13.4	7.8	2.1	89.3	65.2	41.2	75.9	46.1	16.3			
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
6	9.6	5.9	2.2	2.1	1.2	0.4	44.0	30.0	16.0	115.3	62.9	10.5			
Year	65.0	38.5	12.0	20.7	11.9	3.2	182.2	123.7	65.2	266.6	155.1	43.6			
South of C. Mendocino															
1	1.6	1.0	0.5	1.3	0.7	0.4	0.3	0.0	0.1				1.7	1.0	0.5
2	3.0	1.9	1.0	1.6	1.0	0.5	1.4	0.7	0.4				3.2	2.0	1.0
6	4.3	2.9	1.4	1.0	0.4	0.3	0.5	0.0	0.1				2.3	1.3	0.7
Year	8.9	5.7	2.9	3.8	2.0	1.1	2.2	0.7	0.6				7.2	4.3	2.3
Coastwide total bycatch ranges															
1	11.0	6.9	3.1	6.4	3.6	1.1	49.2	28.4	8.1	75.4	46.1	16.8	1.7	1.0	0.5
2	49.0	28.4	8.1	15.0	8.7	2.6	90.6	65.9	41.6	75.9	46.1	16.3	3.2	2.0	1.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
6	13.9	8.8	3.7	3.0	1.6	0.7	44.5	30.0	16.1	115.3	62.9	10.5	2.3	1.3	0.7
Year	73.9	44.2	14.9	24.5	13.9	4.3	184.4	124.4	65.8	266.6	155.1	43.6	7.2	4.3	2.3
Coastwide bycatch in excess of trip limits (assumed discard)															
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	10.0	2.0	0.0	0.4	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Year	10.7	2.2	0.0	0.4	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Implicit discard rates															
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	14%	5%	0%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Year	14%	5%	0%	2%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table A.--1999-2000 prices per metric ton used to estimate vessel revenues for average landings in those two years and projections for 2002.

Area / Period	Ex-vessel species prices ($/mt) from combined 1999-2000 trawl landings																
	Sable-fish	Long-spine	Short-spine	Dover sole	Arrow-tooth	Petrale sole	Other flatfish	Widow rock.	Yellow-tail rck.	Chilli-pepper	Slope rock.	Other rock.	Whiting	POP	Lingcod	Canary	Bocaccio
North of Cape Mendocino																	
1	2,303	1,739	2,198	738	230	2,130	784	839	878		833	812	131	881	1,362	915	
2	2,170	1,678	2,143	732	222	2,036	678	860	877		830	769	92	879	1,242	930	
3	2,342	1,741	2,180	778	223	2,146	794	906	913		921	791	89	892	1,472	922	
4	2,440	1,739	2,203	787	239	2,150	835	900	865		892	770	87	823	1,466	913	
5	2,588	1,842	2,191	780	233	2,155	797	944	958		930	812	90	899	1,571	957	
6	2,662	2,017	2,358	777	243	2,209	849	940	1,001		945	726	230	902	2,055	1,065	
Total	2,417	1,793	2,212	765	232	2,138	789	898	915		892	780	120	879	1,528	951	
South of Cape Mendocino																	
1	1,827	1,723	2,013	682	239	2,164	766	1,061		985	905	774	90	600	1,604	1,468	909
2	1,918	1,890	2,122	708	236	2,081	736	921		996	855	752	432	578	1,486	1,590	1,005
3	1,969	1,747	2,114	722	521	2,497	732	1,123		1,061	1,205	864	90	600	1,650	1,515	1,082
4	2,038	1,733	2,196	746	574	2,510	841	1,073		996	1,150	806	254	600	1,629	1,005	1,046
5	2,011	1,735	2,076	745	232	2,451	751	1,007		1,040	1,158	698	221	600	1,666	1,279	1,075
6	2,019	1,870	2,230	735	806	2,561	796	997		1,214	1,233	736	82	600	2,164	1,467	1,235
Total	1,964	1,783	2,125	723	435	2,377	770	1,030		1,049	1,084	772	195	596	1,700	1,387	1,059

Table B.--Evaluation of changes in ex-vessel groundfish revenue from 1999-2000 to projections for 2002 using the trip limits in Alternative 1.

Group '99-'00 revenue Rev. chg. group	Change in groundfish rev. less than 20%					Change in groundfish rev. greater than 20%					All trawl vessels				
	# of vessels	Average '99-'00 revenue	Revenue under Alternative 1 Avg. in 2002	chg. from '99-'00 $	chg. from '99-'00 %	# of vessels	Average '99-'00 revenue	Revenue under Alternative 1 Avg. in 2002	chg. from '99-'00 $	chg. from '99-'00 %	# of vessels	Average '99-'00 revenue	Revenue under Alternative 1 Avg. in 2002	chg. from '99-'00 $	chg. from '99-'00 %
Non-whiting vessels															
$21 - $100,000															
Lower 2002 revenue	22	57,093	51,235	-5,858	-11%	33	47,046	29,232	-17,814	-43%	55	51,065	38,033	-13,032	-30%
Higher 2002 revenue	11	49,953	54,519	4,566	9%	12	38,315	54,240	15,925	59%	23	43,881	54,374	10,492	35%
> $100,000															
Lower 2002 revenue	20	155,142	132,317	-22,824	-15%	102	200,639	125,415	-75,224	-36%	122	193,181	126,547	-66,634	-33%
Higher 2002 revenue	1	109,037	121,458	12,421	11%						1	109,037	121,458	12,421	11%
All non-whiting vessels															
Lower 2002 revenue	42	103,783	89,846	-13,937	-13%	135	163,094	101,904	-61,190	-38%	177	149,020	99,043	-49,978	-32%
Higher 2002 revenue	12	54,877	60,098	5,220	9%	12	38,315	54,240	15,925	59%	24	46,596	57,169	10,573	34%
Total	54	92,915	83,235	-9,680	-8%	147	152,908	98,013	-54,895	-30%	201	136,791	94,043	-42,748	-24%
Whiting vessels															
$21 - $100,000															
Lower 2002 revenue						3	78,099	39,237	-38,862	-60%	3	78,099	39,237	-38,862	-60%
> $100,000															
Lower 2002 revenue	4	318,383	257,852	-60,531	-19%	33	325,493	206,712	-118,781	-37%	37	324,724	212,240	-112,484	-35%
All whiting vessels															
Lower 2002 revenue	4	318,383	257,852	-60,531	-19%	36	304,877	192,756	-112,121	-39%	40	306,227	199,265	-106,962	-37%
Total	4	318,383	257,852	-60,531	-19%	36	304,877	192,756	-112,121	-39%	40	306,227	199,265	-106,962	-37%
All trawl vessels															
$21 - $100,000															
Lower 2002 revenue	22	57,093	51,235	-5,858	-11%	36	49,634	30,066	-19,568	-44%	58	52,463	38,096	-14,368	-32%
Higher 2002 revenue	11	49,953	54,519	4,566	9%	12	38,315	54,240	15,925	59%	23	43,881	54,374	10,492	35%
Total	33	54,713	52,330	-2,384	-4%	48	46,804	36,110	-10,695	-19%	81	50,026	42,718	-7,309	-13%
> $100,000															
Lower 2002 revenue	24	182,349	153,240	-29,109	-16%	135	231,159	145,288	-85,871	-36%	159	223,791	146,488	-77,303	-33%
Higher 2002 revenue	1	109,037	121,458	12,421	11%						1	109,037	121,458	12,421	11%
Total	25	179,416	151,968	-27,448	-15%	135	231,159	145,288	-85,871	-36%	160	223,074	146,332	-76,743	-33%
Total	58	108,465	95,278	-13,187	-9%	183	182,804	116,651	-66,153	-32%	241	164,913	111,507	-53,406	-26%

Table C.--Evaluation of changes in ex-vessel groundfish revenue from 1999-2000 to projections for 2002 using the trip limits in Alternative 4.

Group '99-'00 revenue Rev. chg. Group	Change in groundfish rev. less than 20%					Change in groundfish rev. greater than 20%					All trawl vessels				
	# of vessels	Average '99-'00 revenue	Revenue under Alternative 4 Avg. in 2002	chg. from '99-'00 $	chg. from '99-'00 %	# of vessels	Average '99-'00 revenue	Revenue under Alternative 4 Avg. in 2002	chg. from '99-'00 $	chg. from '99-'00 %	# of vessels	Average '99-'00 revenue	Revenue under Alternative 4 Avg. in 2002	chg. from '99-'00 $	chg. from '99-'00 %
Non-whiting vessels															
$21 - $100,000															
Lower 2002 revenue	18	48,501	42,947	-5,554	-11%	44	52,318	31,975	-20,343	-42%	62	51,210	35,160	-16,049	-33%
Higher 2002 revenue	7	41,667	45,896	4,230	10%	9	39,021	55,198	16,177	66%	16	40,179	51,129	10,950	42%
> $100,000															
Lower 2002 revenue	8	179,984	151,403	-28,581	-16%	114	194,107	115,195	-78,911	-39%	122	193,181	117,570	-75,611	-38%
Higher 2002 revenue	1	109,037	121,458	12,421	11%						1	109,037	121,458	12,421	11%
All non-whiting vessels															
Lower 2002 revenue	26	88,957	76,318	-12,639	-12%	158	154,621	92,020	-62,601	-40%	184	145,343	89,801	-55,541	-36%
Higher 2002 revenue	8	50,088	55,342	5,254	10%	9	39,021	55,198	16,177	66%	17	44,229	55,266	11,037	40%
Total	34	79,812	71,382	-8,429	-7%	167	148,391	90,036	-58,356	-34%	201	136,791	86,880	-49,910	-30%
Whiting vessels															
$21 - $100,000															
Lower 2002 revenue						3	78,099	38,669	-39,429	-60%	3	78,099	38,669	-39,429	-60%
> $100,000															
Lower 2002 revenue	4	318,383	258,713	-59,669	-19%	33	325,493	207,314	-118,179	-37%	37	324,724	212,870	-111,854	-35%
All whiting vessels															
Lower 2002 revenue	4	318,383	258,713	-59,669	-19%	36	304,877	193,260	-111,617	-39%	40	306,227	199,805	-106,422	-37%
Total	4	318,383	258,713	-59,669	-19%	36	304,877	193,260	-111,617	-39%	40	306,227	199,805	-106,422	-37%
All trawl vessels															
$21 - $100,000															
Lower 2002 revenue	18	48,501	42,947	-5,554	-11%	47	53,963	32,402	-21,561	-44%	65	52,451	35,322	-17,128	-35%
Higher 2002 revenue	7	41,667	45,896	4,230	10%	9	39,021	55,198	16,177	66%	16	40,179	51,129	10,950	42%
Total	25	46,587	43,773	-2,815	-5%	56	51,562	36,066	-15,496	-26%	81	50,026	38,444	-11,582	-20%
> $100,000															
Lower 2002 revenue	12	226,117	187,173	-38,944	-17%	147	223,602	135,875	-87,727	-39%	159	223,791	139,747	-84,045	-37%
Higher 2002 revenue	1	109,037	121,458	12,421	11%						1	109,037	121,458	12,421	11%
Total	13	217,111	182,118	-34,992	-15%	147	223,602	135,875	-87,727	-39%	160	223,074	139,632	-83,442	-37%
Total	38	104,924	91,101	-13,823	-8%	203	176,142	108,341	-67,801	-35%	241	164,913	105,623	-59,290	-31%

RECOMMENDED REGULATIONS FOR THE 2002 OREGON RECREATIONAL BOTTOMFISH FISHERY

At the September 2001 meeting, the Pacific Fisheries Management Council adopted two options for public review for the 2002 Oregon recreational bottomfish fishery:

Option 1: Open April 1 through October 31. During May and June, rockfish would be open only inside of the 20-fathom curve. The period of time that June is restricted to nearshore waters depends on the necessary reduction to achieve yelloweye rockfish constraints. The rockfish bag limit would be 10 fish with no more than 1 canary rockfish and no more than 1 yelloweye rockfish. The lingcod limit would be 2 fish with a 24-inch minimum length. Time closures include all bottomfish species for ocean boat anglers (i.e., rockfish, greenling, cabezon, lingcod, flat fish). Angling from shore would remain open year round, as would angling from boats in inside estuary waters.

Option 2: Open January 1 through December 31. During May and August, rockfish would be open only inside of the 20-fathom curve. The period of time that August is restricted to nearshore waters depends on the necessary reduction to achieve yelloweye rockfish constraints. The rockfish bag limit would be 10 fish with no more than 1 canary rockfish and no more than 1 yelloweye rockfish. The lingcod limit would be 1 fish with a 24-inch minimum length.

The Oregon Department of Fish and Wildlife conducted public meetings in North Bend, Newport, and Tillamook to discuss the options. In addition, a web survey was utilized to gather public opinion. At the public meetings a third option, similar to one under consideration for Washington, was identified as the preferred option. The results of the survey and meetings were presented to the Oregon Fish and Wildlife Commission at their October 19, 2001 meeting.

Recommended Option

Option 3. Open January 1 through December 31. The lingcod bag limit would be 1 fish with a 24-inch minimum length. The rockfish bag limit would be 10 fish with no more than 1 canary rockfish and 1 yelloweye rockfish, except yelloweye rockfish prohibited during all-depth halibut open days if Pacific halibut have been retained. If the yelloweye harvest guideline is projected to be exceeded, inseason action will be taken to prohibit recreational groundfish fishing outside of the 25-fathom curve.

SCIENTIFIC AND STATISTICAL COMMITTEE STATEMENT ON MANAGEMENT MEASURES FOR 2002 AND ENVIRONMENTAL ASSESSMENT

As part of the process of setting harvest guidelines for the 2002 groundfish fishery, the Groundfish Management Team (GMT) (in conjunction with NMFS, state agencies, and the Scientific and Statistical Committee [SSC]) has undertaken a more comprehensive analysis of bycatch rates than was carried out in the past. Dr. Jim Hastie presented *Evaluation of Bycatch and Discard in the West Coast Groundfish Fishery* (Exhibit C.3, Supplemental Attachment 3). He described new methodology and the use of additional sources of data to estimate bycatch rates and discards. In the past, *Sebastes* discard rates were largely determined from the observed discard of widow rockfish across all fishing strategies from the Pikitch study (1988). In recent years, several analyses have been done that used logbook, Enhanced Data Collection Program (EDCP) and other data to estimate discard rates for lingcod and the Dover sole/thornyhead/trawl-caught sablefish complex (DTS) species. In this year's analysis, a new approach was adopted that involves calculating bycatch rates of overfished species in the context of specific target strategies, then calculating discards by assessing, on a vessel basis, the degree to which bycatch exceeds available landings limits for each species. Simulation analysis was also carried out to examine the effect of high variability in the estimation of key bycatch rates on the subsequent discard estimates.

Recognizing that [1] the GMT analysis is only the first stage of a more comprehensive evaluation that will be undertaken over the next two years and [2] a full SSC review was not possible given the urgency of the work and its application in the 2002 landed catch optimum yield (OY)-setting process, the SSC considers the GMT analysis to be the best way to proceed for the coming year. The analysis is well thought out and makes more comprehensive use of the available data than the work used in previous years. The SSC looks forward to working with the GMT on further improvements of the methods and refinements in the data analysis.

Mr. John Devore and Mr. Jim Seger overviewed the contents on the draft Environmental Assessment/ Regulatory Impact Review (EA/RIR) for the proposed 2002 groundfish Acceptable Biological Catch and Optimal Yield specifications and management measures for the Pacific Coast Groundfish Fishery (Exhibit C.4, Supplemental Attachment 1). The SSC notes that the document provides a basis for evaluating the impact of alternative harvest levels, assumed discard rates, and season options. The version of the document supplied to the SSC does not include information regarding bycatch alternatives, but this will be included in the version presented to the Council.

The alternatives considered in the EA/RIR attempt to capture a range from the status-quo to reducing the impact of reduced OYs on the size of trip limits through seasonal modifications. The draft EA/RIR only considers a subset of the possible alternatives. Additional alternatives, which may include modification of season length, may be developed and refined during Council deliberations. No formal analyses of the alternatives are included in the EA/RIR, precluding a review by the SSC. The tables included in the draft EA/RIR nevertheless, do provide a basis for consideration of the impact of management measures on gross revenue, but little information relative to costs and community impacts.

Benefits and costs of seasonal alternatives may have substantial impacts on different segments of the fleet and processors. The document includes economic information gathered during a survey of trawlers conducted several years ago, as well as processor data recently provided by the West Coast Seafood Processors Association. While the representativeness of these data has not been evaluated, they nevertheless illustrate the usefulness of industry cost data for evaluating the effects of management options. For the immediate issues at hand, the SSC recognizes the desirability of incorporating the available trawl and processor data in the EA/RIR for purpose of eliciting public comment. Given continuing expectations regarding the need for economic analyses, the SSC encourages the collection of additional economic data for all fishery sectors by means of designed surveys or through interviews with key participants. These data collections should be conducted independently of specific management issues and should occur periodically to reflect changes in fishery conditions.

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW) REVISED PROPOSED MANAGEMENT MEASURES FOR 2002 RECREATIONAL GROUNDFISH FISHERY

Option 1a
A recreational rockfish bag limit of 10 rockfish, of which no more than one canary rockfish and one yelloweye rockfish can be retained; open year-round.

Option 1b
A recreational rockfish bag limit of 10 rockfish, of which no more than one rockfish can be canary or yelloweye; open year-round.

Option 1c
A recreational rockfish bag limit of 10 rockfish, with a sublimit of either two canary rockfish OR one canary rockfish and one yelloweye rockfish; open year-round. (Note: Under this option a person cannot retain more than one yelloweye, and cannot retain two canary with one yelloweye.)

Option 2
Combine Option 1a, 1b, or 1c with prohibiting the retention of yelloweye rockfish if Pacific halibut have been retained on the same fishing trip.

Under both options, WDFW would monitor its fishery and track its catch. If the Washington recreational yelloweye rockfish harvest guideline is projected to be exceeded, WDFW will take in-season action to prohibit recreational groundfish fishing outside a line approximating the 25-fathom curve that will be delineated by a series of way points defined by latitude/longitude, and prohibit the retention of yelloweye rockfish.

Under all options, the lingcod season would be March 16-October 15, 2002, 2 fish daily limit, with a minimum size limit of 24".

RECEIVED

OCT - 9 2001

PFMC

October 5, 2001

Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

RE: Halibut and Bottom fish Recreational Fisheries

Dear Council:

I am an avid off-shore sports fisherman who has been fishing the Oregon Central Coast (Florence and Winchester Bay) for the past 12 years. I also represent the majority of bottom sports fishermen in our area.

My beginning comment is that this past season of bottom fishing has been the worst I have seen in 12 years.

PACIFIC HALIBUT:

Item #1: This item does not make sense. It must have been proposed so charter boats can make two halibut trips a day. This does not sound like a good idea.

Item #2: We would favor splitting the quota and a later opener of Oregon's fishery.

Item #3: We do not favor splitting the quota and an August fishery time is too late in the season. If you continue to allow the commercial industry to retain one halibut bycatch for each three salmon caught, there will be no more halibut fishing in the northwest.

BOTTOM FISH:

We would favor option #1. The only problem with our area (Florence and Winchester Bay) is there is no bottom fishing inside the 20 fathom curve. All of our fishing areas are 4 to 10 miles off shore. We would ask for an exclusion for our area on the 20 fathom curve area.

Thank you for the opportunity to have input.

Respectfully,

Kent F. Duke

Kent Duke
87827 Sandrift Street
Florence, OR 97439

Cc: Don Bodenmiller, Marine Recreational Fisheries

John Mellor
627 Pacific Ave.
Alameda, Ca. 94501
(510) 814-8979

Lou Ferrari
17 Bretano Way
Greenbrae, Ca. 94904
(415) 461-2008

RECEIVED
OCT 11 2001
PFMC

October 11, 2001

Re: Proposed closure for all rockfish fishing outside of 20 fathoms south of Cape Mendocino in 2002.

Dear Council Members and Concerned Parties:

1. We are two individuals, Lou Ferrari and John Mellor, who have targeted certain nearshore species for a combined total of 50 years.

2. Most (90%) of our fishing activities (traditional longlining) occur between 20 and 50 fathoms, between Point Arena and Ano Nuevo.

3. The species we mainly target are brown rockfish and copper rockfish, as well as certain other nearshore rockfish.

4. When targeting these species we rarely encounter other species of rockfish, i.e. shelfrockfish.
   a. This is because of the type of bottom that concentrations of brown and copper rockfish inhabit which is mainly gravel.

   b. Shelf species such as golden- eye, canary, boccacio etc. prefer the more hard rocky bottom and pinnacles 50 fathoms and deeper.

5. Unlike other areas on the west coast, where nearshore fishing activity occurs close to shore, our fishing activities are generally offshore due to the geological make-up of the coast and the sea-floor in our area.
   a. The nearshore rockfish habitat from Bodega Head south to Ano Nuevo mainly consists of mud, sand , gravel and some small rocky areas.

Please take into consideration the unique situation in this area and leave commercial hook and line fishing for the 19 nearshore rockfish species open out to 50 fathoms. If all Rockfish fishing is closed outside 20 fathoms in our area it would not only put us out of business it would also decimate the nearshore rockfish biomass inside 20 fathoms.

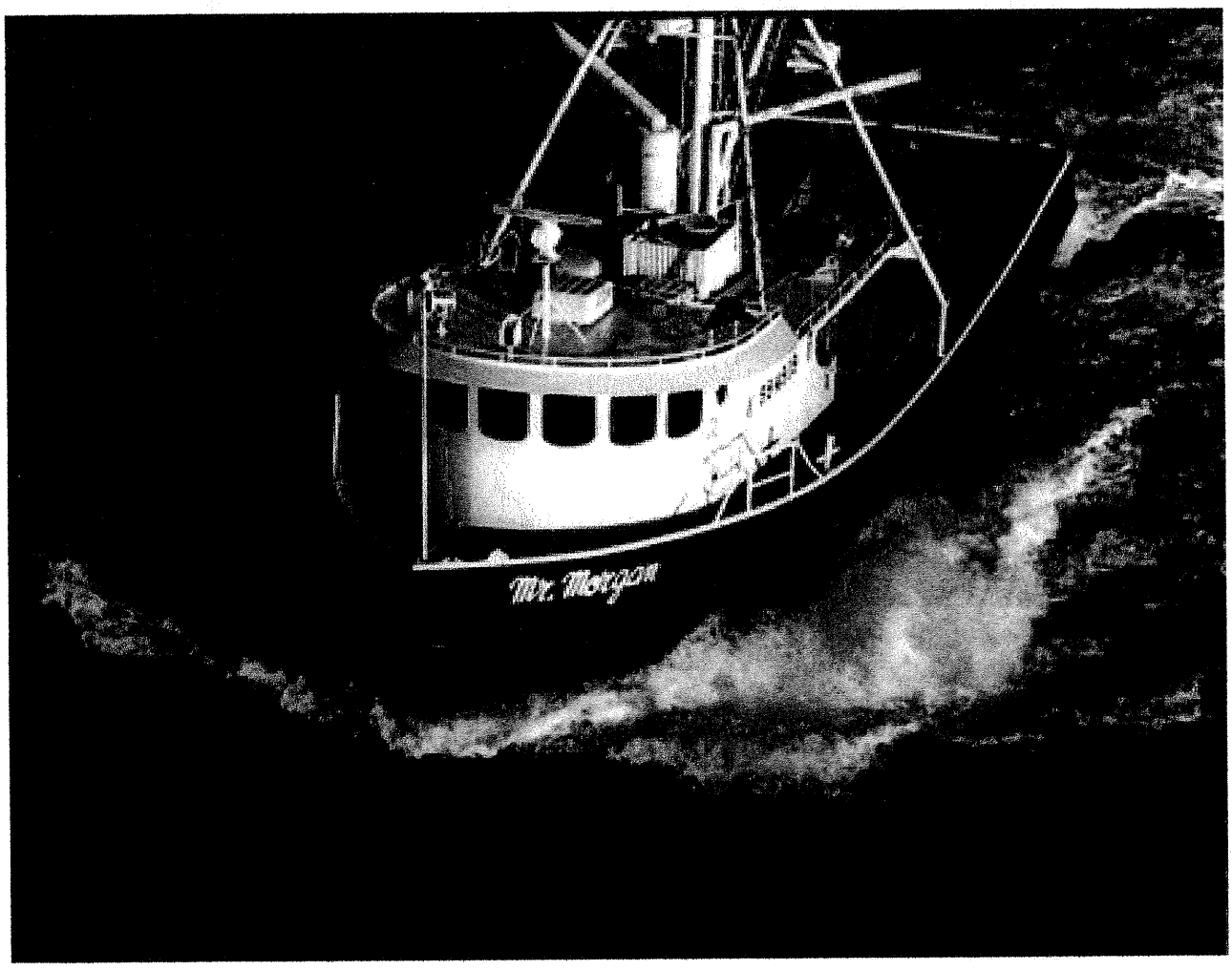
Cordially,

John Mellor and Lou Ferrari

RECEIVED
OCT 1 5 2001
PFMC

SANDDAB REPORT

Scottish Seiner
F/V *Mr. Morgan*
Steve Fitz, Owner/Operator



Steve Fitz - *F/V Mr. Morgan*
111 Mirada Road
Half Moon Bay, CA 94019

October 11, 2001

Pacific Fisheries Management Council
7700 NE Ambassador Place
Portland, OR 97220-1384

Subject: **Sanddab Report**

Dear Council Member:

The F/V Mr. Morgan is the only Scottish Seine boat on the West Coast of the United States. It is the only boat that can prove through Fish & Game landing receipts that the underutilized and abundant sanddab represents the majority (85%) of our historical landings since 1985. We have slowly, over many years, expanded the fresh market for sanddabs, previously considered a "junkfish" by some. Year after year, our steady production, linked with our innovative harvesting method has allowed our sanddab markets to grow and thrive. This was all achieved without interacting with endangered rock cod, marine mammals, birds or contributing in any way to seabed degradation.

One year ago, I wrote to PFMC committee members about my increasing fear that my sanddab business could be jeopardized in the current precautionary approach to groundfish management. This fear became reality on October 1st, when the 30,000-pound flatfish limit south of Cape Mendocino effectively cut the allowable sanddab harvest of my fishery by more than 50%. The flatfish limit was never intended to restrict our sanddab market, but it surely has.

I am providing the enclosed information to back up my earnest request that the PFMC allow the *F/V Mr. Morgan* to continue to harvest the sanddab at our previous historical levels. The flat fish limits now in effect South of Cape Mendocino will starve our Bay Area sanddab markets and force us into the deep water to inevitably interact with the very species the Council is trying to protect.

For Council review, I would like to present the attached historical sampling of sanddab catch data from my Scottish Seine fishing operation. This data was collected from the California Department of Fish and Game "B" Northern Trawl Landing Receipts. I hope this data will help to prove the following:

- **The Mr. Morgan's provable lack of interaction with any of the threatened species of rock cod.**
- **Our historically narrow focus (since 1985) on the abundant and, until recently, underutilized sanddab.**
- **Evidence of the *sustainable nature* of our sanddab fishery, generally more fish in less sets with each passing year.**

The Scottish Seine Method is widely recognized as the most environmentally friendly gear type. (See attached letter) The gear is very light, has no negative impact on the seabed or marine mammals and can only be used on smooth muddy bottom. The F/V Mr. Morgan fishes the same grounds year after year, proving habitat destruction is not an issue for our fishery.

Please find the following attachments for your consideration:

Attachment 1: A five-year sample (1989-2001) Summary Report of my California Fish & Game landing receipts evidencing the high percentage of sanddabs caught on the *Mr. Morgan.*

Attachment 2: A simplified diagram of a Scottish seine set to illustrate the physical process of how the gear works.

Attachment 3: A letter from Duncan Amos, Director of the University of Rhode Island Marine Advisory Service, which attests to the method and gear's environmentally friendly characteristics.

Attachment 4: A San Francisco Chronicle article describing the high level of local appreciation for our fresh caught sanddabs.

Thank you for allowing me to present this information. I believe the Council's task of making groundfish management decisions to be a very important and difficult one. I sincerely hope that the long-term conservation goals of the Management Council can be accomplished without sacrificing a small, specialized 'niche fishery' like the sanddab fishery developed by the *Mr. Morgan.* We would like to continue to harvest the sanddab at our previous levels.

Sincerely,

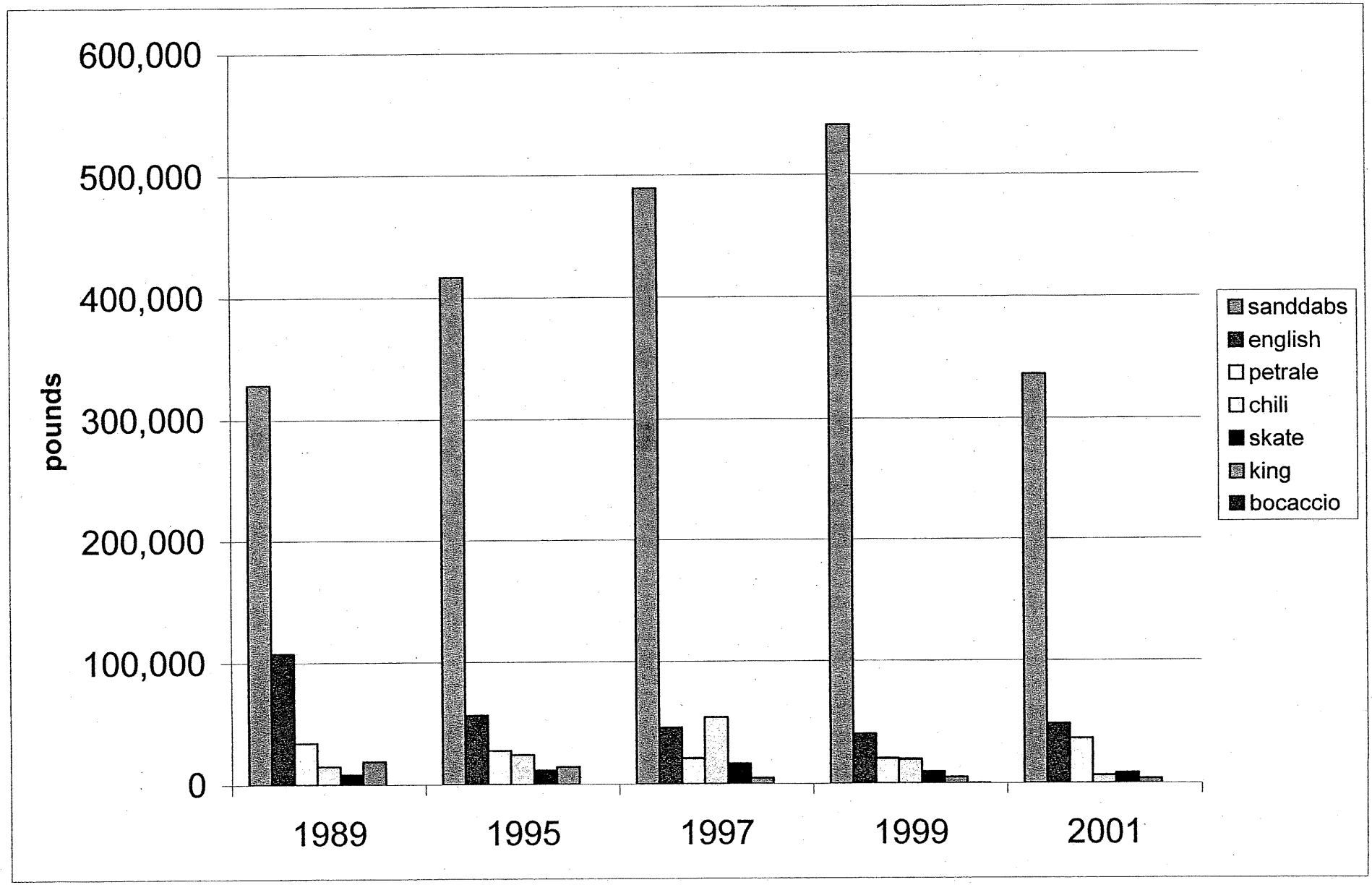
Steve Fitz
Owner/Operator
F/V *Mr. Morgan*

Attachments (4)

111 Mirada Road, Half Moon Bay, CA 94019 650/726-6953 e-mail: seafitz@gate.net

F/V Mr. Morgan: 5 Sample Years – Total Catch by Species

Note: Data for 2001 is YTD – 7 months only

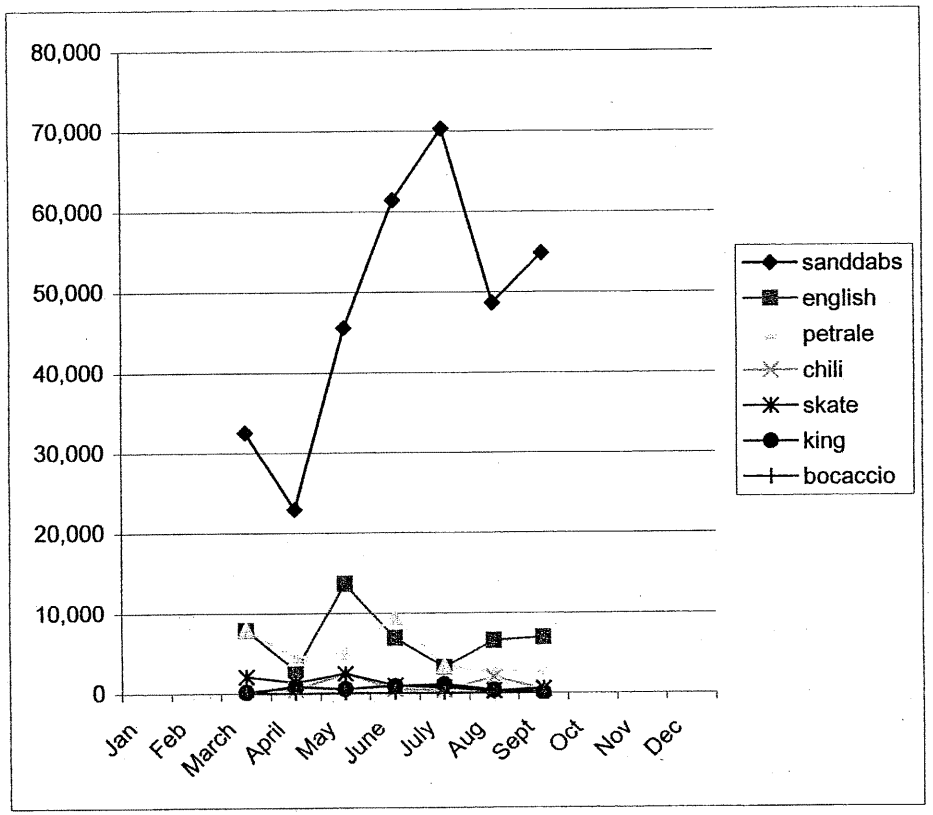


Sanddab Report
Prepared by Steve Fitz
10/11/01

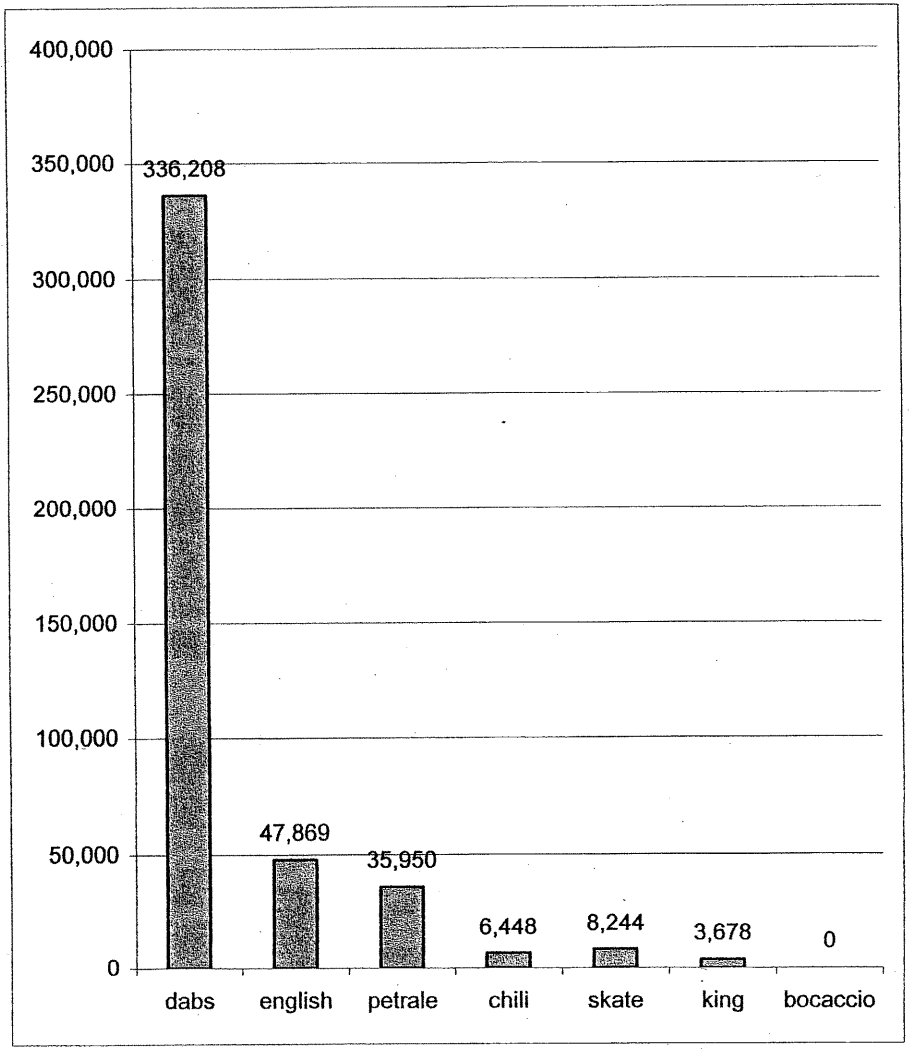
2001 Year to Date Catch Analysis – F/V Mr. Morgan

2001	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Fishing Days			9	9	12	10	13	8	10			
Number of Sets			33	32	36	32	43	20	24			
Total Pounds	0	0	50,902	32,927	69,790	79,958	78,974	60,259	65,587			

Monthly pounds per species



Total pounds to date per species - 2001

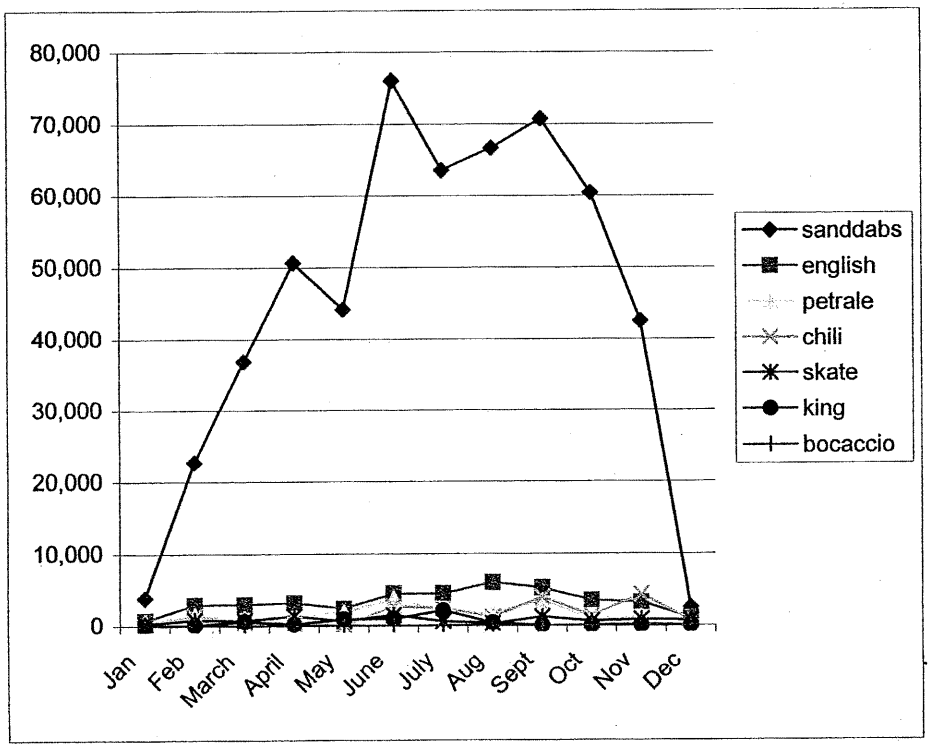


Sanddab Report
Prepared by Steve Fitz
10/11/01

1999 Catch Analysis – F/V Mr. Morgan

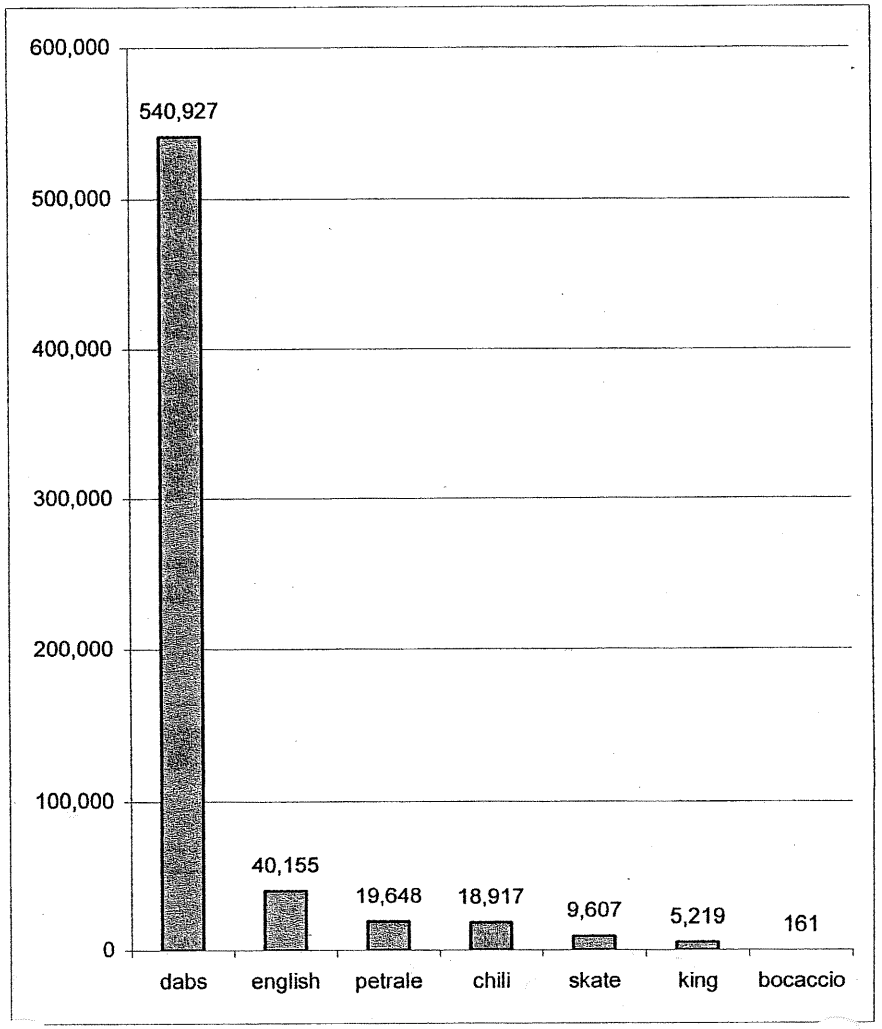
1999	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Fishing Days	2	6	7	7	9	10	11	13	12	12	8	4
Number of Sets	7	23	24	21	29	29	32	30	37	33	29	7
Total Pounds	5,665	29,328	42,519	57,170	49,953	89,381	75,247	76,365	84,489	66,923	52,219	5,375

Monthly pounds per species



Note: Fishing days decrease in Nov-Dec due to Dungeness Crab Season.

Total pounds per species - 1999

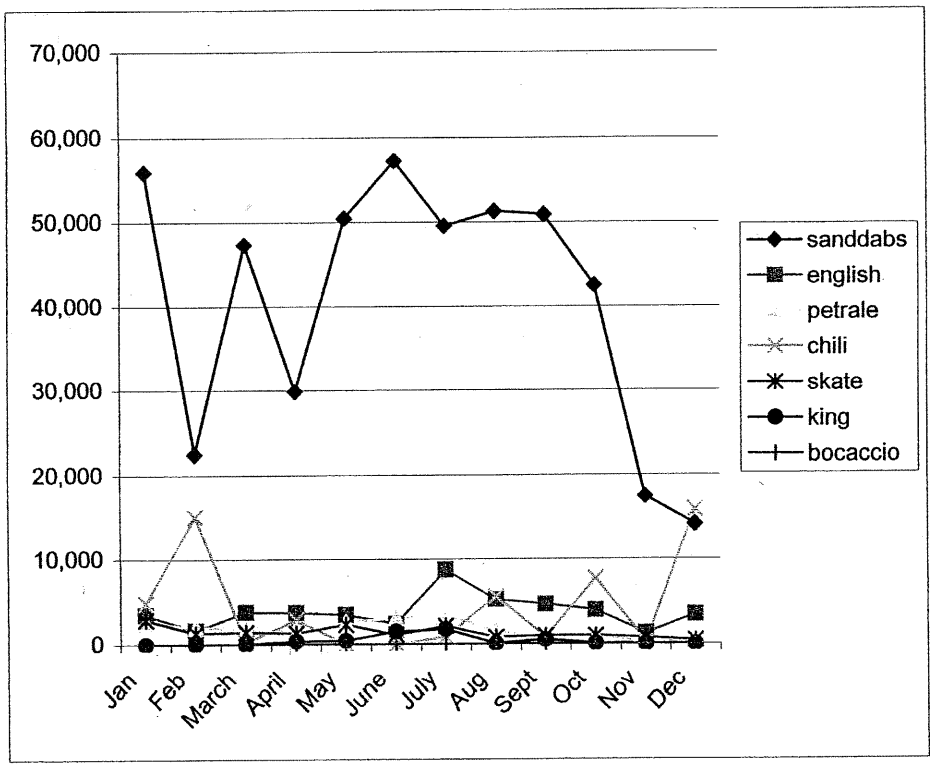


Sanddab Report
Prepared by Steve Fitz
10/11/01

1997 Catch Analysis – F/V Mr. Morgan

1997	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Fishing Days	9	6	8	8	12	11	11	11	12	10	4	4
Number of Sets	27	19	21	26	46	38	36	31	45	38	15	14
Total Pounds	69,674	42,480	54,658	39,656	59,291	65,315	66,574	64,495	58,420	56,290	19,841	34,073

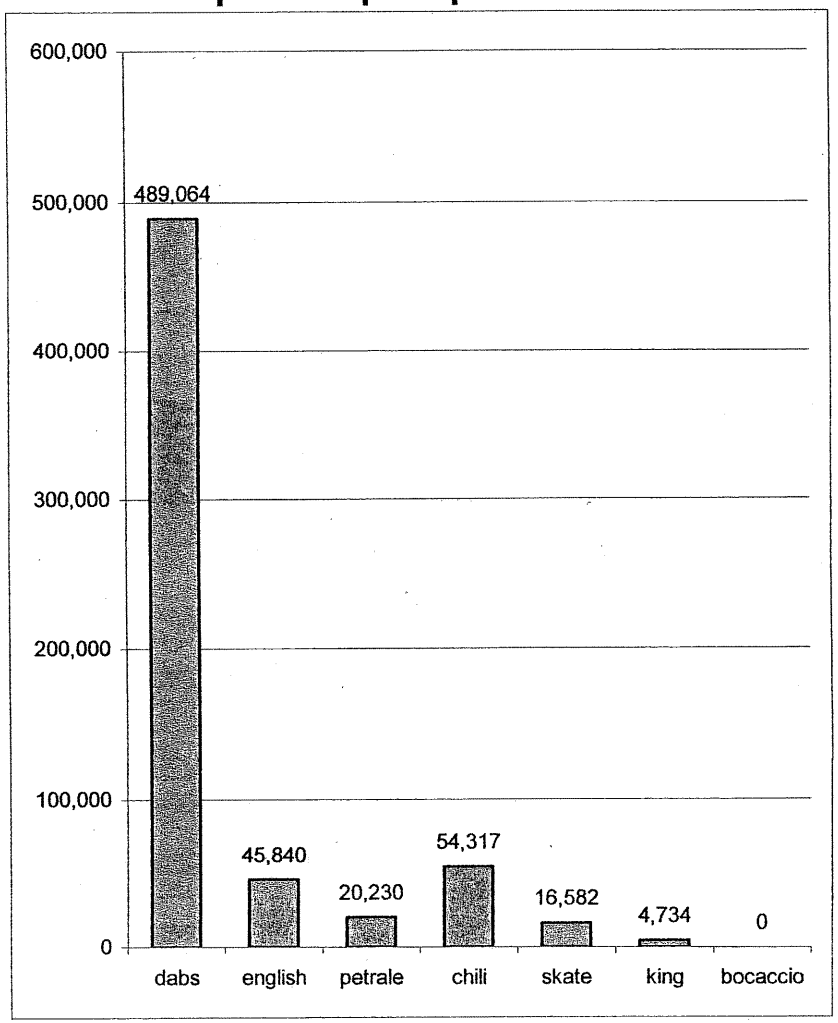
Monthly pounds per species



Note: Fishing days decrease in Nov-Dec due to Dungeness Crab Season.

Sanddab Report
Prepared by Steve Fitz
10/11/01

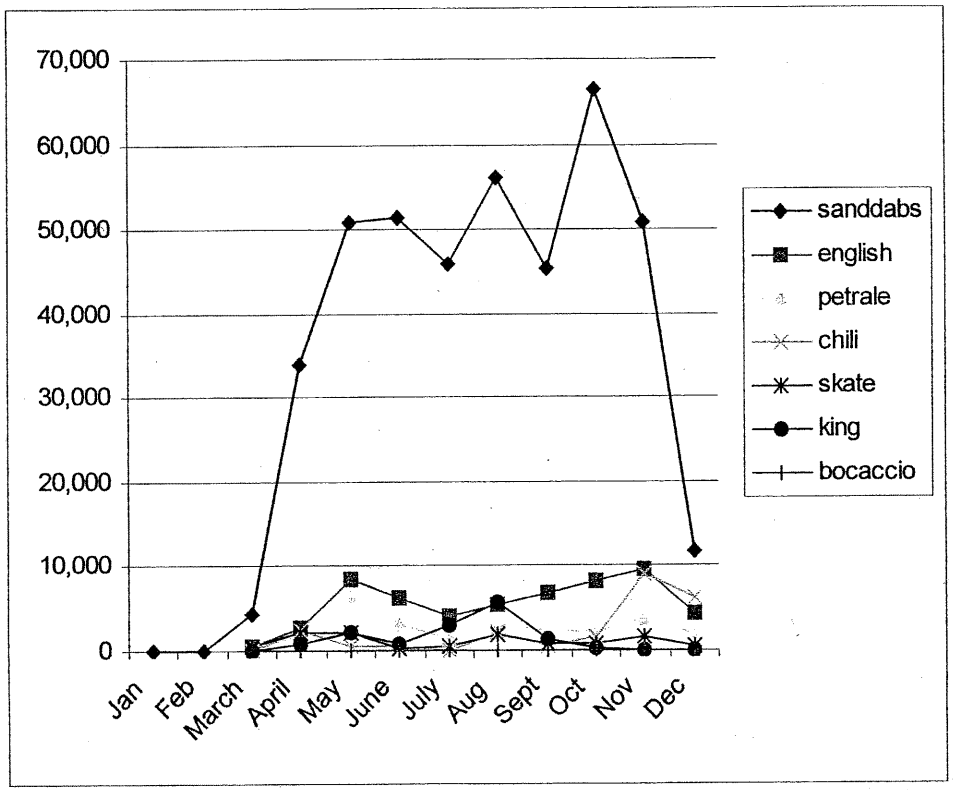
Total pounds per species - 1997



1995 Catch Analysis – F/V Mr. Morgan

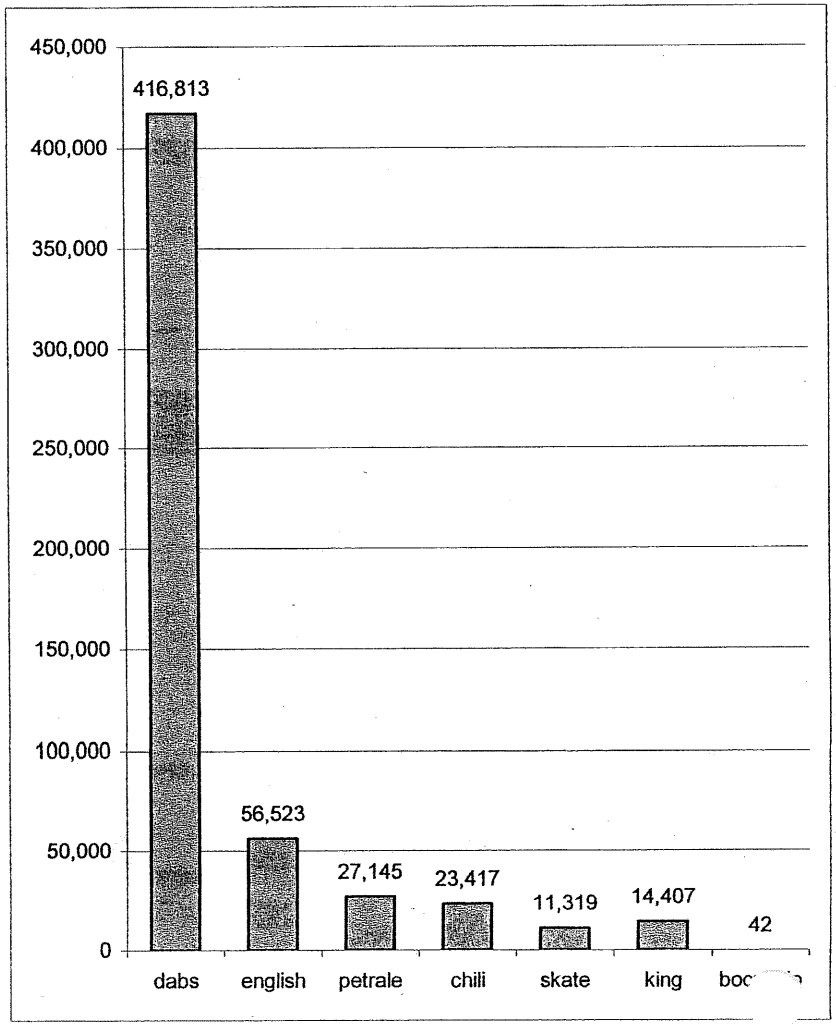
1995	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Fishing Days	0	0	2	13	14	10	12	15	10	12	9	3
Number of Sets	0	0	7	48	63	39	41	70	37	39	33	10
Total Pounds	0	0	5,813	44,430	70,825	62,661	54,873	74,156	57,330	79,621	75,033	24,924

Monthly pounds per species



Note: Fishing days decrease in Nov-Dec due to Dungeness Crab Season.

Total pounds per species - 1995

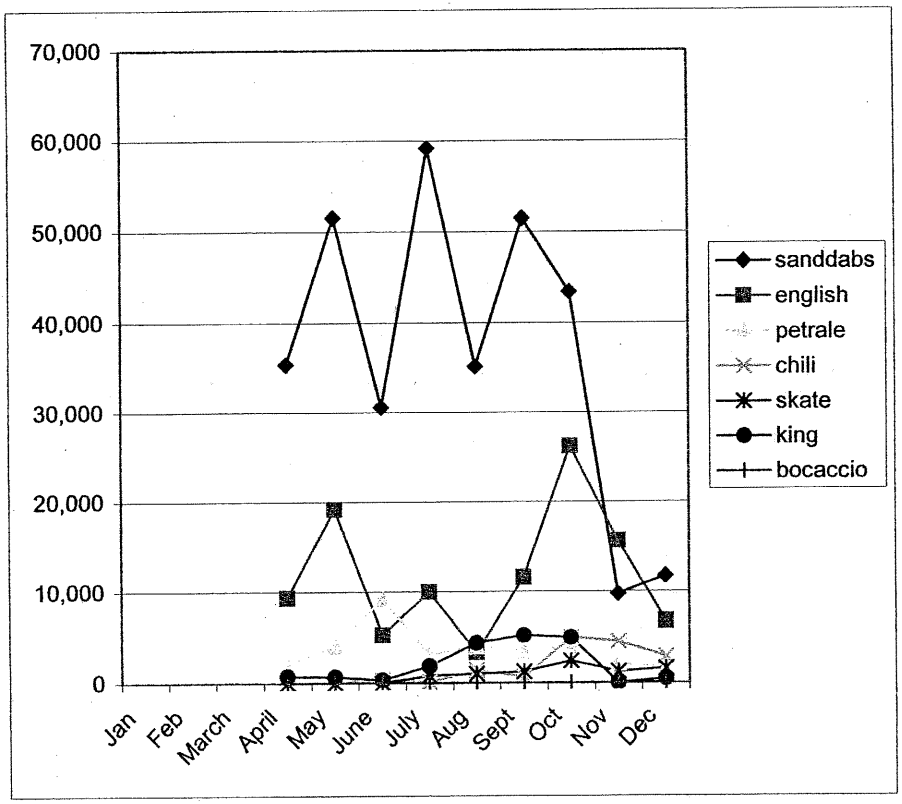


Sanddab Report
Prepared by Steve Fitz
10/11/01

1989 Catch Analysis – F/V Mr. Morgan

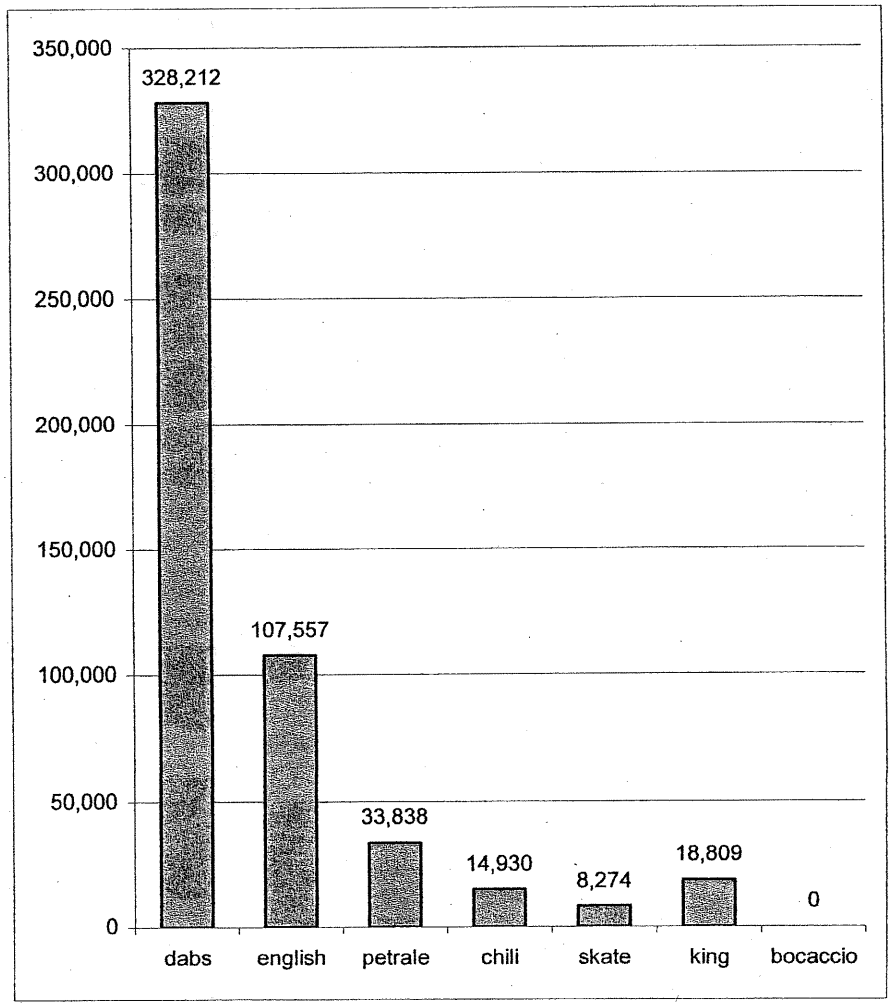
1989	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Fishing Days	0	0	0	13	13	10	14	21	15	18	8	9
Number of Sets	0	0	0	48	46	33	41	45	51	61	25	31
Total Pounds	0	0	0	50,660	79,364	51,199	81,991	49,376	73,672	86,104	33,287	25,191

Monthly pounds per species



Note: Fishing days decrease in Nov-Dec due to Dungeness Crab Season.

Total catch per species - 1989



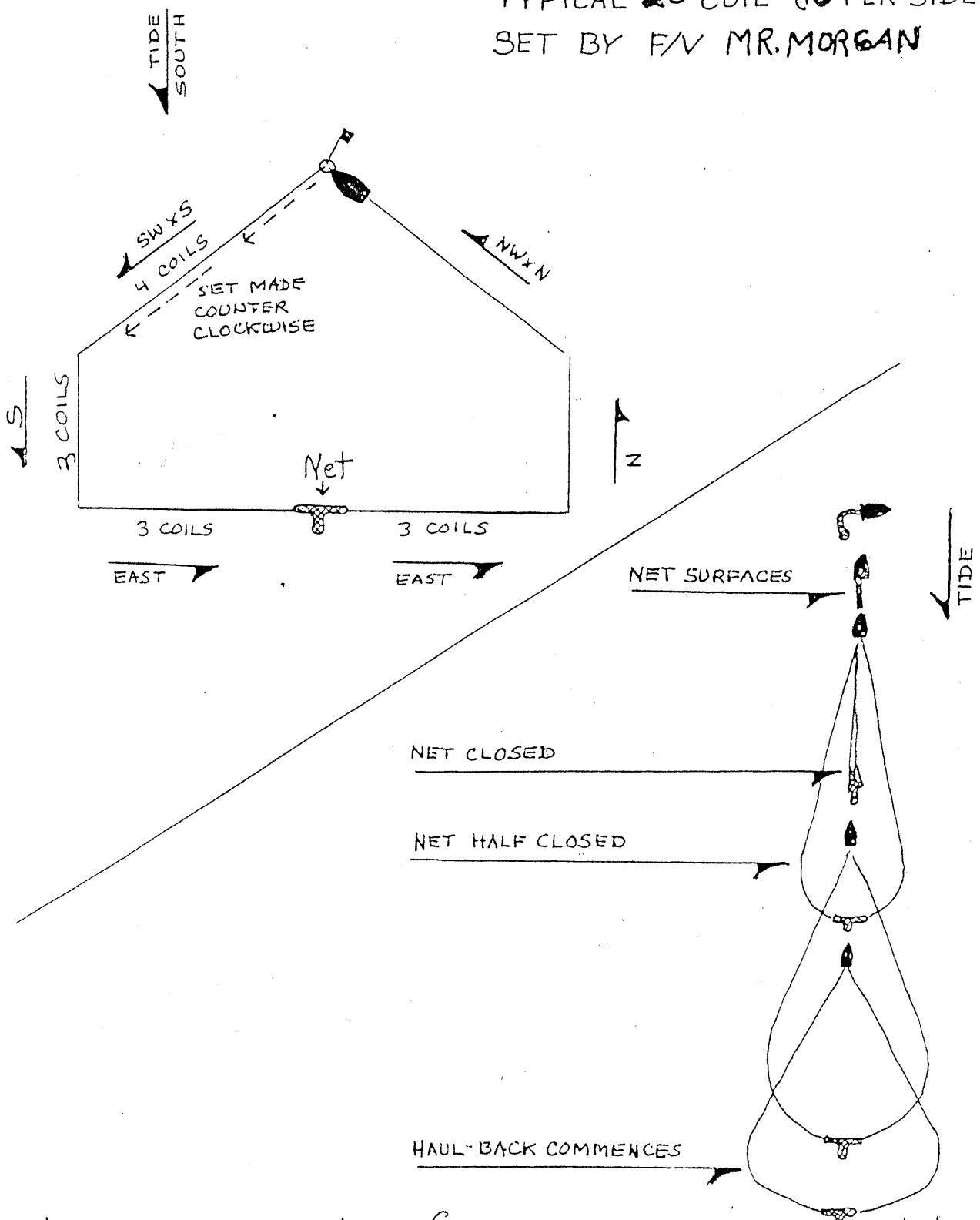
Sanddab Report
Prepared by Steve Fitz
10/11/01

F/V Mr. Morgan
5 Year Sample Catch Data

	1989	1995	1997	1999	2001
Total Fishing Days	121	100	106	101	71
Number of Seine Sets	381	387	356	301	220
sanddabs	328,212	416,813	489,064	540,927	336,208
english	107,557	56,523	45,840	40,155	47,869
petrale	33,838	27,145	20,230	19,648	35,950
chili	14,930	23,417	54,317	18,917	6,448
skate	8,274	11,319	16,582	9,607	8,244
kingfish/white croaker	18,809	14,407	4,734	5,219	3,678
bocaccio	0	42	0	161	0

Sanddab Report
Prepared by Steve Fitz
10/11/2001

TYPICAL 20 COIL (10 PER SIDE)
SET BY F/V MR. MORGAN



☆ A set takes approx. 2 hours from commencement to completion. As the ropes move along the ocean floor they create a small mud cloud. The fish instinctively herd away from the disturbance towards the center of the set. Juvenile fish lack the strength to swim from the outside to the center. As they tire, the ropes pass them harmlessly by. This results in an efficient culling technique.

Steve Fitz
Attachment
#3

The University of Rhode Island, Narragansett, RI 02882-1197
Division of Marine Resources (401) 792-6211

October 7, 1985

Mr. Steve Fitz
1315 Audubon Street
Montera, CA 94037

Dear Sir

Scottish Seining

The fish harvesting technique commonly referred to as Scottish Seining or Fly Dragging has been used in European waters for over four decades.

It is a fuel efficient method of fishing and it is effective on all demersal species.

Because of the long lengths of leaded rope that are used, it is normally only deployed over fine sand, gravel or mud grounds.

Its impact on the seabed is minimal because of the slow but gentle movement of the ropes from the initial setting of the gear to the final closing stages of the net. The net itself actually only moves across the seabed a relatively short distance and because the net is very light when compared to a trawl, there is very little disturbance to the seabed.

If the gear is used in relatively shallow water, a high percentage of the fish will come to the surfce alive and in good condition. If the mesh size used in the cod end is large enough, i.e., in excess of four inches, many small and immature fish will escape from the gear during the fishing operation.

There are films and video materials available showing the Scottish Seine in operation and from these it can be seen that the gears impact on the seabed is minimal.

I hope the above information is useful to you and if I can be of further assistance, please get in touch.

I remain.

Yours faithfully

D. Amos

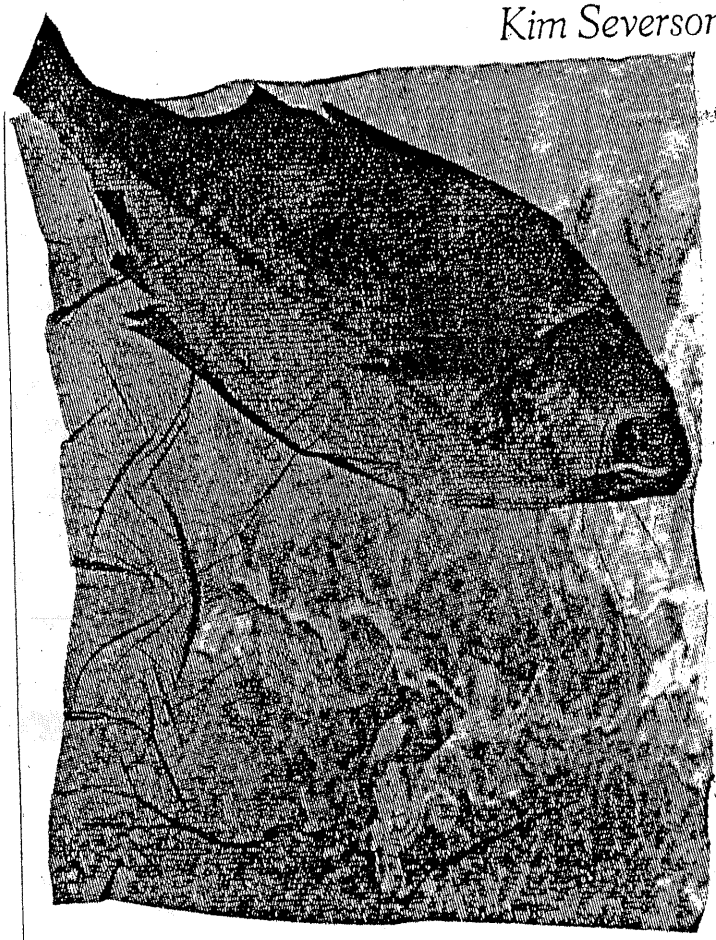
Duncan Amos
Director
MARINE ADVISORY SERVICE

DA/mmn

Attachment #4

AT THE SOURCE

Kim Severson



LENA HYDE / *Special to The Chronicle*

Landing Sand Dabs Means Fishing With Finesse

On any given day, some 15 miles off the Northern California coast, you can find Steve Fitz coaxing thousands of tiny sand dabs into a huge net.

By the end of the day, he might have pulled 8,000 pounds of the little chocolate brown flounders from the deep waters near the Monterey Bay canyons or the Farallon Islands.

▶ **INSIDE:** See Georgeanne's Kitchen for ways to serve sand dabs. **3**

Fitz, who has a degree in English and 18 years of West Coast sand dab fishing under his belt, is by all accounts the premier sand dab fisherman in Northern California. He runs his 68-foot former shrimper, the Mr. Morgan, out of Half Moon Bay, fishing almost exclusively for that most San Franciscan of fish, the sand dab.

"His fish have a firmness to them," ex-

▶ **SOURCE:** *Page 3*

continued on next page

Remember It's Key to Trim a Sand Dab

Don't let the bones keep you from enjoying the delicate, mild flesh of the sand dab. As any good San Francisco waiter will tell you, boning a sand dab looks trickier than it is.

The key is in the preparation. At Sam's Grill (374 Bush St., near Kearny), sand dabs have been a staple for almost a century. To make boning easy, chef Andy Cravalho trims about a quarter-inch all around a fish that has already had its head, tail and fins removed.

After heating canola oil in a saute pan, lightly dusting the fish in flour, salt and pepper, he pan fries them for about three minutes on each side.

Then, he runs a table knife lightly along the back bone from tail to neck and flips the meat onto a platter. With one swift but gentle motion, he grabs the bone near the tail, lifts it from the remaining meat and slips the second fillet onto the platter skin-side down. The dish is finished with butter.

"The thing is you have to do that trimming first," Cravalho says. "Then you have to just have some confidence." – *Kim Severson*

Flounders Caught With Finesse

▶ SOURCE
From Page 1

plains Phil Bruno of Exclusive Fresh Inc., who sells about 20,000 pounds of Fitz's sand dabs a week on the West Coast. "There is no scale loss and the bellies are intact. They're not bruised."

Fishmongers say Fitz's sand dabs are the best because of the relatively gentle method he uses to catch them. And with the delicate, bony sand dab, gentleness matters. A lot.

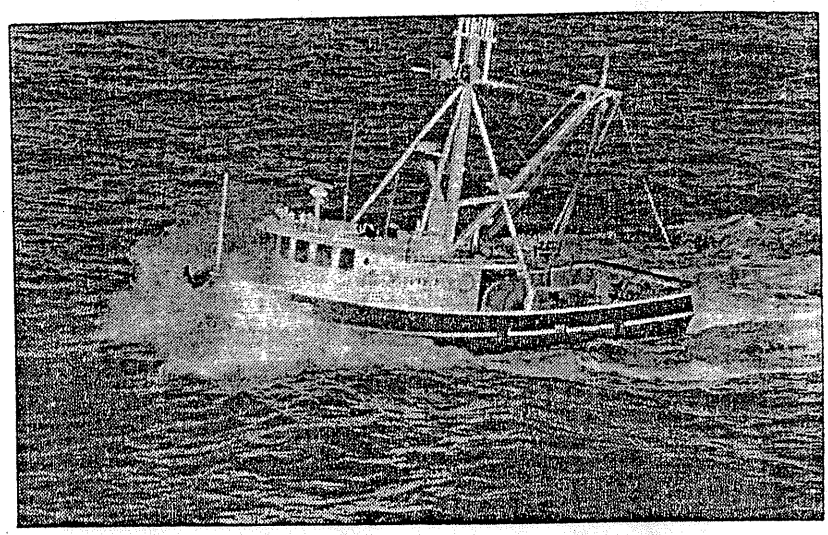
The fish are smaller than most of their flounder kin. At a pound or less each, they're more akin to rex sole (also a flounder) than a petrale sole, which can weigh as much as five pounds.

Sand dabs are caught year-round, although the fishery slows down in winter when colder temperatures and storms drive the fish farther offshore into deeper water.

How the sand dab came to be a California – and particularly a San Francisco – menu staple isn't well documented, but people in the fish and restaurant business say the sand dab is a fish of immigrants.

Sand dabs became popular among Italian fisherman who immigrated to the Bay Area. They weren't always big sellers, but the Italians liked to salt and dry them like cod or saute them with garlic. They remain a constant at old-school San Francisco restaurants like Tadich Grill and Sam's Grill, and also are experiencing resurgence at trendier restaurants interested in showcasing local fish.

A new wave of immigrants is helping the sand dab's popularity, and Fitz credits some of his increased business to the rise in the Bay Area Asian population. A lot of his catch goes directly to Vietnamese and Chinese markets, where he believes the quality of his fish makes them stand out.



FISHING: Mr. Morgan's unique netting ensures a pristine catch.

Fitz uses a Scottish seine method. A weighted polypropylene rope that stretches out about two and half miles is dropped to the bottom in a rough diamond shape. Fitz's boat slowly pulls the rope along the floor, which kicks up little clouds of mud. When the fish see the cloud, they instinctively herd away from the rope toward the center of the diamond.

With traditional dragging methods, the pressure created as the net is pulled rapidly through the water essentially sandblasts some fish and suffocates others that get pushed against the net itself.

Sand dabs can't withstand that sort of treatment, Fitz says. Rather, the gentle motion of the rope tickles the fish to the center, where they swim freely until the net is pulled shut and lifted to the surface. The fish spend only a few minutes in the net.

"It's a finesse fishery," Fitz says.

He and his crew – Jay Dykens and nephew Stevie Fitz – hand sort the fish into 100-pound boxes and lower them into a hold chilled to 33 degrees. By that afternoon, the fish are at a supplier, being pan-dressed for restaurants, fishmongers and supermarkets like Draeger's, Whole Foods and Mollie Stone's.

Pan-dressing involves gutting the fish and removing the head and fins and sometimes the tail. Filleting sand dabs is a difficult and, some would argue, futile task. Some experts suggest it's better to fry a pan-dressed sand dab quickly on each side, then gently lift the backbone, starting tail first, to remove the bones. (See sidebar.)

"Once a week we have a dab dinner out of respect," he says. "I like to pan fry them fairly hot with butter and garlic so they brown and then squeeze on a lot of lemon. If you cook them right and leave the tail on, you can literally flip them from one side to the other and the meat falls off."

Kim Severson is a Chronicle staff writer.

Oct-02-01 12:17P

PACIFIC CHOICE SEAFOODS CO.

1 COMMERCIAL ST. • EUREKA, CA 95501
(707) 442-2981 • FAX (707) 442-2985

To: Pete Leipzig

From: Rick Harris

Re: Groundfish Situation

Pete.

I understand you are meeting tomorrow with some of your members and I thought it might be helpful if you had some information from a processor standpoint given our current situation.

The long and short of it is, for the next 3 months without Black cod and Channel rock, there will not be enough margin dollars generated to run our businesses. Both vessels and plants. The market is losing Dover sole, which is a mild tasting sole, and we are hoping that we can replace some of that business with English sole, which has a very distinct flavor that is not necessarily liked by all that many consumers. Flounder, Sand Sole, and Petrale are too high priced to fill the space of Dover Sole so the plants will want very little of it. The skate market runs from $.36 to $.46 per pound. With a boat price of $.20, we cannot sort, box, and freeze below the market price.

I suggest that we get together and discuss options for the future. The vessels are going to need to fish higher quantities of English, Petrale, Skate, Flounder, Sand Sole, Dabs and Rex. In order for the plants to open up the tight limits, we have to generate enough margin dollars to pay the employees and the light bill at least. I know lower prices is the last thing boats want to hear right now, but I believe we are going to have to look at what a boat can gross per trip on tight limits verses volume at a lower price. We need to replace a fish that we have been buying at $.38 per pound. Flounder, Petrale, and Sand Sole will not currently fit that market need. It is unfortunate for us all that the Black Cod and Channel Rock has been carrying our load. It has made us irresponsible for properly marketing the rest of our species. Suddenly the picture is real clear.

Please let me know your thoughts.

Regards.

Rick Harris

STACKING TRAWL PERMITS

Peter Leipzig
FISHERMEN'S MARKETING ASSOCIATION

October 15, 2001

INTRODUCTION

The history of Federal Management of Groundfish on the West Coast is that of an evolving system of trip limits. Limits were first imposed on species where fishing effort was increasing and little was known about the stocks. Many of these species were thought to have been near virgin biomass levels only a few years earlier and the trip limits were imposed to constrain the catch from continuing to increase. For some species such as Widow rockfish the landings had increased so dramatically in just a few years that the price was driven down to very low levels.

With trip limits, fishermen could no longer attempt to overcome the lower gross revenue, caused by lower prices, simply by landing more fish. These trip limits immediately impacted those operations that had the greatest overhead and the least flexibility in reducing cost. Most often these operations were at the higher end of the spectrum, which operated the larger vessels in the fleet and often had the capability to catch and land more fish. The result of these restrictions was that some fishermen left the area for Alaska or went broke.

The nature of trip limits is that not everyone will catch all of the fish that they are entitled to. This may be due to different fishing strategies (deepwater versus nearshore flatfish), participation in other fisheries (shrimp, crab, or going to Alaska), or down time when the vessel is in the boat yard for repairs. Because of this trip limits are greater than the amount that would be available simply be dividing the available fish among all the permit holders. This difference is called "overhead".

As new stock assessments were produced which indicated that the stocks were being fished down to sustainable levels, trip limits also were reduced. This gradual, or sometimes not so gradual, reduction in trip limits incrementally began to impact more vessels that were lower down on the production spectrum. Those vessels that have never landed a full trip limit have remained un-impacted by trip limits. However, the trip limits in effect today on Shortspine Thornyheads are so low that a very high percentage of the fleet is achieving a full limit and assumably are impacted by the limit.

BIRTH OF A CONCEPT

Prior to Limited Entry being implemented, fishermen began talking a concept that grew out of a blending of ITQ's and trip limits. Originally referred to as "transferable trip limits" the concept is now called "stacking" or the "stacking of permits". The basic concept is that for each permit held, the vessel can have one trip limit.

This concept was first conceived as a mechanism by which operators at the higher end of the production spectrum could begin to offset some of the negative impacts of trip limits. Someone who had the desire and capability to harvest more fish could acquire additional permits to do so. This would tend to reduce the size of the fleet as well.

In more resent years the management concerns have had less to due with improving the economics of the fishery than ways to reduce discards. Stacking has been viewed by managers as a way to increase the amount of fish available to anyone fisherman so that discards could be reduced.

CONCERNS

Early concerns about stacking focused on the assumed need to somehow scale the additional trip limits to the size of the associated permit, or to somehow link the fishing history of a permit to the allowed trip limit. These types of adjustments certainly could be constructed, but in the end they seem extremely complex and tend to penalize the owners of larger boats. Larger boat owners would have to acquire more points to be able to land the same amount of fish in a trip limit as a smaller boat.

Another real concern was that a stacking program would reduce overhead and thus accelerate the rate of landings and cause additional reductions in trip limits or premature closure of the fishery. If a vessel would land more fish with an additional permit, than the vessel from which the permit was removed, the rate of landings would accelerate.

ISSUES

The need to reduce the base trip limit could be offset by allowing each stacked trip limit to be a fraction of a full trip limit. For example each additional trip limit could be 50% of the full value. This type of "penalty" reduces the possibility that a boat would land more

fish than the boat from which an additional permit was obtained, but it also reduces the desirability of obtaining additional permits.

Since groundfish permits are transferable several issues are raised surrounding the stacking issue. First it should be clear that trip limits would need to be associated with the permit rather than with the boat. This would eliminate double dipping. Second, freely transferable permits in a stacking arrangement would tend to make it easier to move permits around between vessel owners and this would have the effect of reducing overhead.

The transferability of permits is a very important issue. Fully and freely transferable permits, with the trip limit assigned to the permit have the potential to eliminate all overhead. At that point the trip limit would be set at the base limit (quota divided by the number of permits). A permit holder that would not be taking the entire available trip limit could transfer the permit to another fisherman to harvest. If it is estimated that some fish would be unharvested, fishermen could acquire additional permits to access the fish at the end of the year.

The alternative approach would be to restrict transfer of permits and maintain overhead as it currently exists. With restrictions some fishermen would not be taking all of their fish and they would be unable to transfer the permit to someone else. This would tend to result in the base trip limit being set at a higher level early in the year and relying upon inseason trip limit adjustment through out the year.

In either case there will need to be changes made in how landings are tracked. Landings will tied to the permit. If a person has only one permit that is not different from the current situation. However as people begin to fish with multiple permits a new tracking system will be required. In the case of fully transferable permits, a system that can keep track of the remaining fish available on the permit will be needed. If permits are fully transferable and the trip limit is set at the base level, then a "permit exchange" will be required to handle the transfer of permits with remaining trip limits.

Many fishermen are apprehensive about stacking. They are concerned that a few individuals or companies could acquire a large number of permits. Some suggest that a limit be established on how many permits can be fished and how many permits could be owned. Currently the groundfish plan does not place a limit on how many permits any individual or corporation may own.

Related to the issue of how many permits someone owns is the issue of who owns the permits. There is a fear by some fishermen that large fish companies will purchase groundfish permits and enter into "share-cropping" arrangements with fishermen.

Therefore suggestions have surfaces that permits may be stack only by the owner of the boat.

Lastly the issue of stacking permits with other gear endorsements has surfaced as a way fishermen can ensure that they have sufficient fish in a mixed stock fishery to access all of the fish they are entitled to and minimize discards. This is a controversial issue since it involves other gears types and should not be considered at this time.

SUMMARY OF ISSUES

A) Trip limit assigned to the permit, base permit is specific to vessel
Trip limit assigned to boat (this is a no stacking option)

B) Full trip limit with additional permits
Partial trip limits with additional permits

C) Length endorsement on additional permits to be +/- 5 feet of vessel length
No length requirement on additional permits

D) Stacking of permits is permanent
Stacked permits may be unstacked and retain the length endorsement

E) No restriction on frequency of transferring permits to different vessels
A stacked permit may be transferred once per _____ {cumulative period, calendar year}

F) No caps on the number of permits that can be stacked
A limit of ____ permits may be stacked

G) No restriction on ownership of stacked permits
Person stacking permits must own the vessel that will fish the permits

STRAWMAN TRAWL PERMIT STACKING PROGRAM

Fully transferable permit stacking scenario:

1. Trip limits are assigned to permit, base permit is specific to vessel
2. Full trip limits are associated with each permit
3. Additional permits are not required to be identical length as base permit
4. Permits may be "unstacked" and they retain their endorsed length
5. No restriction on frequency of transferring permits to different vessels
6. No caps on the number of permits that can be stacked
7. No restriction on ownership of stacked permits

Restricted-transfer permit stacking scenario:

1. Trip limit assigned to the permit, base permit is specific to vessel

2. a. Full trip limit with additional permits, OR
   b. Partial trip limits with additional permits

3. a. Length endorsement on additional permits to be +/- 5 feet of vessel length, OR
   b. No length requirement on additional permits

4. a. Stacking of permits is permanent. OR
   b. Stacked permits may be unstacked and retain the length endorsement

5. A stacked permit may be transferred once per _____ {cumulative period, calendar year}

6. a. No caps on the number of permits that can be stacked, OR
   b. A limit of ____ permits may be stacked

7. a. No restriction on ownership of stacked permits, OR
   b. Person stacking permits must own the vessel that will fish the permits

RECEIVED
OCT 17 2001
PFMC

October 12th, 2001

Public comment on Pacific Coast groundfish fishery

Dear Folks;

This comment has three parts. Paragraph 1 is for marine reserves, paragraph 2 is for eliminating discards and paragraph 3 is to point out a possible cause to the decline in some rockfish that may have been overlooked by the Council.

1) The only way you are going to be able to protect fish such as Cow Cod (that can take up to 25 years before they can even reproduce) is to have large permanently closed no fishing zones. You could have 30 miles of coast line and out 200 miles a no fishing zone then the next 30 open to fishing and so on for the whole west coast. This would certainly be healthy for the overall fishery in the long run. The open areas could still be managed to have some sort of year round fishery (with no discards!). Most ground fish in the protected areas lay live larvae that would drift to all areas. As the years go by the health & growing stocks in the protected areas would be "seeding" the whole west coast.

2) Discards of groundfish are just plain wrong - most groundfish are already dead. Do you have any idea how hard it is to waste a resource that was a living creature? To kill an animal and just through it away is very hard on my soul. Also by discarding certain types of fish as required often puts a fisherman under his limit - which often means the he makes another set and in the process of getting his correct limit a few more of the "protected" fish get caught and discarded. In other words often the discard method leads to even more discards. Plus you have other fisheries such as deepwater shrimp trawlers required to discard also.

3) As you know many rockfish spend the beginning of their life drifting near the surface. I was surprised after a trip in a "semi-sub" just how many of these baby (around 1") rockfish were hang around the kelp beds. I saw 1000's of them often swimming upside down under the leaves right at the surface. I was also able to see the cormorants feasting big time after a kelp cutter would go through and remove the protection of the kelp. During the el nino years the kelp in San Diego gets very thin and the large factory kelp cutter moves north. The state of California leases out almost the entire area to kelp cutting which means very little "protection for these fish.

In summary, have large protected Marine Reserves, get rid of the current discard ideas and look into the importance of the kelp beds which are currently not very well protected.

Thanks!

Lloyd Reeves

Lloyd Reeves
(owner longline "A" permit #0005)
P.O.Box 6908
Los Osos, Ca. 93412

Chairman Jim Lone
Pacific Fisheries Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

10/14/01

Dear Chairman Lone,

Once again, we are faced with another emergency closure on shelf rockfish and Ling Cod based on data from the dubious at best MRFSS survey. I just don't understand how this survey could be used as a management tool, when it so overwhelmingly skewed the impacts for the charter boat industry last year. As far as the phone survey, I don't see how it could be credible under any context.

Recreational fishermen out of the San Francisco Bay Area have had next to no impacts on the shelf fishery in the Gulf of the Farallones all year long. Combined with the closure, bad offshore weather, and cold water conditions, recreational fisherman have basically not fished the shelf until about mid September, which to this point, ,means about a month of fishing. Even at that, there are few boats participating. If you were to check log book data, you would find that this would be the lowest effort ever recorded in this area. I have no doubts that this would be the case in many other ports up and down the coast.

At the California Fish and Game informational meeting last week, we were told that the options for the 2002 shelf rockfish season, were going to be projected off of the 1996-1999 rockfish data, which will not be realistic, since the 2000-2001 shelf rockfish effort have made all time lows, with no hope in the near future of more effort just less, it just renders us with once again, higher expectations than reality of harvest rates, which is going to create much pain, misery, and anger for recreational fisherman up and down our coast. Not to mention, for those in the industry that rely on this harvest.

Our industry is quickly reaching the crossroads in this area, when just in the last year we have had huge cutbacks in the rockfish fishery. We have also had our Striped Bass recovery program stopped by NMFS, also we have been effectively closed off to some prime spring halibut areas by the security closures around our two major airports, not to mention our ongoing cuts due to Winter Run Salmon. We need your help.

As far as management changes for the future, I would strongly urge the Council to recommend smaller management areas, such as what we have in the Salmon management zones. I believe that this is the only way to address the individual needs of specific areas, of the fishing methods, depths, gear, and species diversity vary so much, and doesn't penalize anglers out of an area, in which they have no impacts on concerned or overfished species.

I believe with smaller area management, combined with an agressive observer program, would greatly enhance our future data needs, and create a more realistic environment for rockfish management on our coast. The time to act is now, as there are just too many people getting creamed in the carnage of what we are currently doing.

Sincerely,

Craig Stone

Craig Stone
Emeryville Sportfishing
3310 Powell St.
Emeryville, Ca. 94608

RECEIVED
OCT 2 3 2001
PFMC

October 22, 2001

TO: PFMC

Subject: Sablefish Management

Dear Council Members:

Now is the time to start managing sablefish as a sustainable resource. This objective is very attainable, if you so desire.

This objective can be fulfilled by allowing the majority of available catch to be allotted to pot permit holders. Emergency rules would need to be enacted to allow transfer of trawl accumulative limits to fixed gear permit holder.

The traps used by fixed gear fishermen should contain two stainless steel escape rings with an inside diameter of no less than 3 and 5/8 inches. Also, fish with an overall length above 37 inches should be immediately released from the fixed gear vessel. There is no reason that the sablefish fishery along the West Coast cannot be a sustainable fishery.

Your current TAC's are so low, even if I owned three top tier permits, I would still have a hard time maintaining a viable business.

Please show the public and other fish managers that certain groundfish can be harvested in a sustainable way.

Thank you,

Scott Hartzell
Captain/owner
F/V OSSIAN

GROUNDFISH MANAGEMENT OPTION HEARING SUMMARY

Date:	October 10, 2001	Hearing Officer:	Mr. LB Boydstun
Location:	Flamingo Resort Hotel Santa Rosa, CA	Other Council Members:	Mr. James Caito Mr. Don Hansen Mr. Roger Thomas
		California Fish and Game Commission:	Mr. Robert Treanor
		NMFS:	Dr. Steve Ralston
Attendance:	40	Coast Guard:	None
Testifying:	Open meeting	Groundfish Team Members:	Mr. Tom Barnes Mr. Dave Thomas
		Groundfish Advisory Panel:	Mr. Darby Neil
Organizations Represented: Pacific Coast Federation of Fishermen=s Associations, Golden Gate Fishermen's Association, and United Anglers of California			

Synopsis of Testimony

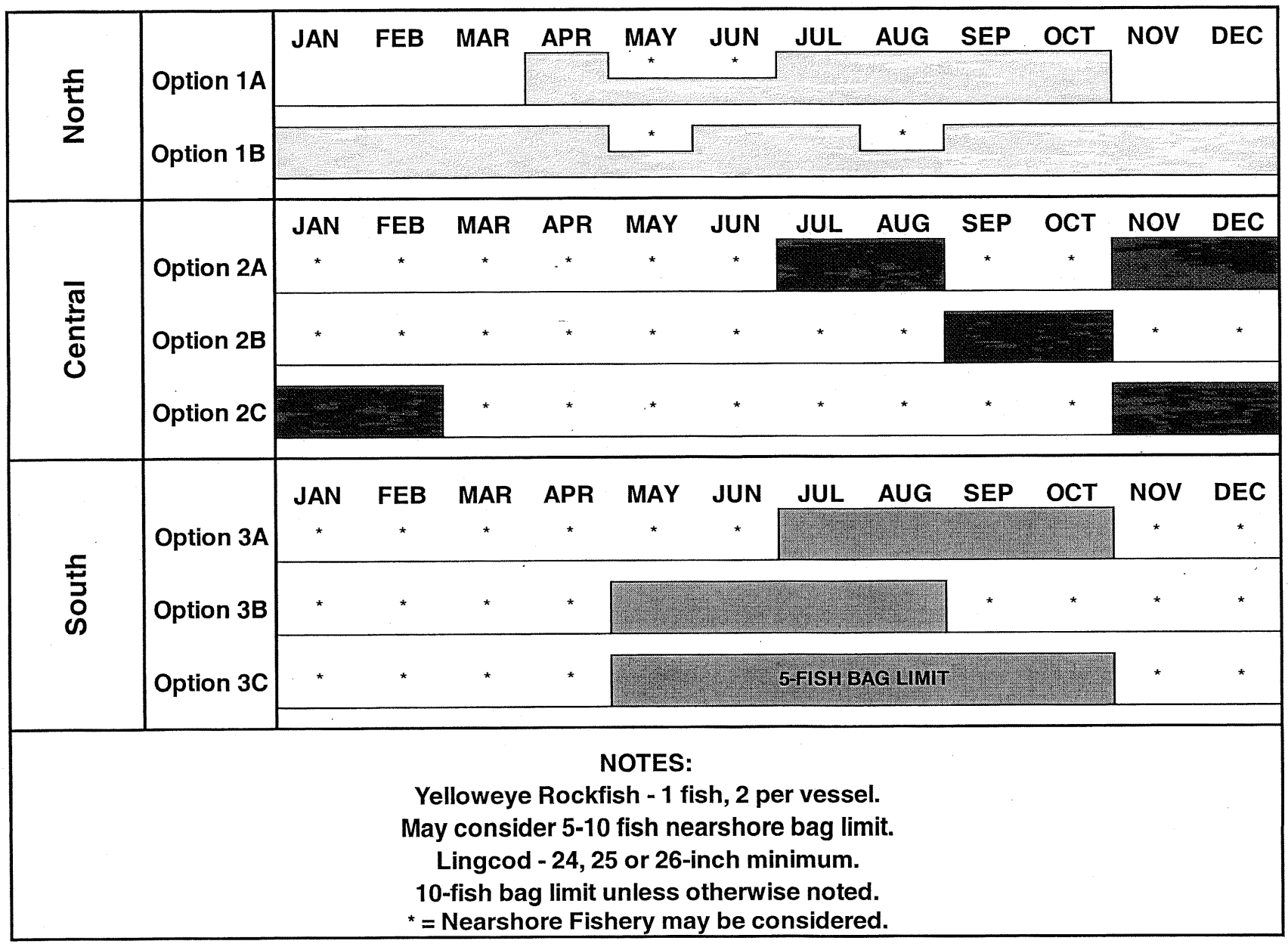
Commercial Comments:

- Access must be allowed for commercial fixed gear fishermen (limited entry and open access) to chilipepper, similar to what is allowed for trawl.
- Observer program is needed to obtain better fishery data.
- Fixed gear impacts on non-target species are lower than for trawl.
- It is not clear where MPAs fit into the management, if at all.
- We need to have more management areas off California.
- Surveys are needed south of Point Conception.
- Currents fixed gear/trawl allocations are not balanced.
- Six-month trawl season will put plants out of business.

Recreational Comments:

- Require barbless hooks for canary rockfish; they do not bloat like the other rockfish.
- Allow for lingcod and vermilion rockfish retention during nearshore fisheries.
- We are concerned about impacts on nearshore stocks during shelf rockfish closures.
- CPFV logbook compliance should be enforced.
- Recreational anglers may be willing to accept lower bag limits for a longer season.
- Recreational data are inflated.
- Please consider adopting a 25-fathom nearshore boundary.
- We like the November-February offshore rockfish option but would like July-August added, if possible, for the central coast area.
- Shallow water fishing is most important during summer months.
- We prefer regulation adjustments to season closures.
- Limited entry is needed in the CPFV fishery.
- Require the retention of the first 10 shelf rockfish.

2002 OFFSHORE ROCKFISH AND LINGCOD OPTIONS



NOTES:

Yelloweye Rockfish - 1 fish, 2 per vessel.

May consider 5-10 fish nearshore bag limit.

Lingcod - 24, 25 or 26-inch minimum.

10-fish bag limit unless otherwise noted.

* = Nearshore Fishery may be considered.

INITIAL INDUSTRY PROPOSED LIMITED ENTRY TRAWL TRIP LIMITS FOR 2002

Species/groups	JAN-FEB	MAR-APR	MAY-JUN	JLY-AUG	SEP-OCT	NOV-DEC
Minor slope rockfish						
North	1,800 lb / 2 months					
South	50,000 lb / 2 months					
Splitnose-South	25,000 lb / 2 months					
POP	2,000 / month		4000 / month			2,000 / month
north						
Sablefish	3,000/month		6000 lb / month			3,000 lb/month
Longspine	9,000 lb / 2 months					
Shortspine	2,000 lb / 2 months					
Dover sole	28,000/2m	26,000/2m	22000/2m		20,000/2m	16,000/2m
south						
Sablefish	4,500 lb / 2 months					
Longspine	9,000 lb / 2 months					
Shortspine	2,000 lb / 2 months					
Dover sole	22,000 lb / 2 months					
Arrowtooth	30,000 lb / trip		small footrope required: 15,000 lb/trip, upto 60,000 lb/m			30,000 lb / trip
Petrale sole	No restriction					No restriction
Rex sole	No limit					No limit
All other flatfish - NORTH	Small footrope: 50,000 lbs/month Large footrope: 1,000 lb /trip		small footrope: 50,000 lb, no more than 20,000 lb of which may be Petrale			Small footrope: 50,000 lbs/month Large footrope: 1,000 lb /trip
All other flatfish - SOUTH	Small footrope: 50,000 lbs/month Large footrope: 1,000 lb /trip		small footrope: 70,000 lb, no more than 40,000 may be flatfish other than Sanddabs and no more than 15,000 lb of which may be Petrale			Small footrope: 50,000 lbs/month Large footrope: 1,000 lb /trip
Shoreside whiting *	20,000 lb / trip		Open			20,000 lb / trip
Use of small footrope required for landing all shelf and near-shore rockfish						
Minor Shelf rockfish						
North	300 lb / month		1000 lb / month			300 lb / month
South	500 lb / month		1000 lb / month			500 lb / month
Canary-Coastwide	200 lb / 2 months		600 lb / 2 months			200 lb / 2 months
Widow (mid-water only)	Closed		with >= 10,000 lbs whiting, 1,500 lb.mo; combined widow+yellowtail of 500 lb			Closed
Small footrope	1,000 lb / month					
Yellowtail-North (mid-water only)	Closed		with >= 10,000 lbs whiting, 2,000 lb.mo; combined widow+yellowtail of			Closed
Small footrope as flatfish bycatch	1,000 lb / month		Up to 33% of all flatfish (exxcluding arrowtooth) plus 10% of weight of Arrowtooth			
Bocaccio-South	600 lb / 2 months		1000 lb / 2months			600 lb / 2 months
Chilipepper-South (mid-water only)	25,000 lb / 2 months					
Small footrope	7,500 lb / 2 months					
Cowcod	No retention					
Minor Nearshore rockfish						
North	300 lb / month		1.000 lb / month			300 lb / month
South	300 lb / month		1.000 lb / month			300 lb / month
Lingcod	800 lb / 2 months					

* Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb / trip throughout the year.

GMT PRELIMINARY PROPOSAL FOR LIMITED ENTRY TRAWL TRIP LIMITS FOR 2002

Species/groups	JAN-FEB	MAR-APR	MAY-JUN	JLY-AUG	SEP-OCT	NOV-DEC
Minor slope rockfish						
North	1,800 lb / 2 months					
South	50,000 lb / 2 months					
Splitnose-South	25,000 lb / 2 months					
POP	2,000 / month		4000 / month			2,000 / month
north (2-mo)						
Sablefish	6,000		3,500	6,000	3,500	2,500
Longspine	10,000 lb / 2 months		6,000	10,000		2,000
Shortspine	2,600 lb / 2 months		2,000	2,600		1,500
Dover sole	30,000/2m	28,000/2m	14,000	28,000	20,000/2m	14,000/2m
south (2-mo)						
Sablefish	4,500 lb / 2 months					
Longspine	10,000 lb / 2 months					
Shortspine	2,600 lb / 2 months					
Dover sole	22,000 lb / 2 months					
Arrowtooth	30,000 lb / trip		small footrope required: 7,500 lb/trip, upto 30,000 lb/m			30,000 lb / trip
Petrale sole	No restriction		Monthly limit for combined species of:			No restriction
Rex sole	No limit		30,000 | 40,000 | 50,000			No limit
			with a petrale sub-limit of:			
All other flatfish - NORTH per month	25,000	35,000	10,000	15,000	20,000	50,000
Petrale sole	No restriction		70,000 lb / month, no more than 40,000 lb of which may be species other than sanddabs, max 15,000 petrale (of 40,000)			No restriction
Rex sole	No limit					No limit
All other flatfish - SOUTH per month	70,000 lb / month, no more than 40,000 lb of which may be species other than sanddabs					70,000 lb / month, no mo than 40,000 lb of which ma species other than sanddabs
Shoreside whiting *	20,000 lb / trip		Open			20,000 lb / trip
Use of small footrope required for landing all shelf and near-shore rockfish						
Minor Shelf rockfish						
North	300 lb / month		1000 lb / month			300 lb / month
South	500 lb / month		1000 lb / month			500 lb / month
Canary-Coastwide	200 lb / 2 months		600 lb / 2 months			200 lb / 2 months
Widow (mid-water only)	Closed		with >= 10,000 lbs whiting, 1,500 lb.mo; combined widow+yellowtail of 500 lb			Closed
Small footrope	1,000 lb / month					
Yellowtail-North (mid-water only)	Closed		with >= 10,000 lbs whiting, 2,000 lb.mo; combined widow+yellowtail of			Closed
Small footrope	1,000 lb / month					
as flatfish bycatch	Up to 33% of all flatfish (excluding arrowtooth) plus 10% of weight of Arrowtooth					
	Up to 30,000 lb/2 mo					
Bocaccio-South	600 lb / 2 months		1000 lb / 2months			600 lb / 2 months
Chilipepper-South (mid-water only)	25,000 lb / 2 months					
Small footrope	7,500 lb / 2 months					
Cowcod	No retention					
Minor Nearshore rockfish						
North	300 lb / month		1.000 lb / month			300 lb / month
South	300 lb / month		1.000 lb / month			300 lb / month
Lingcod	800 lb / 2 months					

* Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb / trip throughout the year.

Table M1b.--Estimated bycatch and discard for GAP Recommendation 1 using PFMC adopted OYs.

		Lingcod	Canary	POP	Darkblotched	Bocaccio
		Mid	Low	Mid	Mid	High
Coastwide Full Year						
Target fishery						
	Arrowtooth	0.1	0.0	1.7	0.2	
	Petrale	5.6	0.9	8.9	11.2	0.2
	Flatfish	101.3	22.6	169.1	81.7	5.2
	Widow/Ytail					
	DTS	35.6	14.5	79.3	87.0	1.4
	Chillipepper	4.4	0.9	0.0		5.3
	Other rock	0.7	0.0	1.8	5.1	0.6
	Leftover	3.0	0.8	9.5	4.7	0.7
	Total	150.7	**39.7**	270.2	**190.0**	13.4
	LE total catch OY	208.0	36.0	350.0	158.0	17.0
All Targets						
North of C. Mendocino						
	1	4.8	0.5	21.7	31.3	
	2	19.6	1.6	46.1	28.2	
	3	31.3	4.2	85.1	44.0	
	4	41.0	17.6	59.4	33.4	
	5	37.4	14.2	41.0	26.3	
	6	3.9	0.2	16.5	26.8	
	Year	138.0	38.3	269.7	190.0	
South of C. Mendocino						
	1	0.8	0.3	0.0		1.4
	2	1.4	0.3	0.5		2.2
	3	2.4	0.2	0.0		3.4
	4	3.2	0.2	0.0		2.2
	5	2.7	0.2	0.0		2.4
	6	2.3	0.2	0.0		1.7
	Year	12.7	1.5	0.5		13.4
Coastwide total bycatch ranges						
	1	5.6	0.8	21.7	31.3	1.4
	2	21.0	1.9	46.6	28.2	2.2
	3	33.7	4.4	85.1	44.0	3.4
	4	44.1	17.8	59.4	33.4	2.2
	5	40.1	14.5	41.0	26.3	2.4
	6	6.2	0.4	16.5	26.8	1.7
	Year	150.7	39.7	270.2	190.0	13.4
Coastwide bycatch in excess of trip limits (assumed discard)						
	1	0.0	0.0	0.0	3.2	0.0
	2	1.9	0.0	0.0	1.7	0.1
	3	5.5	0.0	0.0	4.9	0.2
	4	14.0	4.1	0.0	4.0	0.0
	5	7.3	0.0	0.0	1.5	0.0
	6	0.2	0.0	0.0	0.8	0.2
	Year	29.0	4.1	0.0	16.1	0.5
Implicit discard rates						
	1	0%	0%	0%	10%	0%
	2	9%	0%	0%	6%	4%
	3	16%	0%	0%	11%	6%
	4	32%	23%	0%	12%	0%
	5	18%	0%	0%	6%	0%
	6	3%	0%	0%	3%	9%
	Year	19%	10%	0%	8%	3%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table M1t.--Projected target species landings (mt) under GAP Recommendation 1 using PFMC adopted OYs.

Region/ Species Group	Bimonthly Period							
	Jan/Feb	Mar/Apr	May/Jun	Jul/Aug	Sep/Oct	Nov/Dec	Total	
North of C. Mendocino								
DTS Complex	1,135	1,500	1,569	1,588	1,705	1,078	8,576	
Sablefish	112	157	354	340	354	141	1,459	
Longspines	143	222	176	174	172	189	1,076	
Shortspines	70	96	92	86	99	83	526	
Dover Sole	811	1,024	946	989	1,080	665	5,515	
Arrowtooth	311	479	728	926	501	150	3,096	
Petrale Sole	543	123	189	246	118	253	1,472	
Other Flatfish	111	224	334	363	296	109	1,437	
Total Flatfish	1,775	1,850	2,199	2,524	1,995	1,177	11,519	
Widow	51	64	83	96	83	58	435	
Yellowtail	154	181	236	295	246	118	1,231	
Minor Slope Rockfish	36	34	62	58	54	40	282	
POP	29	38	69	84	70	23	312	
South of C. Mendocino								
DTS Complex	354	458	342	369	399	441	2,362	
Sablefish	37	55	52	51	53	60	307	
Longspines	73	77	51	60	56	89	406	
Shortspines	29	29	21	22	21	28	151	
Dover Sole	215	297	218	236	269	264	1,499	
Arrowtooth	2	1	0	0	0	4	8	
Petrale Sole	60	25	20	28	36	56	226	
Other Flatfish	112	144	99	224	256	123	960	
Total Flatfish	390	467	337	489	561	448	2,692	
Widow	7	8	7	9	9	10	49	
Chilipepper	39	58	62	94	84	54	390	
Minor Slope Rockfish	17	19	21	18	30	37	142	
POP	1	0	0	0	1	0	2	
Coastwide Total								
DTS Complex	1,489	1,958	1,911	1,957	2,104	1,519	10,939	
Sablefish	149	212	407	391	407	201	**1,767**	1,651
Longspines	216	299	227	233	228	278	1,481	2,045
Shortspines	99	125	113	108	120	111	677	757
Dover Sole	1,026	1,321	1,164	1,225	1,349	929	7,014	7,068
Arrowtooth	313	480	728	926	501	154	3,104	
Petrale Sole	603	148	210	274	154	309	1,698	
Other Flatfish	223	368	434	587	552	232	2,396	
Total Flatfish	2,165	2,317	2,536	3,012	2,556	1,625	14,211	
Widow	58	72	90	105	92	68	485	555
Yellowtail	157	181	236	298	251	122	1,246	1,900
Chilipepper	40	60	65	94	92	57	408	
Minor Slope Rockfish	53	52	83	75	84	77	424	
POP	30	38	69	84	70	23	314	

Table M1b2.--Estimated bycatch and discard for GAP Recommendation 1 using PFMC adopted OYs.

			Lingcod	Canary	POP	Darkblotched	Bocaccio	Target
			Mid	Low	Mid	Mid	High	mts
North								
	Arrowtooth	1	0.0	0.0	0.3	0.0		13.8
		2	0.1	0.0	1.4	0.2		48.5
		Total	0.1	0.0	1.7	0.2		62.3
	Petrale	1	1.6	0.0	3.3	7.2		266.9
		2	0.2	0.1	1.3	0.8		25.9
		3	1.0	0.4	0.1	0.3		48.7
		4	1.0	0.3	0.3	0.9		65.8
		5	0.1	0.0	0.2	0.1		12.1
		6	0.7	0.0	3.6	1.9		111.6
		Total	4.6	0.9	8.9	11.2		531.0
	Flatfish	1	3.0	0.4	14.8	18.0		843.5
		2	16.7	1.4	30.5	16.3		952.3
		3	22.4	3.2	56.2	19.5		1,277.7
		4	30.2	13.6	34.0	15.1		1,509.8
		5	21.1	3.5	29.9	10.6		879.3
		6	2.6	0.1	3.3	2.2		213.9
		Total	95.8	22.3	168.6	81.7		5,676.6
	DTS	1	0.2	0.1	2.9	5.7		554.6
		2	2.6	0.1	12.4	9.9		952.1
		3	7.2	0.1	24.4	21.0		1,109.9
		4	9.0	3.4	21.3	14.8		1,122.0
		5	15.3	10.6	9.3	14.4		1,329.7
		6	0.5	0.1	8.9	21.3		892.6
		Total	34.8	14.4	79.3	87.0		5,960.9
	Sloper rock	1	0.0	0.0	0.0	0.2		0.3
		2	0.0	0.0	0.2	0.5		0.9
		3	0.0	0.0	0.2	0.6		0.9
		4	0.0	0.0	0.9	2.0		3.3
		5	0.0	0.0	0.4	0.7		1.4
		6	0.0	0.0	0.1	1.0		1.8
		Total	0.0	0.0	1.8	5.1		8.6
	Leftover	1	0.0	0.0	0.3	0.1		2.6
		2	0.1	0.0	0.4	0.5		15.5
		3	0.7	0.4	4.1	2.6		82.5
		4	0.8	0.3	2.9	0.7		27.3
		5	0.9	0.0	1.2	0.5		27.3
		6	0.2	0.0	0.5	0.3		9.1
		Total	2.7	0.8	9.5	4.7		164.4

Table M1b2.--Estimated bycatch and discard for GAP Recommendation 1 using PFMC adopted OYs.

		Lingcod	Canary	POP	Darkblotched	Bocaccio	Target
		Mid	Low	Mid	Mid	High	mts
South							
Petrale	1	0.2	0.0	0.0		0.0	30.3
	2	0.2	0.0	0.0		0.1	8.1
	3	0.1	0.0	0.0		0.0	8.5
	4	0.4	0.0	0.0		0.1	3.4
	5	0.0	0.0	0.0		0.0	3.0
	6	0.2	0.0	0.0		0.0	21.5
	Total	1.0	0.0	0.0		0.2	74.7
Flatfish	1	0.3	0.0	0.0		0.6	136.6
	2	0.6	0.1	0.5		1.1	214.9
	3	0.9	0.0	0.0		0.9	105.8
	4	1.3	0.1	0.0		0.8	221.6
	5	1.8	0.1	0.0		1.2	285.0
	6	0.6	0.0	0.0		0.7	124.5
	Total	5.4	0.3	0.5		5.2	1,088.4
DTS	1	0.0	0.0	0.0		0.1	290.0
	2	0.0	0.0	0.0		0.2	343.6
	3	0.2	0.0	0.0		0.4	300.5
	4	0.2	0.0	0.0		0.2	308.6
	5	0.3	0.0	0.0		0.3	324.6
	6	0.2	0.0	0.0		0.2	384.5
	Total	0.8	0.2	0.0		1.4	1,951.8
Chillipepper	1	0.2	0.2	0.0		0.5	14.2
	2	0.4	0.2	0.0		0.8	23.0
	3	1.0	0.2	0.0		1.3	27.4
	4	1.2	0.2	0.0		1.2	27.0
	5	0.6	0.1	0.0		0.7	21.2
	6	1.0	0.1	0.0		0.8	19.5
	Total	4.4	0.9	0.0		5.3	132.4
Other rock	1	0.1	0.0	0.0		0.1	4.0
	2	0.1	0.0	0.0		0.1	3.7
	3	0.1	0.0	0.0		0.1	6.2
	4	0.1	0.0	0.0		0.1	7.6
	5	0.1	0.0	0.0		0.2	13.3
	6	0.2	0.0	0.0		0.0	17.5
	Total	0.6	0.0	0.0		0.6	52.2
Leftover	1	0.0	0.0	0.0		0.0	0.0
	2	0.1	0.0	0.0		0.0	1.8
	3	0.2	0.0	0.0		0.7	3.3
	4	0.0	0.0	0.0		0.0	0.2
	6	0.1	0.0	0.0		0.0	8.4
	Total	0.3	0.0	0.0		0.7	13.7

Table M2b.--Estimated bycatch and discard for **GMT revision** of GAP Recommendation 1 using PFMC adopted OYs.

		Lingcod	Canary	POP	Darkblotched	Bocaccio
		Mid	Low	Mid	Mid	High
Coastwide Full Year						
Target fishery						
	Arrowtooth	0.7	0.1	15.6	2.1	
	Petrale	5.5	0.9	8.8	11.1	0.2
	Flatfish	91.3	19.3	146.1	69.8	6.1
	Widow/Ytail					
	DTS	33.7	13.8	73.8	75.0	1.3
	Chillipepper	4.4	0.9	0.0		5.3
	Other rock	0.2	0.0	0.5	1.5	0.2
	Leftover	2.6	0.6	8.1	4.0	0.7
	Total	138.4	35.5	253.0	**163.5**	13.8
	LE total catch OY	208.0	36.0	350.0	158.0	17.0
All Targets						
North of C. Mendocino						
	1	4.0	0.4	23.0	29.1	
	2	16.5	1.3	48.9	27.5	
	3	26.5	3.5	71.4	36.4	
	4	36.1	15.4	53.3	29.6	
	5	34.2	13.1	37.1	23.6	
	6	8.1	0.4	18.8	17.4	
	Year	125.4	34.1	252.5	163.5	
South of C. Mendocino						
	1	0.7	0.3	0.0		1.3
	2	1.3	0.3	0.5		2.1
	3	2.3	0.2	0.0		3.3
	4	3.1	0.2	0.0		2.2
	5	2.7	0.2	0.0		2.3
	6	2.9	0.2	0.0		2.6
	Year	13.0	1.5	0.5		13.8
Coastwide total bycatch ranges						
	1	4.8	0.7	23.0	29.1	1.3
	2	17.8	1.6	49.4	27.5	2.1
	3	28.8	3.8	71.4	36.4	3.3
	4	39.2	15.6	53.3	29.6	2.2
	5	36.8	13.3	37.1	23.6	2.3
	6	11.0	0.6	18.8	17.4	2.6
	Year	138.4	35.5	253.0	163.5	13.8
Coastwide bycatch in excess of trip limits (assumed discard)						
	1	0.0	0.0	0.0	1.9	0.0
	2	0.2	0.0	0.0	0.8	0.1
	3	2.6	0.0	0.0	1.9	0.2
	4	8.9	1.8	0.0	0.9	0.0
	5	5.2	0.0	0.0	0.4	0.0
	6	0.2	0.0	0.0	0.0	0.2
	Year	17.2	1.8	0.0	5.9	0.5
Implicit discard rates						
	1	0%	0%	0%	7%	0%
	2	1%	0%	0%	3%	5%
	3	9%	0%	0%	5%	6%
	4	23%	11%	0%	3%	0%
	5	14%	0%	0%	2%	0%
	6	2%	0%	0%	0%	9%
	Year	12%	5%	0%	4%	4%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table M2t.--Projected target species landings (mt) under **GMT revision** of GAP Recommendation 1 using PFMC adopted OYs.

Region/ Species Group	Bimonthly Period							
	Jan/Feb	Mar/Apr	May/Jun	Jul/Aug	Sep/Oct	Nov/Dec	Total	
North of C. Mendocino								
DTS Complex	1,225	1,649	1,268	1,622	1,589	866	8,220	
Sablefish	158	238	232	340	230	120	1,319	
Longspines	143	223	174	174	172	75	961	
Shortspines	80	110	92	93	107	67	550	
Dover Sole	844	1,078	770	1,015	1,080	603	5,391	
Arrowtooth	311	479	604	681	418	150	2,644	
Petrale Sole	543	123	182	232	118	253	1,449	
Other Flatfish	111	224	334	363	296	109	1,437	
Total Flatfish	1,808	1,903	1,891	2,290	1,912	1,115	10,920	
Widow	51	64	83	96	82	57	434	
Yellowtail	156	186	226	290	238	111	1,207	
Minor Slope Rockf	36	34	62	58	54	40	282	
POP	29	38	69	84	70	23	312	
South of C. Mendocino								
DTS Complex	359	463	345	371	400	448	2,385	
Sablefish	37	55	52	51	53	60	307	
Longspines	73	77	51	60	56	90	407	
Shortspines	34	34	24	24	22	33	172	
Dover Sole	215	297	218	236	269	264	1,499	
Arrowtooth	4	1	0	0	0	6	12	
Petrale Sole	60	25	20	28	36	56	226	
Other Flatfish	112	144	99	224	256	123	960	
Total Flatfish	391	467	337	489	561	450	2,696	
Widow	7	8	7	9	9	10	49	
Chilipepper	39	58	62	94	84	54	390	
Minor Slope Rockf	17	19	21	18	30	37	142	
POP	1	0	0	0	1	0	2	
Coastwide Total								
DTS Complex	1,584	2,112	1,613	1,993	1,989	1,314	10,605	
Sablefish	195	293	285	391	283	180	1,626	1,651
Longspines	217	300	224	233	228	165	1,368	2,045
Shortspines	114	144	116	118	129	100	722	757
Dover Sole	1,058	1,375	988	1,251	1,349	868	6,889	7,068
Arrowtooth	314	481	605	681	418	157	2,655	
Petrale Sole	603	148	202	260	154	309	1,676	
Other Flatfish	223	368	434	587	552	232	2,396	
Total Flatfish	2,199	2,371	2,229	2,779	2,473	1,566	13,616	
Widow	58	72	90	105	91	67	483	555
Yellowtail	159	186	226	292	243	115	1,222	1,900
Chilipepper	40	60	65	94	92	57	408	
Minor Slope Rockf	53	52	83	75	84	77	424	
POP	30	38	69	84	70	23	314	

Table M2b2.--Estimated bycatch and discard for GAP Recommendation 1 using PFMC adopted OYs.

			Lingcod	Canary	POP	Darkblotched	Bocaccio	Target
			Mid	Low	Mid	Mid	High	mts
North								
	Arrowtooth	1	0.1	0.0	4.6	0.3		199.9
		2	0.6	0.0	8.8	1.4		310.3
		6	0.0	0.0	2.1	0.4		91.8
		Total	0.7	0.1	15.6	2.1		602.0
	Petrale	1	1.6	0.0	3.3	7.2		266.9
		2	0.2	0.1	1.3	0.8		25.9
		3	0.9	0.4	0.1	0.3		44.1
		4	0.9	0.3	0.3	0.8		62.6
		5	0.1	0.0	0.2	0.1		12.1
		6	0.7	0.0	3.6	1.9		111.6
		Total	4.4	0.8	8.8	11.1		523.2
	Flatfish	1	2.1	0.3	10.4	12.7		596.4
		2	12.3	1.1	22.5	12.0		703.7
		3	19.1	2.7	48.0	16.7		1,090.9
		4	25.3	11.4	28.5	12.6		1,264.6
		5	19.2	3.2	27.2	9.6		799.6
		6	7.0	0.3	9.1	6.1		584.9
		Total	85.0	19.0	145.7	69.8		5,040.0
	DTS	1	0.2	0.1	4.3	8.5		824.0
		2	3.3	0.1	15.8	12.6		1,214.4
		3	5.9	0.1	19.9	17.1		904.1
		4	9.1	3.4	21.7	15.1		1,142.8
		5	14.1	9.8	8.6	13.3		1,229.2
		6	0.2	0.0	3.5	8.4		352.7
		Total	32.9	13.6	73.8	75.0		5,667.1
	Other rock	1	0.0	0.0	0.0	0.1		0.2
		2	0.0	0.0	0.1	0.2		0.4
		3	0.0	0.0	0.1	0.2		0.4
		4	0.0	0.0	0.2	0.5		0.8
		5	0.0	0.0	0.1	0.2		0.4
		6	0.0	0.0	0.0	0.3		0.5
		Total	0.0	0.0	0.5	1.5		2.6
	Leftover	1	0.0	0.0	0.3	0.1		2.6
		2	0.1	0.0	0.4	0.5		15.9
		3	0.6	0.3	3.3	2.1		66.3
		4	0.7	0.2	2.6	0.6		24.2
		5	0.7	0.0	1.0	0.4		22.7
		6	0.2	0.0	0.5	0.3		8.7
		Total	2.3	0.6	8.1	4.0		140.5

Table M2b2.--Estimated bycatch and discard for GAP Recommendation 1 using PFMC adopted OYs.

			Lingcod	Canary	POP	Darkblotched	Bocaccio	Target
			Mid	Low	Mid	Mid	High	mts
South								
	Petrale	1	0.2	0.0	0.0		0.0	30.3
		2	0.2	0.0	0.0		0.1	8.1
		3	0.1	0.0	0.0		0.0	8.5
		4	0.4	0.0	0.0		0.1	3.4
		5	0.0	0.0	0.0		0.0	3.0
		6	0.2	0.0	0.0		0.0	21.5
		Total	1.0	0.0	0.0		0.2	74.7
	Flatfish	1	0.3	0.0	0.0		0.6	134.5
		2	0.5	0.1	0.5		1.0	198.6
		3	0.9	0.0	0.0		0.9	105.8
		4	1.3	0.1	0.0		0.8	221.6
		5	1.8	0.1	0.0		1.2	285.0
		6	1.5	0.1	0.0		1.6	311.8
		Total	6.3	0.4	0.5		6.1	1,257.2
	DTS	1	0.0	0.0	0.0		0.2	300.4
		2	0.0	0.0	0.0		0.2	367.2
		3	0.2	0.0	0.0		0.4	302.7
		4	0.2	0.0	0.0		0.2	310.3
		5	0.3	0.0	0.0		0.3	325.4
		6	0.1	0.0	0.0		0.1	217.6
		Total	0.8	0.2	0.0		1.3	1,823.6
	Chillipepper	1	0.2	0.2	0.0		0.5	14.2
		2	0.4	0.2	0.0		0.8	23.0
		3	1.0	0.2	0.0		1.3	27.4
		4	1.2	0.2	0.0		1.2	27.0
		5	0.6	0.1	0.0		0.7	21.2
		6	1.0	0.1	0.0		0.8	19.5
		Total	4.4	0.9	0.0		5.3	132.4
	Other rock	1	0.0	0.0	0.0		0.0	1.1
		2	0.0	0.0	0.0		0.0	1.4
		3	0.0	0.0	0.0		0.0	1.7
		4	0.0	0.0	0.0		0.0	1.8
		5	0.0	0.0	0.0		0.1	3.4
		6	0.1	0.0	0.0		0.0	5.0
		Total	0.2	0.0	0.0		0.2	14.5
	Leftover	1	0.0	0.0	0.0		0.0	0.0
		2	0.1	0.0	0.0		0.0	1.8
		3	0.2	0.0	0.0		0.7	3.3
		4	0.0	0.0	0.0		0.0	0.2
		6	0.1	0.0	0.0		0.0	8.4
		Total	0.3	0.0	0.0		0.7	13.8

Recreational Harvest Projections for 2002

TABLE 1. Projected recreational groundfish fishery catches (mts) by stock or stock complex, state, and recreational fishery management preferred options.

State/Area	Option	Bocaccio	Canary	Yelloweye	Yellowtail	Widow	Minor nearshore	Minor shelf	Lingcod
WA	a/	NA	3	3	6	0	150	1	50
OR	b/	NA	14	4	8	2	428	5	76
CA north	OR option c/	NA	6	0.6	NA	NA	85	NA	20
CA central	d/	14	16	1.5	NA	NA	461	NA	172
CA south	e/	27	0.5	0	NA	NA	75	NA	8
Coastwide		41	34.5	9.1	14 +	2 +	1,119	6 +	326
Harvest Guideline f/		48	44	10	NA	NA	1,200	NA	320

a/ WA preferred option: Open year round with a daily bag limit of 10 rockfish with a sublimit of either 2 canary OR 1 canary and 1 yelloweye with no yelloweye retention with halibut on board. WDFW will track catches inseason and close the fishery outside of a line approximating the 25 fm contour if the harvest guideline is projected to be exceeded; Lingcod open March-Oct 15; 2 fish with a 24 inch minimum size.

b/ OR preferred option: Open year round with a daily bag limit of 10 rockfish with a sublimit of no more than 1 canary and 1 yelloweye with no yelloweye retention with halibut on board during all-depth halibut fisheries. ODFW will track catches inseason and close the fishery outside the 25 fathom curve if the harvest guideline is projected to be exceeded; Lingcod open year round; 1 fish with a 24 inch minimum size.

c/ CA preferred option for the area north of 40°10' N. Lat. to the CA/OR border: Same as OR except 2 bocaccio per angler sublimit, and only 2 yelloweye per vessel; 2 lingcod with a 24 inch minimum size.

d/ CA preferred option for the area south of 40°10' N. Lat. to Point Conception: Shelf and nearshore open Jan-Feb, Jul-Aug; nearshore open May-June, Sept-Oct. (nearshore = waters 25 fathoms or shallower; when only nearshore is open, sublimit of 2 shelf rockfish in daily bag limit, retention of bocaccio, canary, cowcod, or yelloweye prohibited); all other periods closed; 10 rockfish with sublimits of 2 bocaccio, 1 canary, 1 yelloweye (2 per vessel); 2 lingcod with a 24 inch minimum size.

e/ CA preferred option for the area north of U.S./Mexico border to Point Conception: open March-Oct; all other periods closed; 10 rockfish with sublimits of 2 bocaccio, 1 canary, 1 yelloweye (2 per vessel); 2 lingcod with a 24 inch minimum size.

f/ Recreational harvest guidelines were recommended by the Council's Ad Hoc Allocation Committee in August 2001. The Council adopted these recommendations in September as preliminary options.

Description of Harvest Projection Methodology

Washington has a directed ocean sampling program. The canary rockfish catch in 2001 is projected to be 2.4 mt with a 2 canary limit. The 3 mt projection for canary rockfish in 2002 is therefore thought to be adequately conservative. Yelloweye catch in 2001 is projected to be about 16 mt. The 2002 yelloweye rockfish projection of 3 mt is based on savings from the proposed regulation of "no retention when halibut are on board", which accounts for 77% of Washington's yelloweye catch. An additional 16% reduction in projected catch results from a bag limit reduction. Projections for the remaining stocks and complexes are based on inseason catch projections in 2001 and assuming the same catch distribution as 2001. Washington is planning an outreach program to educate anglers on the need to minimize take of canary and yelloweye rockfish. During the past fishing season, the WDFW Ocean Sampling Program included interviews in which anglers were asked whether they released any yelloweye or canary rockfish. These data have not been finalized, but indicate the number of discarded fish is small. The interviews will be continued in 2002, ground-truthed by some level of ride-along observations on charter vessels, in order to provide an estimate of total mortality to be applied to the Washington recreational harvest guideline.

Projections of 2002 recreational groundfish catches in Oregon are also based on a directed ocean sampling program. The projected catch of canary rockfish in 2002 of 14 mt is the same as that for 2001 since no regulation changes are proposed for canary rockfish. The yelloweye rockfish catch in 2001 is projected to be 5.3 mt. The 2002 projected catch of 4 mt is based on a 17% reduction due to disallowing

yelloweye retention during the all-depth halibut fishery, and an educational program similar to Washington's, which is expected to make up a total reduction of 25% from 2001 levels. Projections for the remaining stocks and complexes are based on inseason catch projections in 2001 and assuming the same catch distribution as 2001. Discard mortality is not factored into the Oregon projections; however, it appears from limited observation data that total mortality of yelloweye rockfish (landed + discard) in Oregon will remain within the harvest guideline share for 2002.

California recreational harvest projections were derived as follows. Constraints imposed on the methodological approach included the two waves (four months) of closures described in Exhibit C.4, Supplemental Tentative CDFG Proposal, a recreational impact to the southern minor nearshore rockfish complex of less than 646 mt, a bocaccio impact of less than 70 mt, and a canary rockfish impact of less than 22 mt. For all calculations, the 2002 impacts were based on recent MRFSS data for total catch (A+B1; landed and dead discards), and calculated separately for the northern area (Oregon-Cape Mendocino; 40°10'), central area (Cape Mendocino-Point Conception), and southern area (Point Conception-US/Mexico border). For rockfish calculations, the base year was 2000, expanded to account for closures during wave 2 (Mar-Apr).
Assumptions made included:

1) a 50% increase in the bocaccio base in the southern area to account for growth of the 1999 year class
2) a 13% reduction in bocaccio base harvest due to the Cowcod Closure Area
3) the northern area rockfish catch will equal 16% of the combined northern and central area estimate
4) the southern area base harvest during nearshore-only waves will be reduced by 30% to account for lower California scorpionfish catches due to foregone shelf opportunity
5) a projected effort shift calculated from shelf to nearshore (by wave/area) when shelf closed of 25% of base shelf effort.

For lingcod, the base year was calculated as the average of 2000 and 2001. Wave 5 in 2001 was set equal to wave 5 in 2000. Projections were based on a 2 fish bag limit with a 24 inch minimum size. The effect of lowering the lingcod minimum size was calculated using the 1999 size distribution when a 24 inch minimum and 2-fish bag limit was in effect. Lingcod projections are likely high because no adjustment was made for lower catch rates that would be expected when only nearshore fishing is allowed.

GMT Statement

The GMT addressed the lack of estimated discard mortality for yelloweye rockfish in the Washington and Oregon recreational harvest projections. Washington and Oregon have some limited data from their ocean sampling programs that may help address discard rates. The GMT expects that these data will be available in time for shaping in-season management strategies early next year. The GMT also recognizes the willingness of the states to collectively manage for the yelloweye rockfish recreational harvest guideline of 10 mt coastwide. The GMT urges that in-season management decisions factor in the best estimates of total yelloweye rockfish mortality to achieve the landed catch OY harvest guideline. The GMT is concerned with the reliance of MRFSS data to track California recreational harvest in 2002. The GMT is hopeful that the inclusion of California CPFV skipper interview data will tighten MRFSS estimates of California recreational catch. However, the GMT is ultimately concerned with the ability of all recreational sampling programs to accurately track such a low harvest guideline coastwide.

The GMT also addressed the problem of the coastwide lingcod harvest projection being 6 mt above the recreational harvest guideline. The GMT agreed that the California lingcod harvest projection is likely high. Furthermore, the GMT noted that the commercial fishery was unlikely to attain the commercial guideline this year and, to the extent that the 2002 commercial season structure will have a similar pattern of lingcod attainment in 2002, the overall landed catch OY of lingcod should not be difficult to manage. This is despite the GMT recommendation to allow an 800 lb/ 2 month year round landing limit for small footrope trawl which is expected to result in only a slight incremental increase in commercial lingcod harvest.

Tribal Harvest Projections for 2002

TABLE 2. Tribal fishery groundfish catch projections (except whiting) for 2002.

Stock	Projected catch (mts)	Comment
canary rockfish	2.5 mt	All tribes
darkblotched rockfish	Prob. minimal	Need better spp. comp. from sampling
lingcod	4-5 mt	All tribes
Minor nearshore rockfish	2 mt	All tribes
Minor shelf rockfish a/	4 mt	All tribes
Minor slope rockfish	4 mt	All tribes
Pacific ocean perch	Trace	
Shortspine thornyhead	1 mt	All tribes
widow rockfish	27 mt	All tribes b/
yelloweye rockfish	1-1.5 mt	All tribes- high end of range unlikely
yellowtail rockfish	300 mt	All tribes

a/ Excludes canary and yelloweye.
b/ June-July 2001 closed, but expected to be open in 2002. Projection factors this in.

The tribes provided updated harvest projections for proposed tribal groundfish fisheries in 2002 (Table 2). These projections are based on the proposed trip limits and seasons proposed to the Council by the tribes on November 1, 2001 (Exhibit C.4, Supplemental Treaty Indian Harvest Levels).

ENFORCEMENT CONSULTANTS STATEMENT ON MANAGEMENT MEASURES FOR 2002 AND ENVIRONMENTAL ASSESSMENT - FINAL ACTION

The Enforcement Consultants have reviewed the management measures for 2002 and have the following comments:

Limited Entry Fixed Gear:

Some confusion arose this year with vessels transitioning from the primary sablefish fishery into the daily-trip-limit fishery.

The consultants offer two options for the Council to consider to clarify this situation for 2002:

1. Season end Option A: after completing its tier limit fishery, a vessel may not participate in the daily-trip-limit fishery until the next Sunday (new week) after completing offload of tier limits.

2. Season end Option B: after completing its tier limit fishery, a vessel may not participate in the daily-trip-limit fishery until the start of the next 24-hour period following completion of offloading the tier limit.

Recreational Options:

We recommend the following: for Oregon and Washington the 25 fathom curve inseason management measure to protect yelloweye, include a second fathom curve of 20 fathoms be listed as a possibility, or the management measure reflect 20 fathoms. Enforcement is hopeful the no retention measure prohibiting the retention of yelloweye in the all-depth halibut season will be a sufficient measure to meet the goal of yelloweye harvest, as this would be easily enforced.

Reasoning:

With a fathom curve line, like any line, enforcement will have to enforce at some slightly greater depth. The concern is, if we start at 25 fathoms and add some kind of additional buffer, we would then be fishing areas with higher yellowtail interaction.

If Oregon and Washington adopt the 20 fathom curve, this would be consistent with California's proposal.

PFMC
11/02/01

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON MANAGEMENT MEASURES FOR 2002 AND ENVIRONMENTAL ASSESSMENT - FINAL ACTION

As directed by the Council, the Groundfish Advisory Subpanel (GAP) has been meeting jointly with the Groundfish Management Team (GMT) to develop final 2002 management measures for Council consideration. The management measures we are proposing are based on the optimum yield levels approved by the Council; the bycatch/discard rate guidance provided by the Council which used the analysis developed by NMFS; and the various social and economic needs of fishery participants and local coastal communities. We would like to thank the GMT - and especially Dr. Jim Hastie - for their cooperative spirit and willingness to develop workable management measures.

Regarding trip limits for limited entry and open access vessels, the GMT has provided a chart showing the proposed levels for 2002. For the sake of brevity, we will not include that chart in this statement, but we do endorse it and urge the Council to approve it. The following are our comments on other management measures.

Sablefish Daily-Trip-Limit Fishery
We recommend the following regulatory proposal:
The daily-trip-limit (DTL) fishery should be open January 1 to December 31 for both limited entry and open access gears.
During the primary sablefish season, vessels with sablefish endorsements may not participate in the DTL fishery until the start of the next 24-hour period after completing offload of the final tier limit.

Pink Shrimp Fishery
We recommend that the pink shrimp fishery operate under the following limits:

Canary rockfish -	April 1 through April 30, 50 lbs/month;
	May 1 through October 31, 200 lbs/month
Sablefish -	April 1 through October 31, 2,000 lbs/month
Lingcod -	April 1 through October 31, 400 lbs/month
All other species -	April 1 through October 31, 500 lbs/day, with a cumulative limit of 1,500 lb/trip

Washington Recreational Fishery
We recommend the following:
The fishery will be open January 1 through December 31 with the following limits and sublimits:
Rockfish - Bag limit of 10 rockfish with a sublimit of either 2 canary rockfish **or** 1 canary rockfish and 1 yelloweye rockfish. Retention of yelloweye rockfish prohibited if Pacific halibut have been retained on the same fishing trip.
If the Washington recreational yelloweye rockfish harvest guideline is projected to be exceeded based on inseason monitoring and catch tracking, Washington will prohibit recreational groundfish fishing outside a line approximating the 25 fathom curve that will be delineated by a series of way points defined by latitude and longitude and will prohibit the retention of yelloweye rockfish.
Lingcod - the fishery will be open March 16 through October 15, with a 2 fish daily limit and a minimum size of 24 inches.

The GAP notes the Washington recreational fishery has demonstrated the ability to avoid canary rockfish and that similar avoidance (which will be encouraged by the combined bag limit) can occur in regard to yelloweye rockfish. A majority of the yelloweye rockfish taken in the 2001 fishery were a secondary target of the Pacific halibut fishery. Prohibiting retention of yelloweye on Pacific halibut trips will substantially reduce yelloweye harvest without causing a discard problem.

Oregon Recreational Fishery
We recommend the following:
The fishery will be open January 1 through December 31 with the following limits and sublimits:
Rockfish - A bag limit of 10 fish with no more than 1 canary rockfish **and** 1 yelloweye rockfish. Retention of yelloweye rockfish is prohibited during all-depth halibut open days if Pacific halibut have been retained. If the yelloweye rockfish harvest guideline is projected to be exceeded based on in-season monitoring, action will

be taken to prohibit recreational groundfish fishing outside of the 25 fathom curve.
Lingcod - Bag limit of 1 fish with a 24 inch minimum length.

California Recreational Fishery

During the course of the meeting, representatives of commercial and recreational fisheries in California met to develop parallel regulations for 2002. The group spent many long, contentious hours together, but eventually developed a proposal that was acceptable to everyone. Unfortunately, that proposal is not the one before the Council today. Several members of the GAP have expressed concern that - if we are going t have a deliberative process - the output of that process should be considered by the Council. Otherwise, there is no sense in user groups wasting their time coming to meetings.

I. **Northern Area (40° 10' to Oregon border)**
All Waters: Rockfish and Lingcod
Open: January - December
10 rockfish bag limit with a 2 bocaccio, 1 canary, 1 yelloweye (2 fish per vessel), sublimit.
2 lingcod with a 24 inch minimum length.

II. **Central Area (Point Conception to 40° 10')**
All Waters: Rockfish (including sculpin, a.k.a. California scorpionfish) and Lingcod
Open: January - February, July - August
10 rockfish bag limit with a 2 bocaccio, 1 canary, 1 yelloweye (2 fish per vessel), sublimit.
10 fish sculpin bag limit separate from 10 fish rockfish limit. 2 lingcod with a 24 inch minimum length.
Inside 20 fathoms: Rockfish (including sculpin) and Lingcod
Open: May - June, September - October
10 rockfish bag limit of which no more than 2 may be shelf rockfish other than bocaccio, canary, cowcod, or yelloweye. Bocaccio, canary, cowcod and yelloweye retention prohibited.
10 fish sculpin bag limit separate from 10 fish rockfish limit. 2 lingcod with a 24 inch minimum length.

III. **Southern Area (Mexico border to Point Conception except Cowcod Conservation Areas)**
All Waters: Rockfish (including sculpin) and Lingcod
Open: March - October
10 rockfish bag limit with a 2 bocaccio, 1 canary, 1 yelloweye (2 fish per vessel), sublimit.10 fish sculpin bag limit separate from 10 fish rockfish limit. 2 lingcod with a 24 inch minimum length.]

IV. **Cowcod Conservation Areas (CCA's):** Same as Southern Area except open only inside ~~25~~ 20 fathoms.

Correction made by Rod Moore during his presentation. 11-2-01

GMT FRIDAY MORNING PROPOSAL FOR **LIMITED ENTRY TRAWL** TRIP LIMITS FOR 2002

Species/groups	JAN-FEB	MAR-APR	MAY-JUN	JLY-AUG	SEP-OCT	NOV-DEC
Minor slope rockfish						
North	1,800 lb / 2 months					
South	50,000 lb / 2 months					
Splitnose-South	25,000 lb / 2 months					
POP	2,000 / month		4000 / month			2,000 / month
north (2-mo)						
Sablefish	6,000 lb / 2 mo		3,500/2m	6,000/2m	3,500/2m	2,500/2m
Longspine	10,000 lb / 2 months		6,000/2m	3,000/2m	10,000/2m	2,000/2m
Shortspine	2,600 lb / 2 months		2,000/2m	2,600/2m		1,500/2m
Dover sole	30,000/2m	28,000/2m	14,000	28,000/2m	20,000/2m	14,000/2m
south (2-mo)						
Sablefish	4,500 lb / 2 months					
Longspine	10,000 lb / 2 months					
Shortspine	2,600 lb / 2 months					
Dover sole	22,000 lb / 2 months					
Arrowtooth	30,000 lb / trip		small footrope required: 7,500 lb/trip, up to 30,000 lb/m			30,000 lb / trip
Petrale sole	No restriction		Monthly limit for combined species of:			No restriction
Rex sole	No limit, sm. footrope		30,000 | 40,000 | 50,000			No limit, sm. footrope
			with a petrale sub-limit of:			
All other flatfish, sm. ftrp. - NORTH per month	15,000	35,000	10,000	15,000	20,000	50,000
Petrale sole	No restriction		70,000 lb / month, no more than 40,000 lb of which may be species other than sanddabs, max 15,000 petrale (of 40,000)			No restriction
Rex sole	No limit, sm. footrope					No limit, sm. footrope
All other flatfish, sm. ftrp. - SOUTH per month	70,000 lb / month, no more than 40,000 lb of which may be species other than sanddabs					70,000 lb / month, no more than 40,000 lb of which may be species other than sanddabs
Coastwide: Other Flatfish - Large footrope	1,000 lb / trip					
Shoreside whiting *	20,000 lb / trip		Open			20,000 lb / trip
Use of small footrope required for landing all shelf and near-shore rockfish						
Minor Shelf rockfish						
North	300 lb / month		1000 lb / month			300 lb / month
South	500 lb / month		1000 lb / month			500 lb / month
Canary-Coastwide	200 lb / 2 months		600 lb / 2 months			200 lb / 2 months
Widow (mid-water only)	Closed		with >= 10,000 lbs whiting, 1,500 lb.mo; combined widow+yellowtail of 500 lb / trip			Closed
Small footrope	1,000 lb / month					
Yellowtail-North (mid-water only)	Closed		with >= 10,000 lbs whiting, 2,000 lb.mo; combined widow+yellowtail of 500 lb / trip			Closed
Small footrope	1,000 lb / month					
as flatfish bycatch	Up to 33% of all flatfish (excluding arrowtooth) plus 10% of weight of Arrowtooth					
	Up to 30,000 lb/2 mo					
Bocaccio-South	600 lb / 2 months		1000 lb / 2months			600 lb / 2 months
Chilipepper-South (mid-water only)	25,000 lb / 2 months					
Small footrope	7,500 lb / 2 months					
Large footrope	500 lb / trip					
Cowcod	No retention					
Minor Nearshore rockfish						
North	300 lb / month		1,000 lb / month			300 lb / month
South	300 lb / month		1,000 lb / month			300 lb / month
Lingcod	800 lb / 2 months					

* Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb / trip throughout the year.

Table M3b.--Estimated bycatch and discard for **final GMT trawl** limit recommendations using PFMC adopted OYs and bycatch rates.

		Lingcod	Canary	POP	Darkblotched	Bocaccio
		Mid	Low	Mid	Mid	High
Coastwide Full Year						
Target fishery						
	Arrowtooth	0.7	0.1	15.6	2.1	
	Petrale	5.5	0.9	8.8	11.1	0.2
	Flatfish	91.3	19.3	146.1	69.8	6.1
	Widow/Ytail DTS	33.3	13.6	72.8	74.2	1.3
	Chillipepper	4.4	0.9	0.0		5.3
	Other rock	0.2	0.0	0.5	1.5	0.2
	Leftover	2.6	0.6	8.1	4.0	0.7
	Total	137.9	35.4	251.9	162.7	13.8
LE mt, after recreational reductions		208.0	46.0	350.0	163.0	25.0
All Targets						
North of C. Mendocino						
	1	4.0	0.4	23.0	29.0	
	2	16.5	1.3	48.9	27.4	
	3	26.5	3.5	71.4	36.4	
	4	35.7	15.2	52.2	28.9	
	5	34.2	13.1	37.1	23.6	
	6	8.1	0.4	18.8	17.4	
	Year	124.9	33.9	251.4	162.7	
South of C. Mendocino						
	1	0.7	0.3	0.0		1.3
	2	1.3	0.3	0.5		2.1
	3	2.3	0.2	0.0		3.3
	4	3.1	0.2	0.0		2.2
	5	2.7	0.2	0.0		2.3
	6	2.9	0.2	0.0		2.6
	Year	13.0	1.5	0.5		13.8
Coastwide total bycatch ranges						
	1	4.8	0.7	23.0	29.0	1.3
	2	17.8	1.6	49.3	27.4	2.1
	3	28.8	3.8	71.4	36.4	3.3
	4	38.7	15.4	52.2	28.9	2.2
	5	36.8	13.3	37.1	23.6	2.3
	6	11.0	0.6	18.8	17.4	2.6
	Year	137.9	35.4	251.9	162.7	13.8
Coastwide bycatch in excess of trip limits (assumed discard)						
	1	0.0	0.0	0.0	1.9	0.0
	2	0.2	0.0	0.0	0.8	0.1
	3	2.6	0.0	0.0	1.9	0.2
	4	8.9	1.8	0.0	0.9	0.0
	5	5.2	0.0	0.0	0.4	0.0
	6	0.2	0.0	0.0	0.0	0.2
	Year	17.2	1.8	0.0	5.9	0.5
Implicit discard rates						
	1	0%	0%	0%	7%	0%
	2	1%	0%	0%	3%	5%
	3	9%	0%	0%	5%	6%
	4	23%	11%	0%	3%	0%
	5	14%	0%	0%	2%	0%
	6	2%	0%	0%	0%	9%
	Year	12%	5%	0%	4%	4%

Note: Previous analysis of lingcod discard has assumed a 50% survival of discards, yielding discard mortality that is half of gross discard.

Table M3t.--Projected target species landings (mt) with **final GMT trawl limit recommendations using PFMC** adopted OYs and bycatch rates.

Region/ Species Group	Bimonthly Period							
	Jan/Feb	Mar/Apr	May/Jun	Jul/Aug	Sep/Oct	Nov/Dec	Total	
North of C. Mendocino								
DTS Complex	1,222	1,641	1,268	1,563	1,589	866	8,151	
Sablefish	155	231	232	340	230	120	1,308	
Longspines	143	223	174	115	172	75	902	
Shortspines	80	110	92	93	107	67	550	
Dover Sole	844	1,078	770	1,015	1,080	603	5,391	
Arrowtooth	311	479	604	681	418	150	2,644	
Petrale Sole	543	123	182	232	118	253	1,449	
Other Flatfish	111	224	334	363	296	109	1,437	
Total Flatfish	1,808	1,903	1,891	2,290	1,912	1,115	10,920	
Widow	51	64	83	96	82	57	434	
Yellowtail	156	186	226	290	238	111	1,207	
Minor Slope Rockfish	36	34	62	58	54	40	282	
POP	29	38	69	84	70	23	312	
South of C. Mendocino								
DTS Complex	359	463	345	371	400	448	2,385	
Sablefish	37	55	52	51	53	60	307	
Longspines	73	77	51	60	56	90	407	
Shortspines	34	34	24	24	22	33	172	
Dover Sole	215	297	218	236	269	264	1,499	
Arrowtooth	4	1	0	0	0	6	12	
Petrale Sole	60	25	20	28	36	56	226	
Other Flatfish	112	144	99	224	256	123	960	
Total Flatfish	391	467	337	489	561	450	2,696	
Widow	7	8	7	9	9	10	49	
Chilipepper	39	58	62	94	84	54	390	
Minor Slope Rockfish	17	19	21	18	30	37	142	
POP	1	0	0	0	1	0	2	
Coastwide Total								HG
DTS Complex	1,581	2,104	1,613	1,934	1,989	1,314	10,536	
Sablefish	191	286	285	391	283	180	1,615	1,608
Longspines	217	300	224	175	228	165	1,310	2,045
Shortspines	114	144	116	118	129	100	722	757
Dover Sole	1,058	1,375	988	1,251	1,349	868	6,889	7,068
Arrowtooth	314	481	605	681	418	157	2,655	
Petrale Sole	603	148	202	260	154	309	1,676	
Other Flatfish	223	368	434	587	552	232	2,396	
Total Flatfish	2,199	2,371	2,229	2,779	2,473	1,566	13,616	
Widow	58	72	90	105	91	67	483	555
Yellowtail	159	186	226	292	243	115	1,222	1,900
Chilipepper	40	60	65	94	92	57	408	
Minor Slope Rockfish	53	52	83	75	84	77	424	
POP	30	38	69	84	70	23	314	

GMT FRIDAY MORNING PROPOSAL FOR **LIMITED ENTRY FIXED-GEAR** TRIP LIMITS FOR 2002

Species/groups	JAN-FEB	MAR	APR	MAY-JUN	JLY-AUG	SEP	OCT	NOV	DEC
Minor slope rockfish									
North of Cape Mend.	1,000 / month		5,000 lb / 2 months					2,000 / 2 months	
South of Cape Mend.	25,000 lb / 2 months								
Splitnose-South	25,000 lb / 2 months								
POP	2,000 / month		4,000 lb / month					2,000 / month	
Sablefish: Daily-Trip-Limit fishery options *									
North of 36° N. lat.	300 lb / day, or 1 landing per week up to 800 lb, not to exceed 2,400 lb / 2 months								
South of 36° N. lat.	350 lbs/ day or 1 landing per week up to 1,050 lbs								
Longspine	9,000 lb / 2 months								
Shortspine	2,000 lb / 2 months								
Dover sole	5,000 lb / month (all flatfish)								
Arrowtooth									
Petrale sole									
Rex sole									
All other flatfish									
Shoreside whiting	20,000 lb / trip								
Canary	No retention								
Lingcod	No retention			400 lb / month				No retention	
North of Cape Mend. Minor Shelf rockfish + widow + yellowtail	200 lb/month (No yelloweye retention)								
Minor Nearshore rockfish options	5,000 lb/month with a sublimit on species other than black or blue rockfish of: 2,000 lb								
South of Cape Mend.									
40°10' - 34°27' Minor Shelf rockfish + widow	200 lb / mo. (No yelloweye)	Closed		200 lb / mo. (No retention of yelloweye rockfish)				Closed	
South of 34°27' Minor Shelf rockfish + widow	Closed	1,000 lb / month						Closed	
40°10' - 34°27' Bocaccio	200 lb / mo	Closed			200 lb / mo		Closed		
South of 34°27' Bocaccio	Closed	200 lb / month						Closed	
40°10' - 34°27' Chillipepper	500 lb / mo	Closed			500 lb / mo		Closed		
South of 34°27' Chillipepper	Closed	2,500 lb / mo						Closed	
Cowcod-South	No retention								
40°10' - 34°27' Minor Nearshore rockfish	1,600 lb / 2 mo.	Closed		1,600 lb / 2 mo.				Closed	
South of 34°27' Minor Nearshore rockfish	Closed	2,000 lb / 2 mo.						Closed	

Notes:
Nearshore and shelf fishing opportunities will be closed in the Monterey and Conception areas when the recreational fisheries are closed in those areas.

GMT FRIDAY MORNING PROPOSAL FOR **OPEN-ACCESS** TRIP LIMITS FOR 2002

Species/groups	JAN-FEB	MAR-APR	MAY-JUN	JLY-AUG	SEP-OCT	NOV	DEC
Minor slope rockfish North of Cape Mend.	Up to 25% of the sablefish lb landed per trip						
South of Cape Mend.	10,000 lb / 2 months						
Splitnose-South	200 lb / month						
POP	100 / month						
Sablefish: Daily-Trip-Limit fishery							
North of 36°	300 lb / day, or 1 landing per week up to 800 lb, not to exceed 2,400 lb / 2 months						
South of 36°	350 lb / day, or 1 landing per week up to 1,050 lb						
Longspine	No retention (North of Pt. Conception) \				S. of Pt. Conception, 50 lb / day for both		
Shortspine	No retention (North of Pt. Conception) /				species combined, up to 2,000 lb / 2-months		
Arrowtooth Dover sole Petrale sole Near-shore flatfish "Other" flatfish	3,000 lb / month, no more than 300 lb of which may be species other than sanddabs						
Shoreside whiting	300 lb / month						
Canary	No retention						
Lingcod	No retention		300 lb / month			No retention	
North of Cape Mend. Minor Shelf rockfish + widow + yellowtail	200 lb/month (No retention of yelloweye rockfish)						
Minor Nearshore rockfish options	3,000 lb / 2 months		4,000 lb / 2 months			3,000 lb / 2 months	
	with a sublimit on species other than black or blue rockfish of:						
	1,200 lb / 2 months		1,600 lb / 2 months			1,200 lb / 2 months	
South of Cape Mend. 40°10' - 34°27' Minor Shelf rockfish + widow	200 lb / mo. (No yelloweye)	Closed	200 lb / mo. (No retention of yelloweye rockfis			Closed	
South of 34°27' Minor Shelf rockfish + widow	Closed	500 lb / month				Closed	
40°10' - 34°27' Bocaccio	200 lb / mo	Closed		200 lb / mo		Closed	
South of 34°27' Bocaccio	Closed	200 lb / month				Closed	
40°10' - 34°27' Chillipepper	500 lb / mo	Closed		500 lb / mo		Closed	
South of 34°27' Chillipepper	Closed	2,500 lb / mo				Closed	
Cowcod	No retention						
40°10' - 34°27' Minor Nearshore rockfish	1,200 lb / 2 mo.	Closed	1,200 lb / 2 mo.			Closed	
South of 34°27' Minor Nearshore rockfish	Closed	1,200 lb / 2 mo.				Closed	

GMT recommended:

Exempted trawl

Spot/ridgeback prawn, California halibut, sea cucumber fisheries:

300 lb. of groundfish per trip, not to exceed the poundage of target species, or any other open-access species limit. Spiny dogfish poundage can exceed target poundage but not the 300 lb per trip limit.

Note: Nearshore and shelf fishing opportunities will be closed in the Monterey and Conception areas when the recreational fisheries are closed in those areas.

Preliminary proposed ABC and OYs for 2002.

All amounts in metric tons	2002 Total ABC	Optimum Yield (OY)						Open-Access			Limited-entry				
		Total					Non-tribal		Total	Landed	Total	At-sea		Limited-entry	
		Catch	Landed	Tribal	Rec.	Comp.	Comm.	%	catch	catch	catch	Bycatch	Landed	Trawl	FG
Lingcod	745	577			326		251	19%	48	38	203		163		
Whiting (using 1999 triba	238,000	190,400	190,400	27,500			162,900								
Sablefish NoC	4,786	4,383	3,743	423					369	339	3,554		2,981	1,608	1,373
Conception Area	324	229	211				229								
Dover sole	8,510	7,440	7,068			67	7,373				7,373		7,068		
English sole	3,100														
Petrale sole	2,762														
Arrowtooth flounder	5,800														
Other flatfish	7,700														
Thornyheads															
Shortspine N. of Pt.C	1,004	955	765			4	951	0.27%		3	948		759		
Longspine	2,461	2,461	2,052			8	2,453				2,453		2,043		
Conception	390		195				390				390		195		
Widow	3,727	777	534		3		774	3.0%	23	20	751	150	511		
Canary	228	88	77		35		53	12.3%	7	5	46	3	37		
POP	640	350	294				350				350		294		
Yellowtail	3,146	3,146	2,341		15		3,131	8.3%	260	218	2,871	400	2,108		
Chilipepper	2,700	2,000	1,682		15		1,985	44.3%	879	739	1,106		929		
Splitnose (Rosefish)	615	461	387								461		387		
Bocaccio	122	100	93		56		44	44.3%	19	16	25		21		

Preliminary proposed ABC and OYs for 2002.

All amounts in metric tons	2002 Total ABC	Optimum Yield (OY) Total Catch	Total Landed	Tribal	Rec.	Comp.	Non-tribal Comm.	%	Open-Access Total catch	Landed catch	Limited-entry Total catch	At-sea Bycatch	Landed	Limited-entry Trawl	FG
Cowcod (Conception)	5	2.4	0				0			0			0		
Cowcod (Monterey)	19	2.4	0				0			0			0		
	24	4.8													
Darkblotched	187	168	141				168		0	0	168	5	130		
Yelloweye															
Coastwide	27	13.5			9.1		4.4								
Monterey	5	2.5			1.5		1.0		0.4	0.0	0.6		0.0		
N of 40°10'	22	11.0			7.6		3.4		0.4	0.3	3.0		0.0		
Minor Sebastes															
North	4,794	3,115	2,018		673		2,442	8.3%	203	187	2,239		1,854		
Near-shore (Remaining+Other)		987	122		663		324		153	145	171		162		
Shelf (Remaining+Other)		968	968		10		958		40	34	918		771		
Slope (Remaining+Other)		1,160	928				1,160		10	8	1,150		920		
South (preferred CA optio	3,556	2,015	1,804		732		1,283	44.3%	569	490	714		582		
Near-shore (Remaining+Other)		662	656		532		130		107	102	23		22		
Shelf (Remaining+Other)		714	632		200		514		320	269	194		163		
Slope (Remaining+Other)		639	517				639		142	119	497		398		

MANAGEMENT MEASURES FOR 2002 AND ENVIRONMENTAL ASSESSMENT

Situation: Management measures adopted during the Council process are designed to implement new and existing rebuilding programs, achieve bycatch reduction mandates, keep total catch within the adopted harvest levels, and achieve optimum benefits to the various user groups and fishing communities. In January 2001, widow and darkblotched rockfish were declared overfished by the National Marine Fisheries Service (NMFS). In September 2001, the Council approved new rebuilding analyses for coastwide lingcod, Pacific ocean perch, and darkblotched rockfish to complement existing rebuilding analyses for bocaccio, canary rockfish, cowcod, and widow rockfish. It is likely that NMFS will declare yelloweye rockfish overfished early next year based on the 2001 assessment of that species. In response, the Groundfish Management Team (GMT) recommended reduced optimum yields (OYs) for lingcod, Pacific ocean perch, yelloweye rockfish, and rockfish in the "other" and "minor *Sebastes*" complexes in 2002. Additionally, two new assessments of the West Coast sablefish stock north of Pt. Conception indicate the need to consider reduced harvest of sablefish to avoid this stock being declared overfished in the near future. Groundfish fisheries operating on the slope and targeting the Dover sole/thornyhead/sablefish (DTS) complex are expected to be constrained to protect declined darkblotched rockfish (in the case of DTS trawl fisheries) and to avoid future declines of sablefish.

In response to the above information, the Council adopted a range of acceptable biological catches and OYs for various stocks at the September Council meeting. The Council also adopted the Ad Hoc Allocation Committee's recommendations for allocation of groundfish stocks within fishing sectors as well as the management principles, data quality concerns, major management challenges, and alternative management strategies that should be considered for 2002. Additionally, the Council adopted a range of seasonal and year round options for 2002 commercial groundfish fisheries. The Council also adopted several recreational fishery options to limit next year's harvest of select overfished rockfish stocks.

In addition to the normal analysis of options, the Council assigned the GMT and the Groundfish Subcommittee of the Scientific and Statistical Committee to more fully investigate the bycatch and discard rate assumptions used in setting groundfish management measures. The Council directed that an Environmental Assessment/Regulatory Impact Review (EA/RIR) of management measure options be developed with a full analysis presented to the Council prior to a final vote on 2002 management measures. The EA/RIR, which analyzes the potential biological and socioeconomic impacts of these various management options, provides thorough analyses of the key issues facing the Council in deciding 2002 management measures for the Pacific Coast groundfish fishery (Exhibit C.4, Supplemental Attachment 1).

The scope of alternatives analyzed in the EA/RIR is adequately broad to permit Council flexibility for considering new approaches to managing 2002 Pacific Coast groundfish fisheries. This agendum is spread throughout the week to facilitate continuous narrowing of alternatives to a single set of management measures. Council deliberations of 2002 management measures are scheduled to begin on Tuesday, with checkpoints on Wednesday and Thursday before a final decision on Friday. This strategy is designed to allow the Council opportunities to assign analyses to the GMT and GAP in order to consider potential permutations of management alternatives analyzed in the EA/RIR.

Council Action: Adopt final 2002 management measures.

Reference Materials:

1. Environmental Assessment/Regulatory Impact Review of Proposed 2002 Groundfish Acceptable Biological Catch and Optimum Yield Specifications and Management Measures for the Pacific Coast Groundfish Fishery (Exhibit C.4, Supplemental Attachment 1).
2. Public Comment Letters, (Exhibit C.4.c, Public Comment 1).

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP supports making the necessary allocation decisions so that fishery participants can plan on a specific share of future OYs (Sec. II.A.1(3)) and establishing an allowable level of catch that prevents overfishing while achieving optimum yield based on best available science (Sec. II.A.2). The GFSP envisions choices made by the Council on 2002 management measures at this stage in the process would be consistent with these criteria.

The GFSP also supports establishing and maintaining a management process that is transparent, participatory, understandable, accessible, consistent, effective, and adaptable (Sec. II.C). The Council process of adopting specific proposed management measures in September as a framework for decision making at the November meeting represents considerable progress towards consistency with these GFSP principles. A three meeting process for decision making on management measures, currently planned for next year, will constitute improved consistency.

PFMC
10/15/01

DRAFT
ENVIRONMENTAL ASSESSMENT/ REGULATORY IMPACT REVIEW

FOR

PROPOSED 2002 GROUNDFISH ACCEPTABLE BIOLOGICAL CATCH AND OPTIMUM YIELD SPECIFICATIONS AND MANAGEMENT MEASURES

FOR THE PACIFIC COAST GROUNDFISH FISHERY

Prepared by the Pacific Fishery Management Council

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EXECUTIVE SUMMARY

The Pacific Fishery Management Council (Council) has proposed harvest levels for the Pacific Coast groundfish fishery for the year 2002 and certain management measures to achieve these harvest levels while protecting overfished and depleted stocks. Harvest level specifications for each major stock typically include two reference points: an acceptable biological catch (ABC) and an optimum yield (OY). The ABCs are based on the best scientific information available, which is a quantitative stock assessment whenever possible. The OY is typically the management target. In a few cases, additional target levels are proposed, referred to as harvest guidelines. The Pacific Coast Groundfish Fishery Management Plan (FMP) includes a harvest control rule for determining a default OY value that responds to precautionary management and uncertainty in the scientific information. The Council may deviate from the default values but only within certain limitations. Thus, OYs are typically lower than the ABCs, in response to other considerations such as stock rebuilding plans, bycatch control measures, or social and economic objectives.

Seven groundfish stocks have been designated as overfished, which obliges the Council to develop rebuilding plans within one year of the designation. In 2002, one more stock will be designated as overfished. The 1996 amendments (Sustainable Fisheries Act) to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) strengthened and clarified the mandate to prevent overfishing. These two factors greatly influenced the Council's proposals for year 2002 harvest levels, resulting in more conservative management than in previous years. The OY proposals are intended to respond to the best and most current scientific information available to prevent overfishing, to reduce avoidable bycatch and take into account unavoidable bycatch, and to make meaningful progress towards rebuilding overfished stocks. The OY for bocaccio is based on a rebuilding analysis adopted by the Council in November 1999. The OYs for cowcod and canary rockfish are based on rebuilding analyses adopted by the Council in November 2000. The OYs for lingcod, darkblotched rockfish, widow rockfish, and Pacific ocean perch are based on rebuilding analyses adopted by the Council in June and September 2001. The OY for yelloweye rockfish is set in acknowledgment that this stock will be designated as overfished and is based on the recommendation from the stock assessment author and the Stock Assessment Review (STAR) Panel that reviewed the assessment. Other stocks, such as sablefish north of Point Conception, are in the precautionary zone where the current biomass is between 25% and 40% of the stock's unfished biomass. The OYs for such stocks are based on the Council's default OY harvest policy (the "40-10" rule) which reduces the exploitation rate when a stock is at or below its precautionary threshold. Management measures, consistent with the biological necessities of rebuilding overfished stocks, preventing stocks from becoming overfished (stocks in the precautionary zone), or maintaining a sustainable harvest of healthy stocks are proposed. These management measures take into account historic fishing patterns, bycatch reduction objectives, the needs of coastal communities, and other biological, social and economic considerations.

The Council will consider three issues, each with several alternatives and sub-options, and will ultimately choose alternatives that will shape the 2002 Pacific Coast groundfish fishery. The relevant issues are alternative harvest levels, alternative bycatch and discard rate estimates, and alternative season options. The alternative harvest levels apply to six stocks that are subject to new stock assessments or rebuilding strategies. The bycatch and discard rate estimation issue arises by the need to accurately track total mortality of groundfish stocks and by recent scrutiny of past bycatch and discard rate assumptions. The alternative season options result from a desire to consider area and time manipulations of the fishery to potentially realize higher trip limits and lesser regulatory discard of groundfish. Each issue has several alternatives with varying degrees of potential risks and benefits to the groundfish fishery that are described in this document. Less restrictive alternatives tend to buffer, but not necessarily ameliorate, the continued downward trend in economic benefits and fishing opportunities. However, the short term benefits of less restrictive alternatives need to be weighed against longer term stock conservation risks. The Council adopted alternatives modeled in this Environmental Assessment/Regulatory Impact Review (EA/RIR) are believed to adequately bracket a reasonable range of options for the 2002 groundfish fishery given anticipated short and long term risks and benefits. The issues considered are also chosen as the most anticipated issues currently influencing a decision on 2002 harvest levels and management measures.

1.0 PURPOSE AND NEED FOR ACTION

The fishery resources off the coasts of the United States are held in trust for the people and Nation. Congress delegated management responsibility to the Secretary of Commerce (Secretary), with the aid of eight regional councils, to develop regional management plans and recommend measures to ensure these resources are managed and conserved to prevent overfishing and to achieve the maximum benefit to the Nation. The goals, standards, responsibilities, and processes are laid out in the Magnuson-Stevens Act, which was most recently amended in 1996. The Council was assigned stewardship responsibilities for the fish resources off the Pacific Coast, specifically the area from 3 to 200 nautical miles off Washington, Oregon, and California.

The groundfish fisheries in the Exclusive Economic Zone (EEZ) offshore of Washington, Oregon, and California are managed in accordance with the Council's Pacific Coast Groundfish Fishery Management Plan (FMP). The FMP[1] requires the Council to annually recommend groundfish harvest levels and management measures for the upcoming year. These recommendations must be consistent with the goals and objectives of the FMP, the Magnuson-Stevens Act, and other applicable laws and federal policies. In accordance with the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) must be prepared to analyze and discuss the impacts of the proposed harvest specifications on the human environment (that is, the anticipated impacts on the biological resources, the physical environment, and the social and economic well-being of fishers, fishing communities, and the Nation). This document, along with its associated reference documents, constitutes the required EA.

On March 3, 1999, NMFS approved Amendment 11 to the groundfish FMP. That amendment established a default optimum yield (OY) policy that reduces the numerical OY of any stock believed to be below its precautionary threshold, which is defined as smaller than 40% of its pristine (unfished) abundance unless better information is available.[2] A groundfish stock is defined to be "overfished" if its abundance is less than 25% of its unfished abundance. These provisions of the FMP are intended to address National Standard 1 (conservation and management measures shall prevent overfishing while achieving on a continuing basis, the optimum yield from each fishery for the United States fishing industry) and three overall management goals established in the FMP to guide this process: (1) Conservation - prevent overfishing by managing for appropriate harvest levels, and prevent any net loss of habitat of living marine resources; (2) Economics - maximize the value of the groundfish resource as a whole; and (3) Utilization - achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.

A variety of management measures have been employed to achieve the goals and objectives of the FMP, including gear restrictions, a license limitation program, time/area closures, the specification of OYs or other harvest limitations for some species, seasons, and trip limits, which are limitations on the amount of certain species that may be caught, retained and landed by any vessel. The FMP authorizes continued establishment of harvest guidelines and quotas. Harvest guidelines are specified numerical harvest objectives which are treated as targets but not absolute limitations. Attainment of a harvest guideline does not require closure of a fishery, although the Council may choose to terminate further fishing. All recent numerical harvest specifications, including OY values, have been harvest guidelines. A quota is defined as a specified numerical harvest objective, the attainment (or expected attainment) of which causes closure of the fishery for that species or species group. The main use of harvest guidelines and quotas recently has been to designate allocations and sub-components of a specified OY.

The Council reviews available stock status information at its September and November meetings, after which it forwards its final recommendations to the Secretary. These recommendations are made annually, so the Council is able to change its harvest management policies as new information on fish stock abundance and fishing community needs becomes available, and as new legislative requirements are imposed. Although the FMP states that all specifications will remain in effect until changed, they are announced annually on or about January 1.

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[1] See section 5.3 of the FMP.

[2] Sometimes spawning stock biomass is used instead of total stock biomass, and sometimes spawning potential is used. Where there is insufficient information to develop a numerical OY, the FMP still allows establishment of a non-numerical OY.

This EA analyzes possible environmental and socioeconomic impacts of harvesting at the proposed range of 2002 OY specifications as compared to the 2001 harvest guideline specifications. It also analyzes the management measures accompanying each set of harvest level alternatives, season structure alternatives, and bycatch/discard rate alternatives.

2.0 ALTERNATIVES INCLUDING PROPOSED ACTION

The Council considered three suites of alternatives at the September 2001 Council meeting, each with several sub-components and specific proposals. A brief summary of each suite of alternatives (Issue 1: alternative harvest levels, Issue 2: alternative bycatch rate estimates for overfished stocks, and Issue 3: alternative season options) is provided below; the multitude of provisions, mostly in table form, are provided afterwards. The first issue (alternative harvest levels) depicts a status quo alternative, a low end alternative, a high end alternative, and a preferred alternative. The preferred alternative is based on the Council-adopted preferred alternative harvest levels from the September 2001 meeting. The analysis of the second issue (alternative bycatch rate estimates) depicts a range of estimated bycatch rates of key overfished groundfish stocks within various target trawl fishing strategies (similar data for limited entry fixed gear and open access gears is not currently available) using a variety of data sources, including field observations in the mid-1980s, logbooks, fishtickets, and Enhanced Data Collection Project (EDCP) data. The high and low ends of the range of bycatch rates are analyzed with respect to how they influence landing limits for each of the season options. Preferred bycatch rates have not been adopted by the Council. The third issue is management measures (alternative season options). For the commercial fishery, there is a Groundfish Management Team (GMT)-recommended year round season alternative, a coastwide season alternative, and two Groundfish Advisory Subpanel (GAP)-recommended year round season alternative (one with the Council-preferred and one with the high total catch OY alternatives). The GMT-recommended year round and the coastwide six month commercial season alternatives have seasonal suboptions for sablefish. Tables cited in Section 2.3 specify trip and cumulative landing limits given the alternatives modeled for each commercial season option. The resulting trip and landing limits in these tables are analyzed for their relative economic effects. A preferred 2002 commercial season alternative was not adopted by the Council.

Recreational rockfish and lingcod season and bag limit options proposed by the states of Washington, Oregon, and California are also analyzed. The potential biological impacts of recreational fishery options are analyzed with respect to adhering to OY specifications and the recreational set-asides (preliminarily adopted by the Council in September 2001) for bocaccio, canary rockfish, and yelloweye rockfish. The alternative harvest levels issue only applies peripherally to recreational fisheries, because only a minor catch of those stocks with variable harvest levels under consideration (darkblotched rockfish, Dover sole, sablefish, shortspine thornyhead, and widow rockfish) is realized by the recreational fishery. Effort shifts resulting from the recreational fishery options are predicted to determine relative economic effects of these options. The Council did not adopt preferred recreational fishery alternatives for 2002.

2.1 Alternative Harvest Levels

A range of alternative harvest levels for the 2002 groundfish fishery for six groundfish stocks was adopted by the Council for public review in September (Table 2.1-1). Three of the stocks (darkblotched rockfish, Pacific ocean perch, and widow rockfish) have been declared overfished. The ABC and OY specifications for these stocks range from status quo (2001 specifications) to harvest levels consistent with rebuilding trajectories estimated to have an 80% probability of achieving target biomass within the specified time frame. The low and intermediate harvest levels considered correspond to rebuilding strategies consistent with 60% and 70% probabilities of achieving target biomass within the specified time frame. Two of the stocks (Dover sole and sablefish) have estimated biomasses within the precautionary zone (25%-40% of unfished biomass). The range of harvest levels for these stocks correspond to harvest levels between status quo (2001 specifications), $F_{40\%}$, $F_{45\%}$, and $F_{50\%}$. A range of exploitation rates was chosen for these stocks due to uncertain recruitment assumptions and projections and the desire to adopt harvest levels that are likely to prevent them being declared overfished in the near future. One stock, shortspine thornyhead, has an adopted range of harvest levels corresponding to status quo (2001 specifications) and a higher harvest level conforming to a higher estimated biomass in 2001. There was great uncertainty in the 2001 assessment of the current biomass of shortspine thornyhead. Shortspine thornyhead could either be above B_{MSY} (the biomass that sustains a maximum sustainable yield harvest) or within the precautionary zone. The GMT treated shortspine thornyhead as if they were in the "precautionary zone"; the harvest levels have the "40-10" adjustment applied. Preferred alternative harvest levels were adopted by Council action in September for five of the six stocks with adopted harvest level ranges (all except shortspine thornyhead).

Harvest levels adopted for 2002 for all the other groundfish stocks and stock complexes managed on the Pacific Coast correspond to status quo (2001 specifications). These stocks and stock complexes are either

estimated to be or assumed to be healthy (biomasses >40% of unfished biomass) or under Council-adopted rebuilding strategies.

Status Quo Alternative: The status quo ABC and total catch OY specifications against which the 2002 Pacific Coast groundfish fishery harvest levels are compared are the 2001 specifications (see Table 2.1-1).

Alternative 1.1: Implement ABCs based on new stock assessments, new maximum sustainable yield (MSY) harvest levels, and the lower end of the preliminary total catch OY ranges for darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, and widow rockfish (see Table 2.1-1).

Under this alternative, the lowest ABCs and total catch OYs under consideration for darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, and widow rockfish would be adopted. Harvest levels for all other stocks would also be the same as in 2001. These OYs would provide the most protection to the groundfish resources, and would hasten rebuilding of overfished and depleted stocks. Impacts on recreational and commercial fishers and fishing communities would be the greatest of the four alternatives, and resulting management measures would most restrict commercial groundfish fishing on the continental shelf and slope.

Alternative 1.2: Implement ABCs and total catch OYs based on new stock assessments, new MSY harvest levels, and the upper end of the preliminary total catch OY ranges for darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, and widow rockfish (see Table 2.1-1).

Under this alternative, the highest ABCs and OYs under consideration for darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, and widow rockfish would be adopted. Harvest levels for all other stocks would also be the same as in 2001. These OYs would provide greater risk to the conservation of groundfish resources than alternative 1.1 (although less risk than status quo), which could potentially impede rebuilding of overfished and depleted stocks. Economic impacts on recreational and commercial fishers and fishing communities would be the least of the three no-status-quo alternatives, and resulting management measures would least restrict commercial groundfish fishing on the continental shelf and slope.

Alternative 1.3 (Preferred Alternative): Implement ABCs and total catch OYs consistent with new stock assessments, revised MSY harvest rates, including the high ABC and total catch OY for sablefish north of Pt. Conception and widow rockfish (60% probability of rebuilding within the specified time frame), and intermediate ABC and total catch OY levels for darkblotched rockfish (70% probability of rebuilding within the specified time frame), Dover sole ($F_{45\%}$), and Pacific ocean perch (70% probability of rebuilding within the specified time frame)(see Table 2.1-1). A preferred ABC and total catch OY alternative was not adopted for shortspine thornyhead.

Under this alternative, adequate protection would be provided to overfished and depleted groundfish stocks, and opportunities for commercial and recreational fishing on the continental shelf and slope would be available. The overall benefits to the groundfish resources would be greater than under the status quo and intermediate between Alternatives 1.1 and 1.2; impacts on commercial fishers, recreational fishers, and fishing communities would be intermediate to Alternatives 1.1 and 1.2. The recommendations attempt to strike a balance between the risks to the groundfish resources and the social and economic risks to the fishing industry.

2.2 Alternative Bycatch Rates

Assumed bycatch rates used in the management of the Pacific Coast groundfish fishery affect total mortality estimates of overfished groundfish stocks which, in turn, affect trip and cumulative landing limits specified for all sectors of the fishery where these stocks are caught. Landing limits are designed to attain, but not exceed, annual landed catch OYs specified for the various stocks and stock complexes caught in the fishery which are largely determined by the estimated bycatch of constraining stocks. Bycatch rates are determined for overfished stocks within the context of target fishing strategies. This EA/RIR analyzes a range of estimated bycatch rates for the limited entry trawl sector only. Data for the limited entry fixed gear and open access sectors are limited and insufficient for similar analytical treatment. ***NOTE: A full explanation of the methodology, including data documentation, will be included in the Appendix, which will be a supplemental attachment to this draft and available prior to a final Council decision.***

Consideration of alternative bycatch rates estimated and applied to the 2002 Pacific Coast groundfish fishery resulted from scrutiny of status quo assumptions. While the Observer Program implemented in August and September of 2001 by the National Marine Fisheries Service is expected to eventually provide relevant and superior bycatch rate estimates than the alternatives considered for 2002 management decisions, it is recognized that this information will not be available in time for decision making this year. Therefore, until observer data is available, other data sources and methodologies need to be considered.

The analysis of alternative bycatch rates compares the low and high ends of a range of estimates developed using field observations in the mid-1980s, logbooks, fish tickets, and Enhanced Data Collection Project (EDCP) data (Appendix). These rates only apply to the limited entry trawl sector of the fishery and are specific to target fishing strategies where overfished stocks are caught, either targeted or caught incidentally. The constraining stocks that are analyzed in this EA/RIR (with the cited tables depicting the associated bycatch rates by trawl fishing strategy for these stocks parenthetically listed) are bocaccio, canary rockfish, darkblotched rockfish, lingcod, and Pacific ocean perch.

If bycatch rates assumed for the fishery are too low, then total mortality is underestimated which risks rebuilding strategies for depleted and overfished groundfish stocks. Chronic underestimation of total mortality risks future economic benefits to the industry due to further depletion of groundfish resources. If bycatch rates assumed for the fishery are too high, then total mortality is overestimated which overly restricts current groundfish fisheries resulting in less of an economic benefit to the industry in 2002, with possible long term deleterious effects to the industry's infrastructure.

2.3 Alternative Commercial Fishery Management Measures (Season Options)

Alternative season options are being considered for the 2002 Pacific Coast commercial groundfish fishery because of the potential to realize higher trip limits and decreased regulatory discard with the total catch OYs available. The option of a year round season is compared to a coastwide six month season for most commercial groundfish fishery sectors to generally understand the relative effect of a seasonal structure. Trip and cumulative landing limits are depicted for the GMT-recommended year round season option as well as the Council-adopted coastwide (six month) season option under both ends of the range of estimated bycatch rates. The intent is not necessarily for the Council to choose one of these specific alternatives when deciding 2002 management measures, but to effectively bracket the range of alternatives, so a well informed decision can be made. Therefore, the Council is free to choose permutations of these alternatives that make sense in the context of the conservation constraints and market demands implicit in the fishery.

Other seasonal options not adopted by the Council in September 2001 for analysis were recommended by industry groups. Due to time constraints to develop this EA/RIR before the November Council decision and flaws in some of the options that would prohibit serious consideration for the 2002 groundfish fishery, these options will only be addressed qualitatively with the rationale for doing so provided. The judgement of the authors and those consulted in the development of this EA/RIR (see Section 10.0) is that the two commercial alternatives for management measures (Alternatives 3.1 and 3.2) provide an adequate range of options for decision making.

The recreational fishery alternatives that were proposed by the states in September 2001 are addressed in their entirety. Catch projections for key stocks and stock complexes are provided, as determined by the GMT in September 2001. The authors of this EA/RIR made assumptions regarding effort shifts and projections in recreational fisheries to provide a socioeconomic analysis of these options. Those assumptions are articulated to benefit decision making.

Alternative 3.1 (Year Round GMT-Recommended Season): This alternative is analogous to the 2001 year round season and would apply to all sectors of the commercial fishery coastwide. This alternative, as proposed for 2002, would be the same as for 2001 except for the newly specified ABCs and OYs for lingcod, yelloweye rockfish, and the six groundfish stocks addressed in Section 2.1. The trip and cumulative landing limits depicted for this year round season option were recommended by the GMT and modeled with both ends of the range of estimated bycatch rates described in Section 2.2 and in the Appendix. Table 2.3-1 provides trip limits under the year round GMT-recommended season option with trip limits for constraining target species without the restrictions needed for the bycatch species to compare the net effect of applied bycatch rates on trip limits. The trip limit tables (with the restrictions for bycatch species) for limited entry trawl, limited entry fixed gear, and open access gears, respectively, under the low end of the range of bycatch rates

alternative are labeled Table 2.3-2a, Table 2.3-2b, and Table 2.3-2c. Those under the high end of the range of bycatch rates alternative are labeled Table 2.3-3a, Table 2.3-3b, and Table 2.3-3c.

In general, the advantages to the year round season option include: a year round flow of product to maximize market opportunities, ability for different sectors of the fishery to satisfy market demands that may vary geographically, and the ability of fishermen to more safely fish during periods of calmer weather (also varies geographically). The processing sector has testified that year round product flow is necessary to keep skilled workers, such as filleters, employed. Without a year round product flow, markets may shift away from groundfish, reducing net demand and profitability. Periods of inclement weather vary geographically. A year round season allows geographically segregated fishermen equitable opportunity to attain their allocated portions of the coastwide OYs for stocks and stock complexes. There was a general sense from the industry and public comments that a "one size fits all" approach in determining a season structure doesn't provide the flexibility needed to prosecute the groundfish fishery coastwide.

Alternative 3.2 (Coastwide Six Month Season): In September 2001 the Council adopted a coastwide six month season option for analysis in the EA/RIR in order to better understand the relative difference of a seasonal structure to the commercial groundfish fishery. The thought behind advancing this option is that there was a potential to realize higher trip and cumulative landing limits and lesser regulatory discard by truncating the time spent harvesting groundfish. One of the qualifications discussed, but not necessarily adopted when this option was recommended, was the possibility of temporally staggering fishing sectors and strategies, so individual fishers could pursue one strategy/target species at one time of the year (i.e., crab in the winter) and another during a different period (i.e., Dover sole/thornyhead/trawl-caught sablefish complex (DTS) trawl in the summer). It is noted this alternative as adopted and modeled does not address the concept of staggering strategies, and it is clearly not a preferred alternative for many of the participants in the fishery. The results of the analysis of this alternative merely serve to illustrate a relative difference between a year round and a seasonal structure to the fishery and to open the door to consider seasonal options.

This alternative would apply to all commercial fisheries coastwide except for trawl whiting and would have the following season structure: open during January to March, closed during April to September, and open during October to December. Suboptions for the fixed gear sablefish season include: (1) closing during January to March, open during April and May, closed during June to August, open during September and October, and closed during November and December; and(2) same as #1 except open during June to August only in depths $\geq$150 fathoms for vessels equipped with a satellite vessel monitoring system. The fixed gear sablefish suboptions were in response to testimony (referring to recently published scientific reports (Olla *et al.* 1998, Davis *et al.* 2001)) at the September 2001 Council meeting regarding higher mortalities of incidentally caught sablefish during periods of elevated sea surface and air temperature. The trip limit tables for limited entry trawl, limited entry fixed gear, and open access gears, respectively, assuming bycatch rates at the low end of the range are labeled Table 2.3-4a, Table 2.3-4b, and Table 2.3-4c. Trip limit tables assuming the high end range of bycatch rates are labeled Table 2.3-5a, Table 2.3-5b, and Table 2.3-5c.

Alternative 3.3 (Year Round GAP-Recommended Season- Council-Preferred OY Option): In September 2001 the Groundfish Advisory Subpanel (GAP) recommended and the Council adopted for consideration a year round trawl season option with the Council-preferred total catch OY alternatives specified in Table 2.1-1. The trip and cumulative landing limits specified for this option are depicted in Table 2.3-6 for the 2002 limited entry trawl fishery. Since the GAP specified trip limits when recommending this option, alternative bycatch rates were not presented. The qualitative analysis of this alternative is presented in Section 4.3.3.

Alternative 3.4 (Year Round GAP-Recommended Season-High OY Option): In September 2001 the Groundfish Advisory Subpanel (GAP) recommended and the Council adopted for consideration a year round trawl season option with the high total catch OY alternatives specified in Table 2.1-1. The trip and cumulative landing limits specified for this option are depicted in Table 2.3-7 for the 2002 limited entry trawl fishery. Since the GAP specified trip limits when recommending this option, alternative bycatch rates were not presented. The qualitative analysis of this alternative is presented in Section 4.3.4.

2.4 Alternative Recreational Fishery Management Measures

Alternative recreational fishery management measures were proposed by the states of Washington, Oregon, and California at the September 2001 Council meeting to control recreational harvest of key overfished groundfish stocks and stock complexes. These options have only been analyzed with respect to projecting catch of key groundfish stocks and stock complexes. Recreational effort shifts are difficult to predict since

they are dependent not only on implementation of the proposed action, but also on the suite of other recreational pursuits available (i.e., opportunities to harvest other non-groundfish species) or completely unpredictable events such as weather. Therefore, the economic impacts and regulatory effectiveness of recreational fishery options should only be considered gross estimates of outcomes given the underlying assumptions. As always, controlling recreational harvest of overfished groundfish stocks is an evolving adaptive management process. These regulatory alternatives, which are more conservative than those for the 2001 fishery, should therefore be considered within that context.

Washington Recreational Fishery Alternatives

The Washington Department of Fish and Wildlife (WDFW) proposed the following alternatives in response to the need to limit harvest of yelloweye rockfish in Washington waters:

1. Rockfish daily-bag-limit of 10 fish of which no more than one canary rockfish and one yelloweye rockfish can be retained; open year round.
2. Rockfish daily-bag-limit of 10 fish of which no more than one rockfish can be canary or yelloweye rockfish; open year round.
3. Option 1 with a prohibition on retaining yelloweye rockfish if Pacific halibut have been retained on the same fishing trip.
4. Option 2 with a prohibition on retaining yelloweye rockfish if Pacific halibut have been retained on the same fishing trip.

The WDFW will monitor the fishery and track recreational groundfish catch. If the Washington recreational yelloweye harvest guideline is projected to be exceeded, WDFW will take action to prohibit recreational groundfish fishing outside of 25 fathoms.

Oregon Recreational Fishery Alternatives

The Oregon Department of Fish and Wildlife (ODFW) proposed the following alternatives in response to the need to limit harvest of yelloweye rockfish in Oregon waters:

1. Time and offshore closures: Open April 1-October 31. Rockfish will be open only within the 20 fathom curve during May and June. The period of time June is restricted to nearshore waters depends on the necessary reduction to achieve yelloweye constraints.

   Bag limit: 10 rockfish with a 1 canary and 1 yelloweye sublimit, 2 lingcod with a 24 inch minimum length.

   Time closures include all bottomfish species for ocean boat anglers. Angling from shore remains open. Angling from boats in inside waters remains open.

2. Offshore closure: Open January 1-December 31. Rockfish will be open only within the 20 fathom curve during May and part of August. The period of time August is restricted to nearshore waters depends on the necessary reduction to achieve yelloweye constraints.

   Bag limit: 10 rockfish with a 1 canary and 1 yelloweye sublimit, 1 lingcod with a 24 inch minimum length.

California Recreational Fishery Alternatives

The California Department of Fish and Game (CDFG) proposed the following alternatives in response to the need to limit harvest of canary and yelloweye rockfish in northern California waters and bocaccio in southern California waters:

Bag limit: 10 rockfish with a 2 bocaccio, 1 canary, 1 yelloweye (2 fish per vessel) sublimit; 2 lingcod with a 26 inch minimum length.

Northern California (Oregon border to Cape Mendocino): same as Oregon.

Central California (Cape Mendocino to Pt. Conception):

1. Open: July-August, November-December.
2. Open: September-October.
3. Open: January-February, November-December.

Southern California (Pt. Conception to Mexican border):

1. Open: July-October.
2. Open: May-August.

Nearshore rockfish and lingcod inside 20 fathoms:

Outside the rockfish and lingcod seasons (above), fishing may be considered inside 20 fathoms along the mainland coast and offshore islands (excluding rocks, banks, and reefs) for lingcod and nearshore rockfish (including sculpin), and ocean whitefish (state-managed), with a 5 to 10 fish bag limit for nearshore rockfish, cabezon, greenlings, and lingcod; not exceeding regular species bag limits. Also a provision for retention of 2 shelf rockfish per angler not including bocaccio, canary, cowcod, or yelloweye rockfish may be considered.

Cowcod Conservation Areas (CCAs): Same as 2001 except nearshore rockfish and lingcod closed when nearshore rockfish and lingcod closed outside CCAs. Special nearshore rockfish and lingcod regulations are in effect when nearshore rockfish and lingcod is open in adjacent waters.

Under these special regulations, fishing is not permitted outside 20 fathoms along the mainland coast and offshore islands with lingcod, nearshore rockfish, and ocean whitefish on board.

2.5 Alternative Tribal Fishery Management Measures

Executive Order 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes.

The Secretary of Commerce recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. At Section 302(b)(5), the Magnuson-Stevens Act reserves a seat on the Council for a representative of an Indian tribe with Federally recognized fishing rights from California, Oregon, Washington, or Idaho.

The U.S. government formally recognizes that the four Washington Coastal Tribes (Makah, Quileute, Hoh, and Quinault) have treaty rights to fish for groundfish. In general terms, the quantification of those rights is 50 percent of the harvestable surplus of groundfish available in the tribes' usual and accustomed (U and A) fishing areas (described at 50 CFR 660.324). Each of the treaty tribes has the discretion to administer their fisheries and to establish their own policies to achieve program objectives. Accordingly, tribal allocations and regulations have been developed in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

At the Council's September meeting the Council considered a treaty groundfish fishery request for 2002. After consideration of the tribal request and the comments of the public, the Council recommended adopting the treaty fishery proposal for public review.

The following tribal fishery management measures were proposed and adopted as preliminary options at the September 2001 Council meeting:

1. Sablefish allocation = 10% of the U.S. harvest guideline.
2. Whiting allocation according to the court-approved proposal in *United States v. Washington*, subproceeding 96-2.
3. Black rockfish harvest as per 50 C.F.R. § 660.324(j).
4. Slope rockfish: no limit on retention of incidental harvests of slope rockfish during fully competitive fisheries for halibut and sablefish. Trip limits on retention of slope rockfish in other fisheries to be determined on the basis of final harvest levels for these species, expected effort, and other relevant factors.

5. Shelf rockfish: same limits described in (4).
6. Nearshore rockfish: same limits described in (4).
7. Yellowtail and other midwater rockfish: aggregate trip limit of 30,000 pounds per 2 months with no carry over between cumulative landing limit periods; tribes to adjust trip limits to minimize incidental catches of canary and widow rockfish, provided the average aggregate trip limit per vessel per two month period does not exceed 30,000 pounds; canary trip limit = 300 pounds per trip; widow trip limit is same as the limited entry trip trawl limit for widow rockfish; trip limits will be adjusted inseason if treaty fishing effort exceeds the anticipated 3 to 4 trawl vessels.
8. Lingcod: 300 pounds per day, per vessel and 900 pounds per week, per vessel to allow retention of incidental harvest of lingcod.
9. Bottom trawl: sub-allocation of treaty sablefish will be made to the tribe's bottom trawl evaluation fishery. Bottom trawl fishery closes once the allocation is reached; treaty trip limits same as limited entry trip limits for Pacific cod, Petrale sole, English sole, Rex sole, arrowtooth flounder, and other flatfish; Council-approved bottom trawl gear will be used.
10. Observer program: tribe will develop and implement an observer program to monitor and enforce the limits proposed above.

3.0 AFFECTED ENVIRONMENT

The purpose of this section of the document is to describe the existing fishery and the resources that are affected by the action. All relevant physical, biological, social and economic features of the human environment are included in this section. The physical environment is addressed in section 3.1, the biological characteristics of the groundfish stocks and a description of other species that are affected by the fishery are addressed in section 3.2, and the human (socioeconomic) environment is addressed in section 3.3.

3.1 Physical Environment

The groundfish fishery occurs in the U.S. EEZ from 3 to 200 miles off the coasts of Washington, Oregon, and California (WOC). The off shore ocean includes a diverse range of habitats including: rocky and non-rocky shelf regions, deep submarine canyons, and continental slopes and basins. A comprehensive description of the essential fish habitats in the WOC region can be found in Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan and the final Environmental Assessment/Regulatory Impact Review prepared for that amendment. Life history and habitat needs for the 82 species managed under the FMP are described in the EFH appendix to Amendment 11, which is available online at http://www.nwr.noaa.gov/1sustfsh/efhappendix/page1.html.

3.2 Biological Environment

Definitions: This section evaluates the expected changes that would result from each alternative, including the status quo. The following terms are used throughout the discussion of biological condition and impacts. An acceptable biological catch (ABC) is an estimate of the amount of fish that could be taken from a stock at its current abundance without jeopardizing it. It is calculated by multiplying the calculated or assumed harvest rate that would produce the maximum sustainable yield, times the current biomass estimate. It is not a management target, but defines the harvest that constitutes overfishing of that stock. The optimum yield (OY) is the management target, which typically is a limit below ABC that prevents overfishing, addressing rebuilding requirements, or is intended to achieve other goals and objectives.

A stock that is at 40% of its unfished biomass is said to be at $B_{40\%}$. B_{MSY} is the stock biomass level required to achieve MSY. According to the Council's OY policy, if the stock biomass is larger than B_{MSY}, the OY may be set equal to or less than ABC. A stock with a current biomass between $B_{25\%}$ and $B_{40\%}$ (the precautionary threshold) is said to be in the "precautionary zone." The Council's default OY harvest policy reduces the standard fishing mortality rate when a stock is at or below its precautionary threshold. The farther the stock is below the precautionary threshold, the greater the reduction in OY will be relative to the ABC, until, at $B_{10\%}$, the OY could be set at zero. (The shorthand name for this policy is the "40-10 policy," referring to how the Council sets harvest rates for stocks between $B_{40\%}$ and $B_{10\%}$). However, the Council may recommend setting the OY higher than the default OY harvest policy specifies, if justified and as long as the OY does not exceed the ABC (F_{MSY}) harvest rate and is consistent with the requirements of the Magnuson-Stevens Act and the NOAA National Standard Guidelines. Additional precaution may be added on a case-by-case basis at any level of current biomass that may be warranted by uncertainty in the data or by higher risks of being overfished. Stocks that are below $B_{25\%}$ are considered overfished, and harvest for those stocks is managed under rebuilding plans. Rebuilding plans for overfished species have stock-specific allowable harvest rates, although those rates may still be consistent with this "40-10 default OY" policy.

3.2.1 Groundfish Resources

The Pacific Coast Groundfish FMP manages over 80 species, many which are caught in multispecies fisheries. These species, which include an array of flatfish, rockfish, and roundfish, occur throughout the EEZ and occupy diverse habitats at all stages in their life history. Information on the interactions between the various groundfish species and between groundfish and non-groundfish species varies. While a few species have been intensely studied, there is relatively little information on most. Fewer than 20 of the groundfish species have ever been comprehensively assessed. Only Pacific whiting has been assessed annually.

An ABC is established for every stock (a species or species group) where enough information is available. However, numerical OYs are not established for every stock, especially where harvest has been less than ABC. Species and species groups with OYs include bocaccio, canary rockfish, chilipepper rockfish, cowcod, darkblotched rockfish, Dover sole, lingcod, longspine thornyhead, the minor rockfish complexes (northern and southern for nearshore, continental shelf, and continental slope species), Pacific cod, Pacific ocean perch

(POP), Pacific whiting, sablefish, shortbelly rockfish, shortspine thornyhead, splitnose rockfish, widow rockfish, and yellowtail rockfish. For 2002, an OY will also be established for yelloweye rockfish. Seven species are believed to be above 40% of their unfished biomass (their precautionary thresholds): Petrale sole (trend unknown), shortbelly rockfish (trend unknown), longspine thornyhead (declining), black rockfish (declining), chilipepper rockfish (declining if recent recruitment is low), yellowtail rockfish (increasing), and blackgill rockfish (declining).

Species within the "precautionary zone" (25%-40% of the unfished biomass) include Dover sole (29%), Pacific whiting (37%), sablefish (27%-38%), and perhaps shortspine thornyhead (25%-50%). There are eight species below the overfishing threshold (<25% of the unfished biomass): bocaccio in California (about 2%), canary rockfish (7% in the south and 22% in the north), cowcod south of Point Conception (less than 10%), lingcod (15%), POP (13%), widow rockfish (25%), and yelloweye rockfish (7% in Northern California and13% in Oregon). Of these, bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, POP, and widow rockfish have been declared overfished, and yelloweye rockfish will be so designated in 2002. The relative abundance and trends of Pacific cod, other flatfish, other rockfish, and other species categories are unknown. The relative abundance of arrowtooth flounder is unknown but believed to be increasing.

For further information on groundfish populations, see the 2000 Stock Assessment and Fishery Evaluation (SAFE) document and the Environmental Assessment for the Proposed 2001 Groundfish Acceptable Biological Catch and Optimum Yield Specifications for the Pacific Coast Groundfish Fishery, prepared by the Council (PFMC 2000).

3.2.1.1 Overfished Stocks

There are seven West Coast groundfish stocks that have been declared overfished as of October 2001 (bocaccio, canary rockfish, cowcod, darkblotched rockfish, lingcod, Pacific ocean perch, and widow rockfish) and one expected to be declared overfished (yelloweye rockfish) based on a 2001 stock assessment. These stocks and their associated rebuilding parameters are listed in Table 3.2.1.1-1.

Bocaccio (declared overfished in 1999)

Biomass Trend of the Southern Bocaccio Resource, 1970-2001.

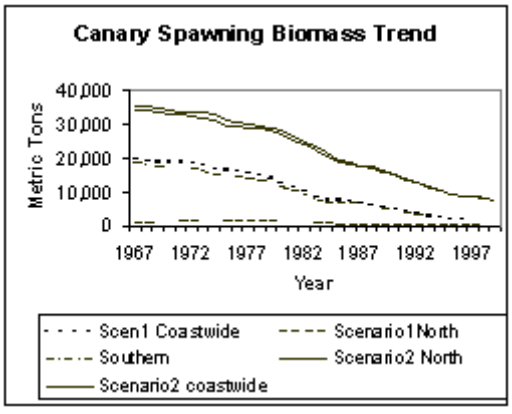
There are two separate West Coast bocaccio (*Sebastes paucispinis*) populations, divided in the vicinity of Cape Mendocino, California. The northern stock has not been assessed. The southern stock has been assessed and apparently has suffered poor recruitment during the warm water conditions that have prevailed off southern California for the past several years. The stock assessment prepared in 1999 estimated current spawning output of the southern bocaccio stock to be 2.1% of its initial level, and 5.1% of the MSY level (MacCall et al. 1999). In the adjacent figure, the horizontal dotted line represents the MSY level. The 1999 rebuilding model calculates the expected minimum time to rebuild is 20 to 76 years, depending in part on the size of the 1999 year class. Assuming a medium size 1999 year class, the rebuilding model calculates the minimum time to rebuild is 26 years. The rebuilding period set by the plan is 34 years, with a 67% chance of recovery to MSY in that time. The 2001 ABC was set at 122 mt and the OY at 100 mt; the same values are recommended for 2002. Given the biologically necessary long duration of the rebuilding period, this southern bocaccio OY is not expected to rise much above 100 mt for several years.

The southern bocaccio stock extends from about Cape Mendocino south as far as Sacramento Reef, Baja California. Bocaccio inhabit depths between 50 and 300 meters. Most common depths are 100 to 150 meters over the outer continental shelf. Larvae and small juveniles are pelagic; large juveniles and adults are semi-demersal. Larvae and small juveniles are commonly found in the upper 100 meters (m) of the water column, often far from shore. They are most often found in shallow coastal waters over rocky bottoms associated with algae. Newly settled larvae in central California are first observed associated with the giant kelp canopy, but are also seen throughout the water column. Adults are commonly found in eelgrass beds, or congregated around floating kelp beds. Young and adult bocaccio also occur around artificial structures, such as piers and oil platforms. Although juveniles and adults are usually found around vertical relief, adult aggregations also occur over firm sand-mud bottoms. All life stages of bocaccio are found in relatively salty waters, and may congregate in local areas of high salinity. Warm temperatures are preferred, at least by larvae.

Adult bocaccio may move more than 2 km per day and they are known to be transient near oil platforms around Santa Barbara, California; large aggregations may remain near a platform for months and then disappear suddenly. Large adults disappear from traditional commercial fishing grounds during winter spawning and reappear in the spring. Bocaccio move into shallow waters during their first year of life, then move into deeper water with increased size and age. Bocaccio are ovoviviparous; they produce eggs that develop within the female's body and hatch within or immediately after extrusion from the parent. The spawning season appears to last almost year-round. Parturition (birthing) occurs during November to March off northern and central California, and October to March off southern California. In California, bocaccio may become pregnant in October, give birth in November, and prepare immediately for a second brood to be born in March. Two or more broods may be born in a year in California. Male bocaccio mature at 3 to 7 years and females mature at 3 to 8 years. Adult bocaccio eat small fishes associated with kelp beds, including other species of rockfishes, and occasionally small amounts of shellfish. Bocaccio probably locate prey by sight and feed mostly at night. Bocaccio are eaten by sharks, salmon, other rockfishes, lingcod and albacore, as well as sea lions, porpoises, and whales. Bocaccio directly compete with chilipepper, widow, yellowtail, and shortbelly rockfishes for both food and habitat resources.

Canary Rockfish (declared overfished in 2000)

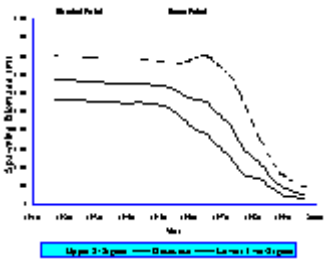
Canary rockfish (*Sebastes pinniger*) is an orange colored rockfish commonly inhabiting oceanic waters in depths from 91 to 274 meters. Historically, this species was fairly abundant throughout its range. The body of the canary rockfish is elongate, moderately deep and compressed. The head is large with an upper profile that is somewhat curved. Canary rockfish are distinguishable from other rockfish by their distinct orange color with three bright orange stripes across the head and a dark blotch on the posterior end of the spiny dorsal fin. Canary rockfish occur from northern Baja California (Mexico), to the western Gulf of Alaska. Adult canary rockfish are primarily restricted along the continental shelf from 250 fathoms (457 meters), inshore to 25 fathoms (46 m). Adult canary rockfish feed on small crustaceans as well as anchovies, sand dabs, and other small fishes. The canary rockfish, like all members of the genus *Sebastes*, produces live young. Female canary rockfish reach sexual maturity at roughly 8 years of age. Egg production is correlated with body size; the number of eggs increases from about 260,000 in a 19 inch female to about 1,900,000 in a female 26 inches long. Canary rockfish off the Pacific coast have a long spawning period from September through March, probably peaking in December and January off Washington and Oregon. Upon release from the female, larvae assume a planktonic life style in the upper 100 m of the water column. Very little is known about the early life history strategies of canary rockfish, but limited research indicates larvae are strictly pelagic (near the ocean surface) for a short period of time, begin to migrate to demersal (bottom) waters during the summer of their first year, and develop into juveniles around nearshore rock reefs, where they may congregate for up to three years. Canary rockfish tend to move to deeper waters as they age. Female canary rockfish generally grow faster and reach slightly larger sizes than males, but it appears males generally live considerably longer than females. Maximum ages indicate both sexes are capable of reaching nearly 70 years of age, but very few females greater than 30 years old have been observed in the sample data from Washington and Oregon.



Two assessments of the canary rockfish resource off the coasts of Washington, Oregon, and California were prepared in 1999, addressing the northern and southern reaches of the population (STAT 1999, Williams et al. 1999). Each indicated the current spawning biomass has fallen to between about 7% and 20% of the unfished abundance. The minimum time necessary for this stock to recover to its maximum sustainable yield stock size, in the absence of all fishing-related mortality, ranges from 24 to 119 years. These estimates are based on a range of current biomass estimates and a range of future reproductive success. The optimistic estimate of 24 years is based on the assumption that either recruitment will immediately increase to an intermediate level (782 thousand fish), or that recruits per spawner (R/S) values over the rebuilding period will remain similar to those in 1996 to 1998. The Council believes it is more realistic to expect some lower recruitment levels like those in the early 1990s. For example, if R/S levels over the rebuilding period are similar to the average levels observed over a longer historical period, rebuilding time frames of 74 to 119 years are likely. The Council chose a median recruitment

scenario between the high and low R/S scenarios. Under the median recruitment scenario, the northern stock would be expected to rebuild from its current level to the target level in 41 years with no fishing.

The mean generation time for canary rockfish is estimated to be 17 years. The National Standard Guidelines authorize establishment of rebuilding periods up to the minimum time (i.e. zero fishing) plus one mean generation. Thus, the maximum allowable time to rebuild is 58 years. In 52% of the simulations in the rebuilding analysis, a constant catch of 73 mt per year resulted in rebuilding of the northern portion of the stock in 57 years. The analysts advised the Council the southern portion of the stock could support an additional 20 mt harvest each year. The Council endorsed this analysis and specified the rebuilding period for canary rockfish to be 57 years, with a constant annual catch of 93 mt (which is the sum of 73 mt for the northern portion of the stock and 20 mt for the southern portion). The Council intends to reconsider this rebuilding strategy as soon as information on recent recruitment success becomes available from the next NMFS groundfish survey, probably in 2002. If recent recruitment is less than assumed in the median recruitment scenario, the annual catch limit will be reduced.



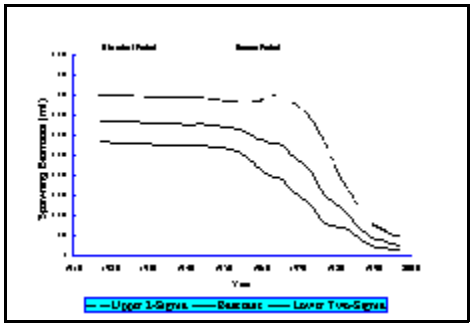
Cowcod Spawning Biomass Trend, 1910-1999.

<u>Cowcod</u> (declared overfished in 2000)

Cowcod (*Sebastes levis*) is one of the largest West Coast rockfish. The maximum recorded size is 37 inches (94 cm), but larger specimens have been reported. Adults are uniform pale pink to orange in color. Young fish have four dark vertical bands on their sides which gradually fade into dusky blotches as they increase in size. Their heads are large and spined, the dorsal fins are deeply notched, and there is an unusually wide space between the eye and the upper jaw. The diet of the cowcod includes mainly fishes, octopus, and squid. Juvenile cowcod eat small shrimp and crabs. New age and growth data indicate that cowcod are long lived, slow growing, and become sexually mature at the relatively old age of 12 years. The maximum age for this species is estimated to be 75 years, which corresponds to an estimated mean generation time of 37 years. As with other members of the genus *Sebastes*, fertilization is internal, and females give birth to planktonic larvae during the winter. The larvae are free floating and may be found in shallower water; however, as they grow larger they move to deep water rocky environment. Adults are usually associated with rocky bottoms, particularly where there are sharp, steep drop-offs. They typically inhabit the continental slope and upper continental shelf, from about 100-200 fathoms (fm) (about 150 meters to 350 meters). Larvae and juveniles are planktonic for up to three months and likely to disperse long distances before settling to the bottom.

The cowcod resource in the Conception area south of Point Conception is overfished, with the current spawning biomass estimated to have fallen to between 4% and 11% of the unfished abundance (Butler et al. 1999). The minimum time that would be required for this stock to recover to its maximum sustainable yield stock size, in the absence of all fishing-related mortality, is calculated to be 42 to 80 years, assuming constant average recruitment over the entire time span. The mean value is 61 years.

The Council adopted a rebuilding strategy that specifies the rebuilding period for cowcod in the Conception area to be 95 years. The harvest rate specified is 1% per year. Given the estimated current stock size of 238 mt in 2001, the initial fishing mortality was 2.4 mt (roughly 5,200 pounds), which is the same harvest level recommended for 2002. This is equivalent to only a few hundred fish. Such a low fishing mortality rate can only be achieved if no target fishing for this stock is allowed and significant bycatch reduction measures are imposed. The Council adopted no retention restrictions in 2001 to eliminate target fishing. The primary bycatch reduction provisions adopted by the Council in 2001 were area closures and gear restrictions. The Council chose to close two areas (about 6,000 nm^2), specifying that all groundfish fishing is prohibited except in certain shallow areas where cowcod are unlikely to be encountered. Gear restrictions include mandating small footropes (≤8 inches in diameter) in commercial trawls that land shelf rockfish, prohibiting chafing gear on trawls that land shelf rockfish, and reducing the number of hooks allowed by anglers in California waters.



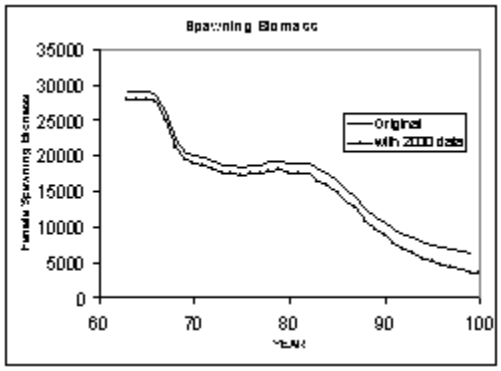
Darkblotched Rockfish (declared overfished in 2001)

The darkblotched rockfish (*Sebastes crameri*) resource extends from the Bering Sea to near Santa Catalina Island, California on soft bottom at 29-549 m, usually deeper than 76 m. Catches of darkblotched rockfish in NMFS surveys extend into Canada but few are caught in southern California. Darkblotched rockfish commercial fishery landings are highest in ports located centrally along the Pacific West Coast in northern California and Oregon. The depth range is primarily 50-200 fm. In the 1998 NMFS triennial survey, 99% of the estimated darkblotched rockfish biomass was in less than 200 fm. The 1999 NMFS slope survey found 91% of the darkblotched rockfish estimated biomass was in 100-200 fm, with the balance in 200-300 fm. There is no indication of the presence of more than one stock along the coasts of California, Oregon, and Washington. There are no distinct breaks in the survey catch distributions or the fishery landings distributions. The 2000 assessment treated the species as a unit stock from the Mexican border to the U.S./Canada border (Rogers et al. 2000). Darkblotched rockfish migrate to deeper waters with increasing size and age, and males are generally smaller than females at age and in the fishery. Darkblotched rockfish are caught almost entirely with commercial trawl gear as part of a complex of slope rockfish that includes POP, splitnose rockfish, yellowmouth rockfish, and sharpchin rockfish.

The 2000 assessment indicated the stock is overfished, with the best estimate of current biomass about 14% of the initial unexploited biomass. A major uncertainty in the assessment is the portion of the red rockfish catch in the Russian fishery from 1965-1978 that was darkblotched rockfish. Although the majority of the Russian catch was POP, some portion of the catch labeled as "red rockfish" was likely darkblotched rockfish. A retrospective analysis of foreign fleet catches is underway, the results of which are expected to be incorporated in the next assessment of darkblotched rockfish.

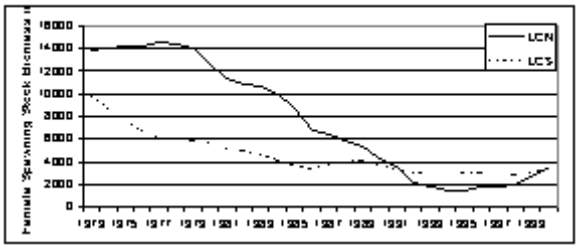
A revised rebuilding analysis for darkblotched rockfish was adopted by the Council in September 2001. The analysis indicated that darkblotched rockfish could reach target biomass in 14 years in the absence of fishing and, with a mean generation time of 33 years, the maximum time to rebuild the stock would be 47 years. The Council also adopted three preliminary rebuilding trajectories corresponding to 80%, 70%, and 60% probabilities of rebuilding within the specified time frame of 47 years. The respective total catch OYs recommended for 2002 based on these probabilities are 157 mt, 168 mt and 181 mt.

Lingcod (declared overfished in 1999)



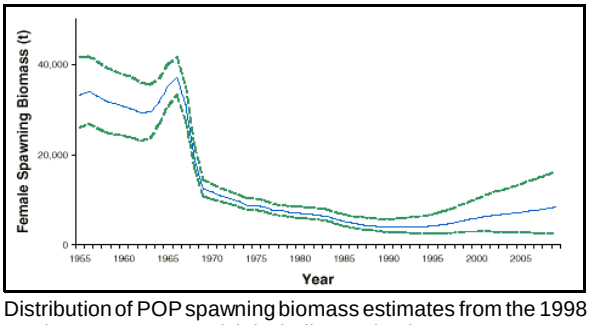
Lingcod (*Ophiodon elongatus*) are top order predators of the family Hexagrammidae. The species ranges from Baja California to Kodiak Island in the Gulf of Alaska and its center of abundance is near British Columbia and Washington. The West Coast portion of the lingcod resource is currently considered to be one continuous population that extends into British Columbia. Lingcod are demersal on the continental shelf, most abundant in waters less than 200 meters deep, and distributed in patches among areas of hard bottom and rocky relief. Lingcod are considered non-migratory, although some tagged individuals have moved exceptional distances and indirect evidence suggests a seasonal onshore movement associated with spawning. Fishery and survey data indicate male lingcod tend to be more abundant than females in shallow waters, and the size of both sexes increases with depth. In late fall, male lingcod aggregate and become territorial in areas suitable for spawning. Mature females are rarely observed at the spawning grounds and it is assumed they move into spawning areas only long enough to deposit their eggs. After the females leave, the males remain and guard the nests until the eggs hatch, typically by April in Washington but as early as January and as late as June at the geographic extremes. Lingcod are about 27 cm at one year and 47 cm at two years. At this point, females begin to grow faster than males. Males begin maturing at about 2 years and 50 cm, whereas females mature at 3+ years and 76 cm. In the northern end of their range, fish mature at an older age and larger size. Maximum age is about 20 years.

In 1997, U.S. scientists assessed the size and condition of the portion of the stock in the Columbia and Vancouver areas (including the Canadian portion of the Vancouver management area), concluding the stock had fallen to below 10% of its unfished size (Jagielo et al. 1997). The Council responded by imposing substantial harvest reductions coastwide, reducing the harvest targets for the Eureka, Monterey and Conception areas by the same percentage as in the north. In 1999, scientists assessed the southern portion of the stock, concluding the condition of the southern stock is similar to the northern stock and thus confirming the Council had taken appropriate action to reduce harvest coastwide (Adams et al. 1999). A coastwide assessment prepared in 2000 concluded the total biomass increased from 6,500 mt in the mid-1990s to about 8,900 mt in 2000 (Jagielo et al. 2000). In the south, the population has also increased slightly from 5,600 mt in 1998 to 6,200 mt in 2000. In addition, the assessment concluded that previous aging methods portrayed an older population; whereas new aging efforts showed the stock to be younger and more productive. Therefore, the ABC and OY were increased in 2001 on the basis of the new assessment. A revised rebuilding analysis of coastwide lingcod was adopted by the Council in September 2001. It confirmed the major conclusions of the 2000 assessment and rebuilding analysis, but slightly modified recruitment projections to stay on the rebuilding trajectory that reaches target biomass in 2009. This modification resulted in a slight decrease in the 2002 ABC and OY (except for the status quo alternative).



Pacific ocean perch (declared overfished in 1999)

Pacific ocean perch (POP) (*Sebastes alutus*) inhabit the continental slope from Japan and the Bering Sea to southern California. The West Coast stock extends from the U.S./Canada border to northern California. Typically, POP are light red above, whitish below, and have dark saddles along the back. There is often olive-green stippling below the soft dorsal fin. POP are slow-growing and long-lived with slower growth in males. The maximum age has been estimated at about 90 years. Largest size is about 54 cm and 2 kg. POP primarily inhabit waters of the upper continental slope and are found along the edge of the continental shelf. POP occur as deep as 825 m but usually are found at 100-450 m. Throughout its range, the species is generally associated with gravel, rocky or boulder type substrate found in and along gullies, canyons, and submarine depressions of the upper continental slope. During the summer POP primarily inhabit waters 180-220 m in depth, but during the winter they inhabit waters greater than 275 m. POP winter and spawn in deeper water (>275 m), then move to feeding grounds in shallower water (180 - 220 m) in the summer (June - August) to allow gonads to ripen. POP bear live young which are released as larvae in depths of 360-400 m. Juveniles are confined to shallow portions of the bathymetric range over rough or rocky bottoms. Most fish 10 years or younger are found in the shallow and intermediate portion of the bathymetric range. Adults form large schools 30 m wide, to 80 m deep, and as much as 1,300 m long. They also form spawning schools. Juvenile POP form ball-shaped schools near the surface or hide in rocks.



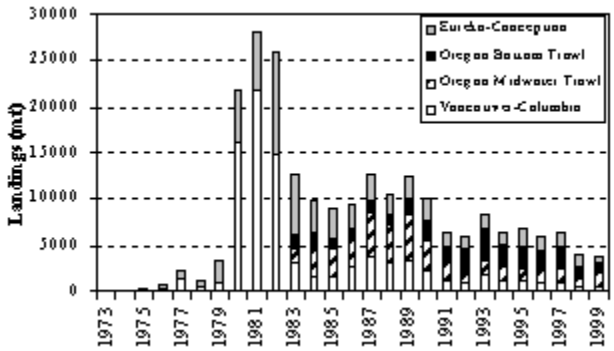
Distribution of POP spawning biomass estimates from the 1998 stock assessment model, including projections.

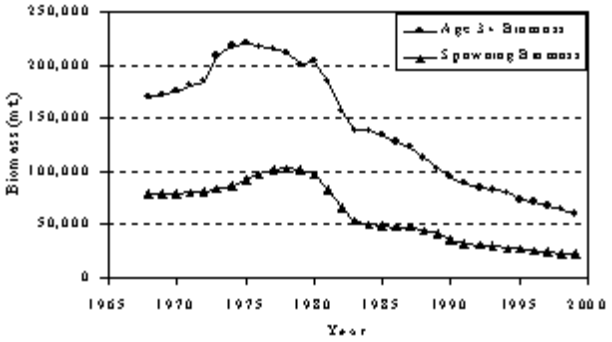
The POP resource off the West Coast was overfished by foreign vessels before implementation of the FMP. State and federal rebuilding efforts have been in place since the early 1980s, but POP stock levels remain low. In 1998, the POP stock assessment confirmed the stock is overfished (Ianelli and Zimmerman 1998). The 1998 assessment estimated the current biomass to be 13% of its initial level. A new assessment for POP was done in 2000 which indicated the stock was more productive than originally thought (Ianelli et al. 2000). A revised POP rebuilding analysis was completed and adopted by the Council in 2001. This analysis estimated a minimum time to rebuild in the absence of fishing of 12 years and a maximum time of 42 years. The Council-adopted preliminary total catch OYs for 2002 (and their respective probabilities of rebuilding the stock within the specified time period) were 290 mt (80%), 350 mt (70%), and 410 mt (60%). It was noted in the rebuilding analysis that the ongoing retrospective analysis of historic foreign fleet catches is likely to change projections of POP rebuilding downward.

Widow Rockfish (declared overfished in 2001)

Widow rockfish (*Sebastes entomelas*) is an important commercial groundfish species belonging to the scorpionfish family (Scorpaenidae). It ranges from southeastern Alaska to northern Baja California, where it frequents rocky banks at depths of 25-370 m. In those habitats it feeds on small pelagic crustaceans and fishes. There is no evidence that separate genetic stocks of widow rockfish occur along the Pacific coast. Female widow rockfish attain a larger size compared to males, and fish in the northern part of the range tend to be larger at age compared to those in the south. Aggregations of this species form at night and disperse at dawn, an atypical pattern for rockfish.

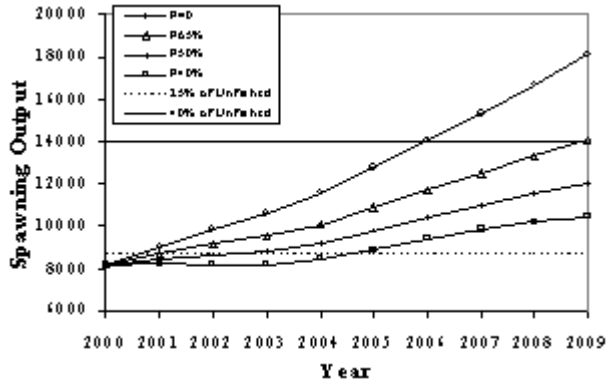
Large concentrations of widow rockfish had evidently gone undetected prior to late 1972, when a midwater trawl fishery for the species developed. U.S. commercial catches of widow rockfish began in 1973 (117 mt)





and peaked in 1981 at 28,146 mt. Since then, landings of widow rockfish have declined steadily to 3,761 mt in 1999, due in large part to more restrictive OY specifications and management measures (trip limits). Since the fishery first developed, substantial landings of widow rockfish have been made in all three West Coast states. The dominant gear type historically has been midwater trawl, but in recent years bottom trawl catches have nearly matched the midwater trawl catches. A major factor in this has been the ever-decreasing trip limits that make it less economical to target widow rockfish with midwater gear, and easier to reach the limit merely by retaining incidental catch taken with bottom trawl gear. Management of the fishery began in 1982 when trip limits of 75,000 pounds were introduced in an effort to curb the rapid expansion of the fishery. Trip limits were reduced to 30,000 pounds in 1983 and the fishery was managed by alteration of trip limits within the fishing season. An ABC of 10,500 mt was instituted in 1983. In 1989, the Council set a 12,100 mt harvest guideline. From 1994-1997 the harvest guidelines were reduced to 6,500 mt and then further reduced to 5,090 mt. Stock biomass has shown a steady decline since 1975, soon after the fisheries for widow rockfish began.

The most recent assessment of the widow rockfish stock was done in 2000 (Williams et al. 2000). The spawning output level (8,223 mt), based on that assessment and a revised rebuilding analysis adopted by the Council in June 2001, was at 24.6% of the unfished level (33,490 mt) in 1999, which was computed using the average recruitment from 1968-79 multiplied by the spawning output-per-recruit at F=0. The analysis concluded that the rebuilding period in the absence of fishing is 22 years and, with a mean generation time of 16 years, the maximum allowable time to rebuild is 38 years.



The 2001 widow rockfish ABC (3,727 mt), which is proposed for 2002, is based on the current biomass and an $F_{50\%}$ harvest rate. The preliminary 2002 OYs for widow rockfish adopted by the Council in September 2001 are 726 mt, 777 mt, and 856 mt. These OYs represent rebuilding trajectories with corresponding probabilities to achieve target biomass within the specified time frame of 80%, 70%, and 60%, respectively.

Yelloweye Rockfish (to be declared overfished in 2002)

Yelloweye rockfish (*Sebastes ruberrimus*) are a highly prized species in both commercial and recreational fisheries due to their large size and fillet quality. They have an orange-yellow color washed with pink on the back and sides. The fins are pink shaded, often with black on the tips. There is a marked change in coloration of yelloweye as they mature. Juveniles have two pale stripes running along their lateral surfaces, with only one pale stripe in adults that can disappear altogether in the oldest individuals. Yelloweye are distributed along the West Coast from Ensenada, Baja California to the Gulf of Alaska in high relief, rocky habitats at depths between 15 and 550 m. They are a large sized (up to 91 cm), long-lived (up to 118 years), late maturing, and relatively sedentary rockfish. These life history traits make yelloweye particularly susceptible to overfishing. Although they do tend to have a high fidelity to particular areas with little evidence of migration, there is no evidence of genetic stock structure throughout their range. Yelloweye are readily taken with line gear but are much less common in bottom trawl catches. Trawl catches of yelloweye have been further reduced with the small footrope restrictions put in place on the shelf since 2000. Decompression and temperature shock account for high rates of yelloweye mortality. Yelloweye have a varied diet of forage fish, other rockfishes, crustaceans, and have been known to eat lingcod spawn.

A yelloweye rockfish stock assessment was done for the first time in 2001 (Wallace 2001). This assessment incorporated two area assessments: one from northern California using CPUE indices constructed from Marine Recreational Fishery Statistical Survey (MRFSS) sample data and CDFG data collected on board Commercial Passenger Fishing Vessels, and the other from Oregon using ODFW sampling data. The assessment concluded that current yelloweye stock biomass is about 7% of unexploited biomass in northern California and 13% of unexploited biomass in Oregon. The assessment indicated a thirty year declining biomass trend in both areas with the last above average recruitment occurring in the late 1980s. The assessment conclusion that yelloweye rockfish biomass was well below the 25% of unexploited biomass threshold for overfished stocks led to this stock being separated from the rockfish complexes in which it was previously listed. Previously, yelloweye were listed in the "remaining rockfish" complex on the shelf in the Vancouver, Columbia, and Eureka INPFC areas and the "other rockfish" complex on the shelf in the Monterey and Conception areas. As with the other overfished stocks, yelloweye harvest will be tracked separately starting in 2002.

Although a rebuilding analysis has not yet been done for yelloweye, the assessment author and the GMT analyzed the recruitment data and projected a reasonable range of ABCs and OYs for 2002 fisheries. They recommended a coastwide ABC of 27 mt and a range of total catch OYs of 4-11 mt. In September the Council adopted a preliminary total catch OY of 11 mt for yelloweye in 2002.

3.2.1.2 "Precautionary Zone" Stocks

Dover sole

The Dover sole (*Microstomus pacificus*) is a deep water flatfish that ranges from northern Baja California to the Bering Sea and inhabits depths up to 800 fathoms. Dover sole have an extended pelagic larval phase that can last over one year. Larval dispersal is considered to be extensive due to the extended larval phase and the influence of Pacific Coast currents. Recruitment is probably correlated to variation in current patterns and ocean regime shifts. Adult Dover sole are relatively sedentary with no evidence of extensive latitudinal movements. They do, however, make seasonal migrations from the continental slope to the shelf in the spring and back to the slope in the fall to spawn. Harvest of Dover sole is done exclusively by trawl gear.

The 1997 Dover sole assessment north of the Conception area provided landed catch OYs based on the $F_{40\%}$ harvest rate (Brodziak et al. 1997). The GMT recommended a 2001 total catch OY of 7,151 mt, which is the average of yields calculated for 2000-2002 at $F_{40\%}$, inflated to reflect 5% discard. The FMP set the original ABC for the Conception area at 1,000 mt based on average landings. For 1998, this was inflated to reflect 5% discard for a total catch ABC of 1,053 mt. The coastwide total catch ABC is 8,204 mt. To calculate the total catch OY (7,677 mt), the GMT reduced the Conception area's OY contribution by 50% (to 526 mt), consistent with the new harvest policy. The landed catch target was than calculated to be 95% of OY, or 7,293 mt.

The 1997 Dover sole stock assessment treated the entire population from the Monterey area through the U.S.-Vancouver area as a single stock based on recent research addressing the genetic structure of the population. The assessment author generated projections of spawning biomass and expecting landings for 1998 to 2000 under a variety of harvest policies and three recruitment scenarios. The hypothetical harvest policies ranged from an immediate reduction to the $F_{45\%}$ harvest rate to an increase up to the $F_{20\%}$ harvest rate. In all cases, for each of the low, medium, and high projected recruitments, the expected spawning biomass increased from the estimated year-end level in 1997 through the year 2000 due to growth of the exceptionally large 1991 year class and to the lower catches observed in the fishery since 1991.

A new assessment of the Dover sole stock was done in 2001 indicating current spawning stock size to be about 29% of the unexploited biomass (Sampson and Wood 2001). Recent abundances appear to be without trend, but were preceded by a steady decline since the late 1950s. The last strong year class was the one produced in 1991, which confirms the findings of the 1997 assessment. Poor ocean conditions associated with the El Niños in the 1990s have likely affected Dover sole recruitment. The 2001 assessment authors projected five years of Dover sole harvest levels based on preferred, optimistic, and pessimistic projections of recruitment. These options varied the harvest rate from $F_{40\%}$ (the current F_{MSY} proxy) to $F_{50\%}$. The Council adopted a range of preliminary ABCs and total catch OYs for Dover sole harvest in 2002 based on the preferred recruitment projections. These recommended harvest levels (with associated harvest rates) were an ABC of 6,142 mt and an OY of 5,520 mt ($F_{50\%}$), an ABC of 7,221 mt and an OY of 6,410 mt ($F_{45\%}$), and an ABC of 8,510 mt and an OY of 7,440 mt ($F_{40\%}$). These harvest levels were calculated according to the Council's "40-10" policy consistent with the stock's status in the "precautionary zone". In September the Council chose the $F_{45\%}$ harvest specifications as their preferred alternative.

Pacific Whiting

Pacific whiting, also known as hake (*Merluccius productus*), are a semi-pelagic roundfish distributed from the Gulf of California to the Gulf of Alaska and east to Asia in depths from 0-500 fathoms (usually in depths <125 fathoms). They are similar to true cods, but are in the family Merlucciidae due to some differences in internal and external structures. There are genetic differences between the West Coast whiting population and those found in the larger, semi-enclosed inlets of Puget Sound and the Strait of Georgia as well as the southern stock off Baja California. Only the main coastal population off the Pacific Coast waters of Washington, Oregon, and California are within Council purview and addressed here. The coastal Pacific whiting stock ranges from southern California to Queen Charlotte Sound. Spawning occurs off southern California during January to March and then the stock migrates northward to feed in the waters off the continental slope and shelf from northern California to Vancouver Island.

The Pacific whiting fishery on the West Coast started as a foreign fleet fishery in 1966 and evolved into a joint venture fishery in the 1980s. It became an entirely domestic fishery by 1989 and the largest and most profitable West Coast groundfish fishery after the advent of surimi production technology and development

of the process to inhibit myxozoan-induced proteolysis. The Pacific whiting fishery is annually assessed and managed jointly with the Canadian Department of Fisheries and Oceans. A total U.S./Canada ABC is determined from the assessment and the U.S. portion has been 80% of the ABC. The primary whiting fishery in the U.S. typically occurs from April through October (or until the OY is attained) with differential start and end dates for the shore-based, catcher/processor, and mothership sectors of the fishery. These sectors operate with their own allocations (42% shore-based, 34% catcher/processor, and 24% mothership) which are calculated after the tribal portion is taken off the top of the total catch OY. A "40-10" adjustment is made to the ABC to calculate the OY (with an $F_{40\%}$ MSY proxy harvest rate) since this stock is in the "precautionary zone".

A 1998 assessment concluded the stock was at moderate abundance (Dorn et al. 1999). Stock biomass increased to a historical high of 5.7 million mt in 1987 due to exceptionally large 1980 and 1984 year classes, then declined as these year classes passed through the population and were replaced by more moderate year classes. Stock size has been relatively stable over the past four years at 1.7-1.8 million mt. The mature female biomass in 1998 was estimated to be 37% of an unfished stock. Although 1998 stock size was near a historical low, it was close to average stock size under current harvest policies. The exploitation rate was below 10% prior to 1993, then increased to 17% during 1994-98. An update of the 1999 assessment was prepared in 2000 (Helser et al. 2000). The fishery age composition and recruitment indices showed no indication of strong recruiting year classes, suggesting a continuing pattern of weak to moderate year classes consistent with the 1998 assessment. Yield projections from the 2000 assessment update for 2001 were within 5% of the projected yield for the 1998 model. The 1998 model projections were used to obtain the 2001 ABC. Whiting catch in 2000 will be approximately 75% of the ABC due to the scarcity of fishable aggregations of whiting off northern Washington and southeast Vancouver Island during the summer season. The 1999 and 2000 OYs were based on an average value for the two years as the stock declined in abundance. The 2001 OY (190,400 mt) was lower than the previous OY due to the current lower abundance. The GMT is recommending the same ABC (238,000 mt) and total catch OY for 2002 pending a new whiting stock assessment early next year.

Sablefish

Sablefish, also known as blackcod (*Anoplopoma fimbria*), are a deep water roundfish highly prized in commercial markets for their taste and oil content. They range from southern Baja California to the central Bering Sea, west to Kamchatka and south to Hokkaido, Japan in depths usually from 150-500 fathoms, but have been found in waters 1,000 fathoms and deeper. Eggs and larvae are pelagic. They spawn in the winter months in deep water off the continental slope. Sablefish are highly migratory; tagging studies have documented migrations of up to 2,700 miles. There are at least three genetically distinct populations on the West Coast of North America: one south of Monterey characterized by slower growth rates and smaller average size, one that ranges from Monterey to the U.S./Canada border that is characterized by moderate growth rates and size, and one ranging off British Columbia and Alaska characterized by fast growth rates and large size. The second stock that ranges between California and Washington is the one actively assessed and managed within the Council purview.

The 2001 sablefish ABC (7,661 mt) was based on the $F_{45\%}$ harvest rate, and the OY (6,895 mt) on application of the 40-10 harvest policy (the stock was estimated at 37% of the initial biomass). The OY applied north of 36˚ N latitude. A 25% trawl discard rate was based on discard rates observed in the mid to late 1980s. The GMT assumed an average mortality rate of 70% for discarded fish, which may have been too low for a predominantly summer fishery and too high for a winter fishery.

In 2001 two new stock assessments were done for the sablefish stock north of Monterey (Hilborn et al. 2001, Schirripa and Methot 2001). Both assessments confirmed the lack of recent recruitment in the stock with the last strong recruits coming from the 1990 year class. The resulting biomass trends were all downward with current estimated female spawning biomass ranging between 27% and 38% of unexploited biomass depending on the assessment and the recruitment scenario. Recruitment scenarios in both assessments hinged on competing hypotheses where sablefish recruitment was most affected by density dependence or environmental regime shifts. These different states of nature affecting recruitment and resulting projections of future biomass were most pessimistic under the density dependent hypothesis where the stock is projected to reach the overfishing threshold in the next few years according to either assessment. Even under the more optimistic regime shift hypothesis some projections indicated a risk of the stock slipping into overfishing status. Therefore, the assessment authors and the GMT recommend consideration for more conservative harvest rates for sablefish in the next few years as a further precaution against stock declines. Besides a status quo

$F_{45\%}$ harvest rate specification where the 40-10 adjustment is made relative to current biomass, an option of an $F_{50\%}$ harvest rate, and an intermediate ramp down strategy where, beginning in 2002, the harvest rate is reduced successively from $F_{45\%}$ to $F_{50\%}$ in the next few years. Relative to these options, which the Council adopted for consideration in September, the ABCs/OYs would be 4,786 mt/4,500 mt ($F_{45\%}$), 4,062 mt/3,200 mt ($F_{50\%}$), and 4,786 mt/4,000 mt (ramp down). The Council specified the ramp down OY option (4,000 mt) as its preferred option. These harvest levels would apply for the assessed area north of Point Conception to the U.S./Canada border. Sablefish 2002 harvest specifications recommended for south of Point Conception are the same as 2001 with the ABCs and OYs adjusted for the area south of Point Conception. It is noted that the Council is free to specify harvest levels for any part of the coast and may consider boundary changes while doing so. However, changing the area boundaries where fixed gear permit stacking is allowed (Amendment 14 of the FMP) would require an FMP amendment. It is expected that further survey results, such as those from the 2001 NMFS shelf and slope surveys, could resolve the issue of the competing states of nature hypotheses affecting sablefish recruitment. Confirmation of great relative abundance of juvenile sablefish, as has been reported by many West Coast fishermen this summer, might support the more optimistic environmental regime shift hypothesis as the principal dynamic affecting recruitment.

Shortspine Thornyhead

Shortspine thornyhead (*Sebastolobus alascanus*) is a major component of the deepwater fishery on the continental slope, especially the trawl fishery for Dover sole, thornyheads and sablefish (referred to as the DTS complex). Shortspine thornyhead are widely distributed from northern Baja California to the Bering Sea at depths of 50-800 fathoms. The status of this stock is subject to substantial public debate; the species is one of the most numerous components of the slope ecosystem. However, this is an especially long-lived species and cannot sustain aggressive harvest rates. It is taken coincidentally with Dover sole, sablefish, and longspine thornyhead, especially in the upper slope and lower shelf; in deeper water, longspine thornyhead is a more predominate species. The two thornyhead species are often difficult to distinguish, and historical landings data combine the two into a single category. Shortspine thornyhead is a “constraining species” in the deepwater fishery; that is, coincidental catch of this species prevents full harvest of Dover sole and sablefish.

The individual assessments for shortspine thornyhead and longspine thornyhead in 1997 covered the area from central California at 36^{o} N latitude (the southern boundary of the Monterey management area) to the U.S./Canada border (the northern boundary of the U.S.-Vancouver management area) (Rogers et al. 1997). The STAR Panel expressed concern that current management requires more detailed information on thornyheads than can be obtained from the available data. Given the kinds and quality of data, there are major uncertainties in the assessments regarding: 1) growth and natural mortality for shortspine thornyhead, 2) problems with separating longspine and shortspine thornyheads in the historic landings, 3) difficulties estimating year class strength, and 4) unknown discard rates.

The 2001 shortspine thornyhead ABC (757 mt) is based on a synthesis of two stock assessments prepared in 1998 (NMFS STAT and OT STAT 1998, Rogers et al. 1998) and application of the $F_{50\%}$ harvest rate. The 2001 shortspine thornyhead ABCs and OYs were separately specified north and south of 36° N latitude, which is the northern boundary of the Conception area. The stock size was estimated to be 32% of the unfished abundance in 1999. The 2001 OY (689 mt) was based on $F_{50\%}$ and the 40-10 policy. The landed catch equivalent reflected a 20% reduction for discard.

A new assessment of shortspine thornyhead in 2001 was also fraught with uncertainty, not the least of which is the current biomass (Piner and Methot 2001). The assessment was extended south to Point Conception (past surveys were to the Monterey/Conception area boundary at 36° N. latitude). The authors concluded that the current spawning biomass ranges between 25% and 50% of unexploited spawning biomass. The uncertainty in current abundance largely revolved around the uncertainty in recruitment and survey Q, or catchability, of shortspine thornyhead in slope surveys. The authors also concluded that the trend in stock biomass is increasing and that the stock was currently not overfished. Based on the current biomass and application of the GMT-recommended F=0.75M principle (which approximates an $F_{50\%}$ proxy harvest rate for shortspine thornyhead), the assessment authors and GMT recommended a slight increase in the ABC and OY for 2002 and combining the previous Monterey area north and Conception area specifications to a coastwide one. Despite the uncertainty in biomass estimates and determination of whether shortspine thornyhead should be treated as a "precautionary zone" stock, these recommendations did treat the stock as such by applying a "40-10" adjustment. The GMT-recommended coastwide ABC is 1,004 mt and the associated total catch OY is 955 mt. In September the Council adopted the GMT recommendation as an

option, but also adopted last year's ABC and OY as an option (the combined ABC and OY for 2001 was 880 mt and 751 mt, respectively). The Council did not specify a preferred option.

3.2.1.3 Stocks at or Above Target Levels

Yellowtail Rockfish

An assessment of yellowtail rockfish (*Sebastes flavidus*) in the Eureka, Columbia, and Vancouver areas was prepared in 2000, indicating the stock appears substantially more abundant than the previous assessment. The stock is now estimated to be at 63% of its pristine level. The 2001 ABC (3,146 mt) applies to the U.S. portion of the assessed area and is proposed for 2002 as well. Although the estimate of stock size has increased, the ABC is less than in 2000 due to application of the $F_{50\%}$ harvest rate. Because the stock appears to be larger than the MSY size, OY may equal ABC. However, the stock is expected to continue declining in the near future due to poor recruitment in recent years.

The Council manages the U.S. yellowtail rockfish fishery as two stocks separated at Cape Mendocino, California (40°30' N latitude.). The assessment evaluates four separate stock groupings: a coast-wide stock extending from Cape Mendocino to approximately 49°N. latitude, and three subarea stocks. Subarea stocks include: the Eureka/south Columbia stock extending from 40°30' N. latitude (Cape Mendocino) to 45°46' N. latitude (Cape Falcon); the northern Columbia stock extending north from Cape Falcon to 47°20' N. latitude (Cape Elizabeth); and, the southern Vancouver stock reaching north from Cape Elizabeth to approximately 49°N. latitude.

U.S. yellowtail rockfish catch increased from 1,200 mt in 1967 to 9,500 mt in 1983. After imposition of specific yellowtail rockfish trip limits in 1985, catch declined markedly. Over the past five years, 1995-1999, annual U.S. catch has averaged 4,300 mt. Coast-wide catch (including Canada) increased from 5,000 to 7,800 mt or 56% from 1991 to 1992, then gradually declined to 6,900 mt in 1995. In 1996, landings rose sharply to 8,300 mt due to a strong Canadian catch. Severe restrictions on the U.S. fishery dropped coast-wide landing to 2,900 mt in 1997. Since then, landings have gradually increased to 4,500 mt in 1999.

The 2001 assessment estimated coast-wide biomass was 69,400 mt. Estimated 1997 biomass was 80,800 mt compared with 56,700 mt estimated in the prior assessment. The revised estimates of biomass are higher than those estimated in the 1997 assessment reflecting the sensitivity of the model to the trawl survey biomass index and assumptions about increases in effective effort of the fleet. Biomass trend in the 2000 assessment shows a period of stability in the mid-to-late 1980s extending through 1995, with recent biomass trending down. Year 2000 biomass was 50% of the 1967 estimated biomass and spawning biomass was estimated to be 158% of the target spawning biomass ($SPB_{40\%}$).

There is no obvious spawner/recruit relationship. Median (1967-2000) annual recruitment is 11.0 million fish at age 4, with average recruitment reaching 13.6 million. The 1989 and 1990 year classes (age 4 in 1993 and 1994) were the last to be above average. The 1995 through 1998 recruitment estimates are about half the median estimate. The 2000 assessment suggests that recruitment is more volatile than depicted in the 1997 assessment, particularly for recent years.

Fishing mortality peaked in 1983 the last year of essentially unconstrained removals. After imposition of trip limits on the "*Sebastes* Complex", fishing mortality declined to a low in 1985, and then increased until 1996. Following the 1996 stock assessment, more severe catch restrictions were imposed and fishing mortality dropped to a modern era low in 1997. Since 1997 fishing mortality has climbed back to the 1985 level. Over the last 18 years yellowtail rockfish trip limits have been ineffective at constraining catch within the harvest guideline set for the US fishery. In 14 of the last 18 years, total catch (including estimated discard) exceeded the harvest guideline by more than 10%. Since 1983 annual estimated catch has averaged 51% greater than the HG. In the last 10 years catch has exceeded the HG by 26% and over the last 5 years by 11%. Total catch has exceeded the Council ABCs an average of 53%, 29% and 24% over the last 18, 10 and 5 years, respectively. Moreover, total catch has always exceeded the assessment's low estimate of ABC and has exceeded the high ABC 44% of the time since 1983.

Total stock biomass is projected to decline. This is consistent with the low level of recruitment experienced between 1995 and 1998 and the fact that the stock is above the target level biomass. Over the next two years recruitment from these below average year classes will form the heart of the fishery, which remains dependent on 7 to 14 year old fish. Spawning biomass in year 2003 is projected to be 112% to 125% of the $SPB_{40\%}$

depending on the model used. Based on stock specific yield projections, the assessment authors estimated that 14% of the yield should be harvested in the Eureka/ southern Columbia area, 42% in the northern Columbia area, and 44% in the southern Vancouver area. The assessment authors recommended the Council consider expected harvest by Canadian fishers in setting the ABC and OY for U.S. waters. From 1995 to 1999 the U.S. fisheries took on average 81% of the coast-wide catch of yellowtail rockfish.

The assessment authors suggested a more risk-averse harvest strategy could be selected by requiring a higher level of certainty in the projected yield. Cumulative probability profiles of projected yield facilitate such an estimate. For the coast-wide reference case model, and the $F_{50\%}$ SPR rate, the 3-year mean projected yield, consistent with a 75% probability that yield is no less than projected, is 3,600 mt, and the estimate consistent with a 25% probability that it is no more than projected is 5,400 mt. The lower estimate (3,600 mt) is approximately 80% of the mean point estimate (4,500 mt). The GMT is recommending the 2001 yellowtail rockfish harvest specifications for 2002.

Other Groundfish Stocks

As indicated at the beginning of Section 3.2.1, several other groundfish stocks are believed to be at or above their MSY biomass levels. This includes two flatfish species (English sole and petrale sole) and four rockfish species (shortbelly, chilipepper and yellowtail rockfish, and longspine thornyhead). These stocks have been assessed in previous years and are not discussed in this document. Information on these stocks is available in the Stock Assessment and Fishery Evaluation (SAFE) document (PFMC 2000). The majority of groundfish stocks have never been assessed in a quantitative manner and their status is unknown.

3.2.2 Endangered Species

NMFS issued Biological Opinions under the ESA on August 10, 1990, November 26, 1991, August 28, 1992,September 27, 1993, May 14, 1996, and December 15, 1999 pertaining to the effects of the groundfish fishery on chinook salmon (Puget Sound, Snake River spring/summer, Snake River fall, upper Columbia River spring, lower Columbia River, upper Willamette River, Sacramento River winter, Central Valley, California coastal), coho salmon (Central California coastal, southern Oregon/northern California coastal, Oregon coastal), chum salmon (Hood Canal, Columbia River), sockeye salmon(Snake River, Ozette Lake), and steelhead (upper, middle and lower Columbia River, Snake River Basin, upper Willamette River, central California coast, California Central Valley, south-central California, northern California, southern California). The biological opinions have concluded that implementation of the FMP for the Pacific Coast groundfish fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. NMFS has re-initiated consultation on the Pacific whiting fishery associated with the Biological Opinion issued on December 15,1999. During the 2000 whiting season, the whiting fisheries exceeded the chinook bycatch amount specified in the Biological Opinion's incidental take statement's incidental take estimates, 11,000 fish, by approximately 500 fish. The re-initiation will focus primarily on additional actions that the whiting fisheries would take to reduce chinook interception, such as time/area management. NMFS is gathering data from the 2001 whiting fisheries and expects that the re-initiated Biological Opinion will be complete by February 2002. During there initiation, fishing under the FMP is within the scope of the December15, 1999 Biological Opinion, so long as the annual incidental take of chinook stays under the 11,000 fish bycatch limit. The biological opinions have concluded that implementation of the FMP for the Pacific Coast groundfish fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. This action is within the scope of these consultations.

Since 1992, the shore-based whiting fishery has used Exempted Fishing Permits to allow vessel operators to land unsorted catch at shore-based processing facilities where state samplers monitor the number of salmon in landings. In 2000, 23% of the whiting landings were monitored by state samplers. Since 1991, all at-sea processors carried at least one NMFS-trained observer to collect data used to estimate total catch of salmonids by species. For 2000, it is estimated that 11,516 chinook, 86 coho, 18 pink, and 15 chum salmon were taken in the whiting fishery. Observer program data for the 2001 bottom trawl fishery is not available at this time. The incidental take statement permits an annual bycatch of 9,000 salmon in the non-whiting groundfish fisheries; but this figure is based on a fishery with significantly higher groundfish landings than will be available in 2002. Incidental salmon take in groundfish fisheries managed under the current overfished species rebuilding regime is likely to be lower than permitted in the incidental take statement.

3.2.3 Marine Mammals

The waters off Washington, Oregon, and California support a wide variety of marine mammals. Approximately thirty species, including seals and sea lions, sea otters, and whales, dolphins, and porpoise, occur within the EEZ. Many marine mammal species seasonally migrate through West Coast waters, while others are year round residents.

There is limited information documenting the interactions of groundfish fisheries and marine mammals, but marine mammals are probably affected by many aspects of groundfish fisheries. The incidental take of marine mammals, defined as any serious injury or mortality resulting from commercial fishing operations, is reported to NMFS by vessel operators. In the West Coast groundfish fisheries, incidental take is infrequent and primarily occurs in trawl fisheries (Forney et al. 2000) (Table 3.2.3-1). Indirect effects of groundfish fisheries on marine mammals are more difficult to quantify due to a lack of behavioral and ecological information about marine mammals. However, marine mammals may be affected by increased noise in the oceans, change in prey availability, habitat changes due to fishing gear, vessel traffic in and around important habitat (areas used for foraging, breeding, raising offspring, hauling-out), at-sea garbage dumping, and diesel or oil discharged into the water associated with commercial fisheries.

The Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) are the federal legislation that guide marine mammal species protection and conservation policy. Under the MMPA on the West Coast, NMFS is responsible for the management of cetaceans and pinnipeds, while the U.S. Fish and Wildlife Service (FWS) manages sea otters. Stock assessment reports review new information every year for strategic stocks (those whose human-caused mortality and injury exceeds the potential biological removal (PBR)) and every three years for non-strategic stocks. Marine mammals whose abundance falls below the optimum sustainable population (OSP) are listed as "depleted" according to the MMPA. Under the ESA, a species is listed as "endangered" if it is in danger of extinction throughout a significant portion of its range and "threatened" if it is one that is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range.

Under the ESA, threatened species occurring off the West Coast include:
Steller sea lion (*Eumetopias jubatus*) Eastern Stock,
Guadalupe fur seal (*Arctocephalus townsendi*), and
Southern sea otter (*Enhydra lutris*) California Stock.

Under the MMPA, depleted species occurring off the West Coast include:
Sperm whale (*Physeter macrocephalus*) WOC Stock,
Humpback whale (*Megaptera novaeangliae*) WOC - Mexico Stock,
Blue whale (*Balaenoptera musculus*) Eastern North Pacific Stock, and
Fin whale (*Balaenoptera physalus*) WOC Stock.

Fisheries that interact with species listed as depleted, threatened, or endangered may be subject to management restrictions under the MMPA and ESA. NMFS publishes an annual list of fisheries in the *Federal Register* separating commercial fisheries into one of three categories, based on the level of serious injury and mortality of marine mammals that occurs incidentally in that fishery. The categorization of a fishery in the list of fisheries determines whether participants in that fishery are subject to certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan requirements. The WOC groundfish fisheries are in Category III, indicating a remote likelihood of or no known serious injuries or mortalities to marine mammals.

Of the marine mammal species incidentally caught in WOC groundfish fisheries, the Steller sea lion is listed as threatened under the ESA, the Northern elephant seal may be within their OSP range, and there is insufficient data to determine the status of the harbor seal, California sea lion, Dall's porpoise, and Pacific white-sided dolphin relative to their OSP. None of these species are classified as strategic stocks under the MMPA. Based on its Category III status, the incidental take of marine mammals in the WOC groundfish fisheries does not significantly impact marine mammal stocks.

3.2.4 Seabirds

Over sixty species of seabirds occur in waters off the coast of Washington, Oregon, and California within the EEZ. These species include: loons, grebes, albatross, fulmars, petrels, shearwaters, storm-petrels, pelicans,

cormorants, frigate birds, phalaropes, skuas, jaegers, gulls, kittiwakes, skimmers, terns, guillemots, murrelets, auklets, and puffins. The migratory range of these species includes commercial fishing areas; fishing also occurs near the breeding colonies of many of these species.

Interactions between seabirds and fishing operations are wide-spread and have led to conservation concerns in many fisheries throughout the world. Abundant food in the form of offal (discarded fish and fish processing waste) and bait attract birds to fishing vessels. Of the gear used in the groundfish fisheries on the West Coast, seabirds are occasionally taken incidentally by trawl and pot gear but they are most often taken by longline gear. Around longline vessels, seabirds forage for offal and bait that has fallen off hooks at or near the water's surface, and are attracted to baited hooks near the water's surface, during the setting of gear. If a bird becomes hooked while feeding on bait or offal, it can be dragged underwater and drowned. Of the incidental catch of seabirds by longline groundfish fisheries in Alaska, northern fulmars represented about 66% of the total estimated catch of all bird species, gulls contributed 18%, Laysan albatross 5%, and black-footed albatross about 4% (Stehn et al. 2001). Longline gear and fishing strategies in Alaska are similar to some, but not all, of those used in WOC longline fisheries.

Besides entanglement in fishing gear, seabirds may be indirectly affected by commercial fisheries in various ways. Change in prey availability may be linked to directed fishing and the discarding of fish and offal. Vessel traffic may affect seabirds when it occurs in and around important foraging and breeding habitat and increases the likelihood of bird storms. In addition, seabirds may be exposed to at-sea garbage dumping and the diesel and oil discharged into the water associated with commercial fisheries.

The FWS is the primary federal agency responsible for seabird conservation and management. Under the Magnuson-Stevens Act, NMFS is required to ensure that fishery management actions comply with other laws designed to protect seabirds. NMFS is also required to consult with FWS if fishery management plan actions may affect seabird species that are listed as endangered or threatened. Under the ESA, a species is listed as "endangered" if it is in danger of extinction throughout a significant portion of its range and "threatened" if it is one that is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range.

Under the ESA, endangered species occurring off the West Coast include:
Short-tail albatross (*Phoebastria (=Diomedea) albatrus*),
California brown pelican (*Pelecanus occidentalis*), and
California least tern (*Sterna antillarum browni*).

Under the ESA, a threatened species occurring off the West Coast is the marbled murrelet (*Brachyramphs marmoratus*).

Information on the incidental take of seabirds by WOC groundfish fisheries is limited, but NMFS observers have been collecting seabird data in the at-sea processing Pacific whiting fishery since 1996 (Table 3.2.4-1). The recently implemented WOC groundfish observer program should supply additional information about the incidental take of seabirds in 2002 and beyond (NMFS 2001).

In response to increased concerns about the incidental take of seabirds, NMFS, FWS, and the Department of State (DOS) collaborated in 2001 to develop the U.S. National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries. The purpose of this plan is to provide national-level policy guidance on reducing the incidental take of seabirds in U.S. longline fisheries and to require NMFS, in cooperation with FWS, to conduct an assessment of all U.S. longline fisheries to determine whether an incidental take problem exists. This plan further requires NMFS, in cooperation with FWS, to work through the regional fishery management council process in partnership with longline fishery representatives to develop and implement mitigation measures in those fisheries where the incidental take of seabirds is a problem. During 2002, NMFS intends to assess seabird interactions with longline gear and evaluate the need for seabird incidental take mitigation and management measures.

3.2.5 Sea Turtles

Sea turtles are highly migratory; four of the six species found in U.S. waters have been sighted off the West Coast. Under the ESA, a species is listed as "endangered" if it is in danger of extinction throughout a significant portion of its range and "threatened" if it is one that is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. The green turtle (*Chelonia*

mydas), the leatherback turtle (*Dermochelys coriacea*), and the olive ridely turtle (*Lepidochelys olivacea*) are listed as endangered and the loggerhead turtle (*Caretta caretta*) is listed as threatened. The management and conservation of sea turtles is shared between NMFS and FWS.

Little is known about the interactions between sea turtles and West Coast commercial fisheries. The directed fishing for sea turtles in WOC groundfish fisheries is prohibited because of their ESA listings, but the incidental take of sea turtles by longline or trawl gear may occur. Sea turtles are known to be taken incidentally by the California-based pelagic longline fleet and the California halibut gillnet fishery. Because of differences in gear and fishing strategies between those fisheries and the WOC groundfish fisheries, the expected take of sea turtles by groundfish gear is minimal.

Sea turtles may be also indirectly affected by commercial fisheries. Sea turtles are vulnerable to collisions with vessels and can be killed or injured when struck, especially if struck with an engaged propeller. Entanglement in abandoned fishing gear can also cause death or injury to sea turtles by drowning or loss of a limb. The discard of garbage at sea can be harmful for sea turtles because the ingestion of such garbage may choke or poison them. Sea turtles have ingested plastic bags, beverage six-pack rings, styrofoam, and other items commonly found aboard fishing vessels. The accidental discharge of diesel and oil from fishing vessels may also put sea turtles at risk, as they are sensitive to chemical contaminates in the water.

The recently implemented WOC groundfish observer program should supply additional information about the incidental take of sea turtles in 2002 and beyond.

3.2.6 Salmon

Salmon caught in the US West Coast fishery have life cycle ranges that include coastal streams and river systems from central California to Alaska and oceanic waters along the United States and Canada seaward into the north central Pacific Ocean, including Canadian territorial waters and the high seas. Some of the more critical portions of these ranges are the freshwater spawning grounds and migration routes.

Chinook or king salmon (*Oncorhynchus tshawytscha*) and coho or silver salmon (*O. kisutch*) are the main species caught in Council-managed ocean salmon fisheries. In odd-numbered years, catches of pink salmon (*O. gorbuscha*) can also be significant, primarily off Washington and Oregon. Ocean salmon are caught with commercial and recreational troll gear. No other gears are allowed to take and retain salmon in the ocean fisheries. Small amounts of rockfish and other groundfish are taken as incidental catch in salmon troll fisheries. Troll gear is considered open access gear for the purpose of groundfish fishing regulations. Canary rockfish is the principle groundfish species of principle taken in the salmon troll fisheries.

3.2.7 Pink Shrimp

Pacific pink shrimp (*Pandalus jordani*) are found from Unalaska in the Aleutian Islands to San Diego, California, at depths of 25 - 200 fathoms (46 - 366 m). Off the U.S. West Coast these shrimp are harvested with trawl gear from northern Washington to central California between 60 and 100 fathoms (110-180 m). The majority of the catch is taken off the coast of Oregon. Concentrations of pink shrimp are associated with well-defined areas of green mud and muddy-sand bottom. Canary rockfish is the principle groundfish species of principle taken in the pink shrimp fishery. Pink shrimp fisheries are managed by the states of Washington, Oregon and California.

3.3 Human (Socioeconomic) Environment

The purpose of this section is to provide the context for the proposed fishery management actions. It is from this context that the reader can begin to extrapolate the impacts of the various fishery management alternatives under consideration by the Council.

Humans use fish in a variety of ways including as a food source, a resource base for businesses and jobs, recreation, and religious symbols. For some people, even the knowledge and certainty that a species or type of human community will continue to exist constitutes a valued part of their environment. Various types of values that humans place on fish and on human economic and social structures associated with fishing are affected by changes in fishing policy.

The impacts on the human environment may be assessed at a number of levels including:

1. Individuals that participate directly in fishing and fishery support activities.
2. Communities of association among fishery participants and related waterfront support activities (e.g. processors and gear manufacturers).
3. The geographic range of the social communities.
4. Individuals who value visiting the human communities or partake in non-consumptive observation of the natural environment.
5. Individuals outside the geographic area that have no direct interaction with the fish or communities but value the existence of the fish, the fishing community, or the ensemble of communities of association that make up the geographic area.
6. Individuals affected by the role of fish as an economic commodity (broad market level effects).

The primary form of information on the socioeconomic environment is harvest related statistics. There is little information available about the characteristics of the individual participants and their social relationships other than harvest. Information on the characteristics of the participants would allow a closer look at communities of association and how those communities fit within geographic communities. Examples include the Ballard community in Seattle with heavy Scandinavian influences, a Vietnamese fishing community of San Francisco Bay, and an Italian fishing community of southern California. Also included in these considerations are the Native American communities with an interest in the groundfish fisheries. These tribal communities are primarily found along the northwest coast. In most areas, fishers with a variety of ethnic backgrounds come together to form the fishing communities within local areas, drawn together by their common interests in economic and physical survival in an uncertain and changing ocean and regulatory environment. The following information on West Coast fisheries provides a simple look at the aggregated activities of individuals.

A variety of tables are provided on the commercial harvesting and processing of groundfish. Some of these tables are produced from a vessel perspective (e.g. displaying only the harvest of a certain group of vessels) and others are produced from a processor or community perspective (e.g. displaying all landings of seafood product on fish tickets). The following outline of tables by section provides a guide to assist the reader in quickly locating tables of particular interest. **Tables and figures are identified using the section number under which they are discussed followed by a number indicating the order of their appearance in that section (e.g. "TABLE 3.3.1.1-1a" is the first table in section 3.1.1.1*).*** All tables and figures appear at the end of this document.

Sub section	Species (spp) Categories (Cats)	Areas	Gear/User Cats	Temp-oral	Time Period	Data
3.3.1 Harvesters						
3.3.1.1 Overview	All (5 cats of Groundfish and 6-7 cats of other spp)	Coastal Total, (All West Coast Landings on Fish Tickets)	No Gear or User Divisions	Monthly and Annual	1986 1996 2000	Exvessel Value (Table 3.3.1.1-1; Figures 3.3.1.1-1 & 2)
	"	Region (All West Coast Landings on Fish Tickets)	"	"	2000	Exvessel Value (Tables 3.3.1.1-1; Figure 3.3.1.1-3)
	"	Region (Ocean Area Catch Only)	Limited Entry Vessels Only	"	2000	Exvessel Value (Table 3.3.1.1-2; Figure 3.3.1.1-4)
	"	"	Open Access Vessel Only	"	2000	Exvessel Value Tables and Figures Supplemental
	Pink Shrimp	Coast Total	Shrimp Trawl	Annual	1996-2000	Landings, exvessel revenue and vessels (Table 3.3.1.1-3)
	Salmon	Coast Total	Salmon Troll	Annual	1996-2000	Landings, exvessel revenue and vessels (Table 3.3.1.1-4)

Sub section	Species (spp) Categories (Cats)	Areas	Gear/User Cats	Temp-oral	Time Period	Data
3.3.1.2 Gear Group	All Groundfish Aggregated	Coastal Total and Regional (Council Managed)	By 8 Major Gear Groups(no LE/OA division)	Annual	1996 1999 2000	Exvessel Value, Metric Tons and Proportions. (Table 3.3.1.2-1, with whiting; Table 3.3.1.2-2, without whiting)
	Whiting	Coastal Total and Regional (Council Managed)	All (Predominantly Trawl)	Annual	1996 1999 2000	Landings and exvessel revenue (Table 3.3.1.2-3)
3.3.1.3 Seasonal Rounds	16 Cats of Groundfish and All West Coast Spp Aggregated (GF and nonGF)	Coastal Total and Regional. (Ocean Area Catch Only)	Groundfish divided between LE Trawl; LE Fixed Gear; OA Trawl & Troll; Other OA Gears	Monthly and annual	2000	Groundfish spp cats as a percent of total West Coast landings of all species, total exvessel value of groundfish aggregated by gear/user cat, total value of all West Coast landings (GF and nonGF). Tables 3.3.1.3-1 and 2.
3.3.1.4 Ports	All (3-6 Cats of Groundfish and 7 Cats of Other Spp)	Port Areas	" (except Open Access vessel aggregated as one category)	Annual	2000	Exvessel Value and Vessel Counts (Tables 3.3.1.4-1 and 2)
3.3.1.5 Harvest Complex	Each species complex	Major Regions	Each fishing strategy	Rate	Para-meter Esti-mates	Exvessel value of complex per pound of rebuilding species Any Tables or Figures will be Supplemental
3.3.1.6 Trawler Costs	None	Example	Large Trawler	Annual	2000	Cost schedule Any Tables or Figures will be Supplemental
3.3.1.7	Multiple	Coastal Total	Trawl, longline, fishpot	5 year period	1984-1998	Vessel counts and revenue totals by frequently used spp/gear combinations (Tables 3.3.1.7-1 through 3)
3.3.2 Processors						
	All (3-6 Cats of Groundfish and 7 Cats of Other Spp)	Port Areas	" (except Open Access vessel aggregated as one category)	Annual	2000	Buyer Counts (Table 3.3.2-1)
3.3.3 Recreational Fishers						
	All and Groundfish	Major Regions	N/A	Annual	1996-2000	Trips (Table 3.3.3-1)
	All	Major Regions	N/A	Annual	2001	Number of Charter Vessels (Table 3.3.3-2)
	All	Major Regions	N/A	Annual	2000	Trips and Local Income Impact Estimates (Table 3.3.3-3)
	Groundfish	Major Regions	N/A	Annual	2000	Trips and Local Income Impact Estimates (Table 3.3.3-4)
3.3.4 Tribal Fisheries						None
3.3.5 Communities						Commercial income impacts to be provided supplemental

3.3.1 Commercial Harvesters

3.3.1.1 Overview of West Coast Fisheries and Seasonality

The Pacific Coast commercial groundfish fishery is a year-round, multi-species fishery that takes place off the coasts of Washington, Oregon, and California. Most of the commercial groundfish harvest is taken by trawl, longline, and trap (or pot) vessels operating in the limited entry segment of the groundfish fishery. The limited entry program was established in 1994. All vessels that land groundfish without groundfish limited entry permits are classified as open access vessels. Several open access fisheries take groundfish incidentally or in small amounts; participants in those fisheries may use, with some restrictions, longline, vertical hook-and-line, troll, pot, setnet, trammel net, shrimp and prawn trawl, California halibut trawl, sea cucumber trawl, and other gears.

In 1996 groundfish comprised over 20% of the exvessel value of all marine and anadromous fish landed on West Coast landings receipts (Table 3.3.1.1-1 a, b and c). In 1996 the exvessel value of groundfish landings were up 17% as compared to 1986. By 2000, the exvessel value of groundfish landings had fallen 28% from the 1996 level (from $85.0 million to $61.3 million) and was 15% below the 1986 exvessel value. As a whole, exvessel value of West Coast landings dropped 24% between 1986 and 2000 (note: these values are adjusted for inflation and do not include at-sea whiting deliveries).

By value, West Coast landings tend to peak in the winter and late summer months (Table 3.3.1.1-1 and Figure 3.3.1.1-1). The height of the summer peak is largely influenced by the fixed gear sablefish fishery. In 1986 the groundfish fishery tended to occur at a more even rate on a year round basis. Landings by limited entry vessels comprise a large portion of the total groundfish landings (Table 3.3.1.1-2 and Figure 3.3.1.1-2).

From the Oregon/Washington border to Cape Mendocino groundfish comprises the vast majority of the commercial fishing value (Figure 3.3.1.1-3). When the activities of limited entry vessels are isolated from other commercial fishing opportunities, a similar pattern is seen for the Washington coast (Figure 3.3.1.1-4).

Coastwide, in terms of numbers of limited entry vessels participating in any fishery (including non-groundfish vessels), the lowest participation levels occurred in March and November in 2000 (Table 3.3.1.1-3). This pattern is dominant north of Cape Mendocino. South of Cape Mendocino, February and April participation tends to be lower than March participation and October and December participation tends to be lower than the November participation.

Two of the non-groundfish fisheries in which groundfish are taken as bycatch are the salmon and shrimp fisheries.

Salmon: The commercial salmon fleet, which is classified as part of the groundfish open access sector, has been on a declining trend in recent years (Table 3.3.1.1-3). However, in 1999 salmon fishing improved substantially, resulting in substantial increases in total and average revenue per vessel. In 2001 salmon fishing was expected to improve substantially.

Pink Shrimp: The pink shrimp fishery is also classified as part of the open access sector (Table 3.3.1.1-4), and the open access share of groundfish north of Cape Mendocino was based primarily on historical groundfish catch in this fishery. Many vessels that participate in the shrimp trawl fishery have groundfish limited entry permits. When participating in the pink shrimp fishery, they must abide by the same rules as vessels that do not have limited entry permits. In 1981, the three coastal states established uniform coastwide regulations for the pink shrimp fishery. The season runs from April 1 through October 31. Pink shrimp may be taken for commercial purposes only by trawl nets or pots. Most of the pink shrimp catch is taken with trawl gear with minimum mesh size of 1-3/8 inches between knots.

3.3.1.2 Groundfish Catch and Exvessel Value by Gear Group

Trawlers take the vast majority of the groundfish harvest by weight (96%-98%) and 73% by volume (Table 3.3.1.2-1, includes at-sea whiting). Trawling is substantially more dominant north of Cape Mendocino (US-Vancouver, Columbia, and Eureka INPFC areas) than south of Cape Mendocino (Monterey and Conception areas). While hook and line vessels take only a few percent of the coastwide groundfish harvest by weight (1%-3%), their harvest accounts for about 20% of the exvessel value. When whiting is excluded from the

totals, hook and line landings are in the 10%-12% range by weight and in the 25%-27% range by value (percent of coastwide total groundfish excluding whiting) (Table 3.3.1.2-2).

Whiting landings are predominantly trawl with the majority of the harvest occurring in the Columbia INPFC area and a substantial portion of the harvest also occurring in the US portion of the Vancouver INPFC area.

3.3.1.3 Seasonal Rounds By Gear Groups

The Council has managed most groundfish species for year round harvest. Tables 3.3.1.3-1 and 3.3.1-2a-f (see addendum) display harvest of groundfish by month for gear and species groups closely related to the structure of Council management measures (see Section 2). The tables display exvessel revenue of groundfish as a percent of total exvessel revenue for all species (groundfish and non-groundfish) for the specified month of the year 2000. Zero values represent amounts that are less than one-half of one percent. The presence of a dash indicates that no landings were made. There is a substantial amount of information that may be gleaned from these tables. Of particular note is that in August 2000, by value, 23% of the landings of all species were attributable to the fixed gear sablefish fishery. Toward the bottom of the table, percentages are summed by limited entry group and total exvessel revenues are shown by group. The importance of groundfish to particular communities, processors or vessels is likely to be more important than might be inferred from this table.

3.3.1.4 Harvesters and Landings By Port

In order, Astoria, Newport, Coos Bay, and Eureka stand out as the port areas with the greatest amount of groundfish landings, by exvessel value. These port areas are followed, in order, by the Inside Puget Sound port area, Fort Bragg, and San Francisco (Table 3.3.1.4-1). Ports had to be aggregated into port areas in order to protect confidentiality. A finer geographic break down is provided for the number of vessels making landings in each port (Table 3.3.1.4-2). In terms of numbers of trawl groundfish vessels, Crescent City moves into the upper echelon in importance as a groundfish port, on a par with Eureka. Greater numbers of groundfish open access vessels tend to land in more southern areas.

3.3.1.5 Values by Harvest Complex

The Council will have significant allocational decisions to make when it comes to determining the gear/species complex in which rebuilding and other constraining stocks will be taken. The expected gross value of the gear/species complex per pound of constraining species may be useful in making these allocational decisions. Information such as this is expected to be available for the Council during the week of the Council meeting.

3.3.1.6 Trawler Crew, Cost Schedules, and Recent Profitability

Between 1997 and 1998 **total reported costs** for a group of large groundfish trawlers[3] decreased by 6.5% while **revenues** were reported to have declined by 26.6%, from $308,000 to $226,600 (Economics Data Program, 2001). Expenses reported as variable comprised about 50% of total annual expenses. Of the **variable costs**, about 58% would be expected to vary with the value of the landed catch (crew and skipper shares, and landings taxes) and 42% would be indirectly related to amount of catch (42% would be expected to vary based on duration of the trip, with a substantial portion being fixed for the trip (e.g. fuel to transit to and from the fishing grounds). On this basis, and for the 1997 and 1998 values, the 26.6% decline in revenue would be expected to result in a 21% decline in **variable costs**. Actual reported **variable costs** declined by 17%. The **ratio of variable costs to revenue** was 1.38 in 1997 and 1.22 in 1998. Survey results indicate that for 1997 and 1998 the average vessel was probably having difficulty covering its fixed and variable costs. Additional work can be done with this data to assess the profit status of the fleet. Data on per trip fixed and variable costs needs to be developed in order to provide a better assessment of the impact of changes in trip limits on vessel profitability. Additional information may be provided in supplemental materials during the Council meeting.

3.3.1.7 Fishing Strategies

[3] Large groundfish trawlers at those with over $100,000 of exvessel revenue and over 33% of the revenue from groundfish.

Most groundfish vessels participate in a range of other fishing activities on the West Coast and other areas such as Alaska. The following descriptive information does not distinguish between open access and limited entry vessels.

From 1994 through 1998, vessels with the highest annual average gross revenues were groundfish trawl vessels that participated in both the whiting and other groundfish fisheries, the Dungeness crab fishery, the shrimp/prawn fishery, followed by vessels taking part in a similar suite of fisheries with the exception of the shrimp/prawn fishery (Table 3.3.1.7-1, a key to the fishing strategy abbreviations in this table is provided below). During this period, groundfish trawl vessels comprised 4 percent of all vessels active on the West Coast and, by exvessel value, made 25% of all landings.

From 1994-1998, groundfish hook-and-line vessels comprised 30 percent of the West Coast fishing fleet and, by exvessel value, made 15% of all landings (Table 3.3.1.7-2). Groundfish hook-and-line vessels with the greatest average revenue per year fished also participated in the Dungeness crab, trawl groundfish, and trawl pink shrimp fisheries. The category of groundfish hook-and-line vessels with the second greatest average revenue per year were those that also participated in the Dungeness crab and pot groundfish fisheries. For groundfish hook-and-line vessels, the most frequent combination of strategies was groundfish hook-and-line and salmon and the second most frequent combination was groundfish hook-and-line and Dungeness crab.

From 1994-1998, groundfish pot vessels comprised 3 percent of the West Coast fishing fleet and, by exvessel value, made 5% of all landings (Table 3.3.1.7-3). Groundfish pot vessels with the greatest average revenue per year fished also participated in the troll albacore and Dungeness crab fisheries. The category of groundfish hook-and-line vessels with the second greatest average revenue per year were those that also participated in the troll albacore, Dungeness crab, and salmon fisheries. For groundfish pot vessels, the most frequent combination of strategies was groundfish pot and groundfish hook-and-line, and the second most frequent combination was groundfish pot, groundfish hook-and-line, and salmon.

Assignment of Fishing Strategies

Vessels were assigned to unique fishing strategies using the following data and decision rules:

Data:

Annual PacFIN vessel summary files for West Coast ocean area landings 1994-1998 were used with interpretative flags and groundfish permit information added by Dr. James Hastie, economist with National Marine Fisheries Service (NMFS) Northwest Fisheries Science Center. The flags distinguish catch from incidental catch for groundfish and shrimp landings (groundfish landings are identified as those with more than 50% groundfish; and shrimp landings are identified as those with more than 500 pounds of shrimp). PacFIN data includes data on state landings receipts (fish tickets) for marine and anadromous species.

For landings of non-West Coast ocean area catch (i.e., Puget Sound, inside the Washington coast, the Columbia River, Canada, and Alaska), annual PacFIN data without the flags was used.[4]

Decision Rules for Fishery Participation:

Fishery types were identified based on an analysis of major area/gear/species combinations on an annual basis. These area-gear-species combinations are identified below (see "Key to Fishing Strategy Abbreviations"). Certain species gear combinations were excluded from being classified as a "fishery" if the total landings by the species-gear combination were less than about $1 million and the average landings per participating vessel tended to be less than about $5,000. West Coast fish tickets include some harvest landed on the West Coast, but caught in Alaska, Canada, and other non-West Coast areas. These landings from non-West Coast catch areas are not included in the typing of vessel strategies because the inclusion of partial information from these areas would make it difficult to interpret the data. However, revenue from West Coast landings of fish from fisheries outside the West Coast are included in the revenue totals for the vessels.

[4] Landings of Canadian and Alaskan catch are included only when West Coast fish tickets were filled out for the landing (generally when the first port of landings is a Washington, Oregon, or California port).

Vessels were classified as a participant in a fishery only if more than 5% of their gross revenue for a particular year was derived from that fishery in at least one year during the 5-year period. The 5% rule was intended to reduce the influence of incidental catch of species and gear miscoding on the classification system.

For West Coast ocean catch areas, landings were classified as groundfish landings only if more than 50% of the landing was groundfish and classified as shrimp landings only if more than 500 pounds of the landing was shrimp.

A minimum of 10,000 pounds of whiting was required for a year in order for a vessel to be classified as participating in the whiting fishery (10,000 pounds per vessel is the maximum amount of whiting that can be landed per day when the regular whiting season is closed).

Key to Fishing Strategy Abbreviations

The general format used to abbreviate fishing strategies is to indicate the gear used, then species caught, and finally areas of catch. Landings included are non-Indian landings made to West Coast ports for which state landings receipts (fish tickets) are available.[5] Area of catch is 0-200 miles off the West Coast (Washington, Oregon, and California), unless otherwise specified.

Abbreviation	Description
Excluded	Vessels that took part only in fishing strategies (gear/species/area combinations) not included in this key are listed in the tables as "Excluded". A description of excluded categories follows this table.
AllGr Ech&Mol	Echinoderms and mollusks (except squid) taken by any gear in the ocean from 0-200 miles off the West Coast and first landed on the West Coast.
AllGr Herr All	Herring caught by any gear anywhere on the West Coast (including Puget Sound and other inside areas).
CR&WACoast Salmon	All salmon landed out of the Columbia River and from bays and estuaries along the Washington coast (generally this will be fish caught with gillnet gear).
EntNet GF	All groundfish caught with entanglement nets such as gillnets.
EntNet Swdf&Shks All	All swordfish and sharks considered to be highly migratory caught with entanglement nets such as gillnets.
HKL GF&Halbs	All groundfish and halibuts (California and Pacific) caught with hook-and-line gear.
HKL TropT-Swdf&Shks All	All species considered to be highly migratory (except albacore) caught by hook-and-line gear.
Net Salmon PS	Salmon caught with seine and other net gear in Puget Sound.
OthGr Swdf&Shks	All species considered to be highly migratory (except albacore) caught by gears other than hook-and-line and seine or entanglement net (e.g. spears)
Pot DCrb Oc&PS	Dungeness crab caught with pot gear in Puget Sound or the ocean (0-200 miles).
Pot GF	Groundfish caught with pot gear.
Pot Lob	Lobster caught with pot gear.
Pot OthCrb	Crabs other than Dungeness caught with pot gear.
Pot Sh&Pr Oc&PS	Shrimp and prawns taken by pots in Puget Sound or the ocean (0-200 miles).
Sn&Onet CPS-ff	Finfish that are included as a coastal pelagic species in the Council fishery management plan (FMP), taken with round haul, seine, and other net gears.
Sn&Onet CPS-sqd	Squid included as a coastal pelagic species in the Council FMP taken with round haul, seine, and other net gears.
Sn&Onet TropTun	Tropical tuna species (highly migratory tuna other than albacore) taken with seine and other net gear, all catch areas.
Trl Alb All	Troll albacore tuna taken in all catch areas with troll gear.
Trl Salm	Salmon taken with troll gear.
Twl CAHalb	California halibut caught with trawl gear.
Twl GF(xWHT)	Groundfish (except whiting) caught with trawl gear.
Twl ShPr	Shrimp and prawns caught with trawl gear.
Twl Wh	Whiting caught with trawl gear.
Twl ShPr-GF-Ec PS	Species caught with trawl gear in Puget Sound (shrimp, prawns, groundfish, echinoderms).

[5] Indian landings are not included because vessel identifiers for Indian landings are not available through PacFIN.

3.3.2 Commercial Fish Buyers/Processors

In most port areas on the West Coast there are generally six or fewer buyers purchasing from limited entry vessels. In the north, the primary exception is Astoria and, in the south, the exceptions are San Francisco, Monterey, and San Luis Obispo (Table 3.3.2-1). In San Francisco and from San Luis Obispo south there tend to be more buyers of fixed gear rockfish and other groundfish than there are buyers of trawl caught species.

There are thousands of entities with permits to buy fish on the West Coast; however, a relatively few of these handle fish in large quantities and, in particular, make purchases from limited entry trawl vessels. Information on the numbers of processors buying from different segments of the groundfish fleet, the degree to which processors buy from multiple segments of the fleet, and the degree to which processors are active year round would be useful for decisions coming before the Council at its November meeting. Some of this information may be provided to the Council in supplemental materials at that time.

WCSPA ECONOMIC SURVEY
(partial data)

PROCESSING CAPACITY			
	1997	**2000**	**% Difference**
Total number filleting stations	259	224	-13.5%
Number filleting stations used	215	115	-46.5%

COST			
	1997	**2000**	**% Difference**
Average cost per pound for finished groundfish product	$1.55	$1.89	21.90%

LABOR FORCE			
	1997	**2000**	**% Difference**
Number of employees (skilled)	412	259	-37.1%
Number of employees (unskilled)	566	464	-18.0%

DATA SUPPLIED BY: Alioto-Lazio Fish Co.; Bandon Pacific Seafood; Bornstein Seafoods - Bellingham, Newport; Depoe Bay Fish Co.; Eureka Fisheries - Brookings, Crescent City, Fields Landing, Fort Bragg; Hallmark Fisheries; Olde Port Fisheries; Pacific Choice - Eureka; Qualy-Pak; Washington Crab Producers

On the next two pages, information is provided in sidebars on processing capacity trends and processing costs. This information was provided to the Council by the West Coast Seafood Processors Association (WCSPA). Comment is sought from the industry and general public on the degree to which the economic survey data on processing capacity is representative of trends on the West Coast and the degree to which the reported processing costs and recovery rates appear reasonable and reflect costs experienced by others along the West Coast.

Processor Capacity

In an effort to collect data for this EA, port biologists were asked to report their observations on the number of fillet and cutting stations in the plants from which they sampled. A census of this measure of capacity and the ratio of this capacity to available product, over time, might provide an indicator of trends and economic health of the industry.

Area	Processing Capacity
Puget Sound	Four fillet lines (44 stations on two lines) and four cutting tables
Washington Coast (Westport and Ilwaco)	27 fillet stations (26 in storage)
Northern California (Crescent City to Fort Bragg)	130 fillet stations

Processing Costs

Information on processing costs is being collected by the Pacific States Marine Fisheries Commission Economic Fishery Information Network project. It is hoped that some of this information will soon be available for economic analysis. In the mean time, the WCSPA has provided information on costs and exprocessor prices from members of their organization. Comment is sought on this information, as noted above.

The WCSPA notes that when fish must be frozen, associated profits decline substantially. The association also notes that the profitability of rockfish is greater ($0.38-$0.73 per pound based on the ranges provided by WCSPA) than the profitability of Dover sole ($0.42-$0.60 per pound). As an additional note and, given the information as provided, while the profitability of Dover sole appears to be somewhat less than for rockfish, the degree of loss that occurs when Dover sole must be frozen (a loss of $0.18-$0.43 per pound) appears to be less than the degree of loss when rockfish must be frozen (a loss of $0.19-$0.54 per pound) .

West Coast Seafood Processors Association

COMPARISON OF COST VS. PRICES FOR SELECTED MAJOR GROUNDFISH SPECIES

In order to provide some economic data that would be useful for analysis of 2002 management options, we surveyed processing plants to determine their cost per pound of producing Dover sole and rockfish fillets and then determined the range of prices for which those fillets were sold. We chose Dover sole because it is the most common, most available, and most valuable (other than petrale sole at certain times of the year) of the flatfish species. We did not specify which species of rockfish we were collecting data on but instead asked the plants to give us the most common values.

The table below shows aggregated data from seven plants located in Califomia and Oregon (we were unable to obtain data from Washington in time to provide the information). In 2000, these plants processed 55% of the non-whiting groundfish landed on the west coast (plant data from WCSPA records; total groundfish landings from PacFIN); thus we believe they can provide a representative sample.

We did not try to distinguish between trawl and fixed gear landings, but the prices and costs shown are from trawl-caught fish.

Because the values used in the table (price, recovery rate, etc.) vary among plants, we used an average. Prices for the two product types are expressed as a range, which was averaged over the ranges provided by the plants.

Discussion

As the data show, plants make more money on rockfish than on Dover sole and lose money (especially when fixed costs are included) on frozen product. This suggests that, to maximize economic benefits within the bounds of this fishery, there is a need for rockfish supplies year round to offset losses (or at best minimal profits) on Dover sole. It also suggests that management measures which result in product gluts at plants (and hence a requirement to freeze fillets) will result in economic losses.

DOVER SOLE

Avg Price	Avg% Recov	Avg Raw Cost	Avg Oth Cost	TOT	Avg Price Frzn	Avg Price Fresh
$.36	25	$1.44	$.72	$2.16	$1.73-$1.98	$2.58-$2.76

ROCKFISH

Avg Price	Avg% Recov	Avg Raw Cost	Avg Oth Cost	TOT	Avg Price Frzn	Avg Price Fresh
$.47	34	$1.38	$.59	$1.97	$1.43-$1.78	$2.35-$2.70

NOTE: "Other Cost" does *not* include fixed costs such as overhead, utilities, taxes, etc. It *does* include labor, packaging, and shipping. If fixed costs are included, the total cost would increase by an estimated $.36, based on fixed cost data obtained from some of the sources.

3.3.3 Recreational Fishery

Recreational fishing has been part of the culture and economy of West Coast fishing communities for more than 50 years. Along the northern coast, most recreational fishing targeted salmon, but the abundant rockfish often provided a bonus to anglers. Recreational fisheries have contributed substantially to fishing communities, bringing in outside dollars and contributing to tourism in general.

Recreational fishing in the open ocean appears to have been on a downward trend for a number of years but seems to have increased in the year 2000 (Table 3.3.3-1). Part of this decline is likely the result of shorter salmon seasons and smaller bag (retention) limits. Some effort shift from salmon to groundfish likely occurred. Groundfish are taken as target catch and as incidental catch in fisheries targeted on other species. The degree to which the opportunity to harvest groundfish contributes to incentive for non-groundfish trips is uncertain; however, there is likely some relationship to the frequency of groundfish catch on the trip. In Table 3.3.3-1, groundfish effort is calculated as total groundfish catch divided by the CPUE for trips targeted on groundfish as well as other species (e.g. salmon, tuna, halibut, etc.). Using this method, relatively little weight will be given to trips targeted on non-groundfish species for which the groundfish bycatch is low and substantial weight will be given to groundfish where the groundfish catch is high, regardless of whether the nominal target for the trip was groundfish or some other species. More recreational trips are taken in southern California than in northern California, Oregon,

or Washington. The distribution of recreational charter vessels coincides with the geographic distribution of trips (Table 3.3.3-2).

3.3.4 The Tribal Fishery

Members of the Makah, Quileute, Hoh, and Quinault tribes participate in commercial, ceremonial, and subsistence fisheries for groundfish off the Washington coast. Participants in the tribal commercial fisheries operate off Washington and use similar gear to non-tribal fishers. Groundfish caught in the tribal commercial fishery pass through the same markets as non-tribal commercial groundfish catch.

Sablefish is one of the most valuable stocks for the commercial fishery and one of only two species with sector-specific allocations. The other is Pacific whiting. Portions of the harvest for both of these species are allocated or set aside for the tribes. In 2001 tribal sablefish longline fisheries[6] were allocated 10% of the total catch OY (690 mt) and then were discounted 3% of that allocation for discard mortality, for a landed catch allocation of 669 mt. In 1999 and 2000 32,500 mt of whiting was set aside for treaty Indian tribes on the coast of Washington state, resulting in a commercial OY of 199,500 mt for 2000. In 2001 the landed catch OY declined to 190,400 mt and the tribal allocation was reduced to 27,500 mt.

Commercial groundfish fisheries are managed by a cooperative state-tribal-federal effort at the Council level, with Council recommendations then implemented as federal, state, and tribal regulations.

3.3.5 Fishing Communities

Fishing communities, as defined in the Magnuson-Stevens Act, include not only the people who actually catch the fish, but also those who share a common dependency on directly related fisheries-dependent services and industries. In commercial fishing this may include boatyards, fish handlers, processors, and ice suppliers. In recreational fishing this may include tackle shops, small marinas, lodging facilities that cater to out-of-town anglers, and tourism bureaus that advertise charter fishing opportunities. Another component of fishing communities is the people employed in fishery management and enforcement.

Fishing communities of the West Coast depend on commercial and/or recreational fisheries for many species. Participants in these fisheries employ a variety of fishing gears and combinations of gears. Naturally, community patterns of fishery participation vary coastwide and seasonally based on species availability, the regulatory environment, and oceanographic and weather conditions. Each community is characterized by its unique mix of fishery operations, fishing areas and habitat types, seasonal patterns, and target species. While each community is unique, there are many similarities. For example, all face danger, safety issues, dwindling resources, and a multitude of state and federal regulations.

Individuals make up unique communities with differing cultural heritages and economic characteristics. Examples include a Vietnamese fishing community of San Francisco Bay, and an Italian fishing community of southern California. Also included in these considerations are the Native American communities with an interest in the groundfish fisheries (however, there are no tribal communities in the area of concern). In most areas, fishers with a variety of ethnic backgrounds come together to form the fishing communities within local areas, drawn together by their common interests in economic and physical survival in an uncertain and changing ocean and regulatory environment.

Demographic information on geographic communities at the county level has been compiled for a general baseline description of West Coast fishing communities. This information may be downloaded from the Council web site (www.pcouncil.org).

Preceding sections have provided numbers of commercial vessels, fish buyers, and charter vessels for various geographic regions. To the extent allowed by constraints on confidentiality (commercial) and data validity (recreational), information is also provided on the value of product landed and amount of recreational effort, respectively.

Estimates of community income impacts for the recreational fishery is provided at a regional level in Section 3.3.3. Precision of the MRFSS data, on which the trip estimates are based, do not allow estimates for

[6] Washington coast treaty tribes (Makah, Quileute, Hoh, and Quinault).

substantially smaller geographic areas on an annual basis. For the commercial fisheries income impact estimates will be provided in supplemental materials during the Council meeting.

4.0 IMPACTS OF THE ALTERNATIVES

An EA/RIR is required by NEPA to determine whether the action considered will result in significant impact on the human environment. If the action is determined not to be significant based on an analysis of relevant considerations, the EA/RIR and resulting finding of no significant impact would be the final environmental documents required by NEPA. An environmental impact statement (EIS) need only be prepared for major federal actions significantly affecting the human environment. An EA/RIR must include a brief discussion of the need for the proposal, the alternatives considered, a list of document preparers, and the impacts of the alternatives on the human environment. The purpose and need for the proposed action was discussed in Section 1 of this document, the management alternatives were discussed in Section 2, and the list of preparers is provided in Section 10.0.

4.1 Impacts of Alternative Harvest Levels

4.1.1 Overview of Impacts of Alternative Harvest Levels

Specific alternative harvest levels are considered for the 2002 Pacific Coast groundfish fishery relative to the 2001 specifications (status quo alternative) for seven stocks. Otherwise, no changes in harvest levels from the 2001 specifications were sent out for public review. The reason darkblotched rockfish, Dover sole, Pacific ocean perch, sablefish, shortspine thornyhead, widow rockfish, and yelloweye rockfish harvest levels are being considered is either new stock assessments or new rebuilding analyses (for those stocks that have been declared overfished) were developed and approved this year. Alternative 1.3 would separate yelloweye rockfish from the "remaining rockfish" complex in the north and the "other rockfish" complex in the south and adopt a dramatically lower OY in 2002 based on the 2001 assessment of its depressed status and the expectation that it would be declared overfished next year. The following sections contrast new alternative harvest levels to the status quo alternative for the affected stocks.

4.1.2 Biological Impacts of Alternative Harvest Levels

Darkblotched Rockfish

Under Alternative 1.1, the total catch OY of 157 mt is about 14% less than Alternative 1.2, making it the most conservative alternative relative to the status quo alternative (the 2001 total catch OY) and the other alternatives considered. The total catch OY under Alternative 1.1 is predicted to have an 80% chance of rebuilding within the allowable time frame of 47 years and a median rebuilding year (average year target biomass is attained) of 2030. Under Alternative 1.2, the total catch OY of 181 mt is about 14% higher than Alternative 1.1, making it the most liberal alternative considered . The total catch OY under Alternative 1.2 is predicted to have a 60% chance of rebuilding within the allowable time frame and a median rebuilding year of 2040. The Council-preferred total catch OY for darkblotched rockfish in 2002 (Alternative 1.3) is intermediate to the low and high OY alternatives considered. The total catch OY of 168 mt is about 7% higher than Alternative 1.1, about 7% lower than Alternative 1.2, and about 23% higher than last year's OY. The total catch OY under Alternative 1.3 is predicted to have a 70% chance of rebuilding within the allowable time frame and a median rebuilding year of 2034. These alternative harvest levels are higher than the status quo alternative because the revised rebuilding analysis indicated the stock could not be rebuilt within ten years as thought in November 2000 when the 2001 OY was recommended. Therefore, the rebuilding trajectories considered are extended beyond ten years to lessen the economic impacts associated with the specified magnitude of harvest in 2001.

Dover sole

Alternative harvest levels being considered for Dover sole all assume the intermediate recruitment scenarios presented in the 2001 assessment and vary only by harvest rates that entail varying degrees of risk. The risk is that, if recruitment assumptions are overly optimistic, higher harvest rates could be too aggressive. Dover sole, which is currently estimated to be at 29% of unexploited biomass, could then decline past the overfishing threshold of 25% in the near future.

Under Alternative 1.1, the ABC of 6,142 mt is determined by the current biomass estimate with an $F_{50\%}$ harvest rate applied. The total catch OY of 5,520 mt is 26% lower than the high OY alternative being considered by the Council and 28% lower than last year's OY. Under Alternative 1.2, the ABC of 8,510 mt is determined by the current biomass estimate with an $F_{40\%}$ harvest rate (the current F_{MSY} proxy) applied. The total catch OY of 7,440 mt is 26% higher than the low OY alternative being considered by the Council and 3%

lower than last year's OY. Under Alternative 1.3, the ABC of 7,221 mt is determined by the current biomass estimate with an $F_{45\%}$ harvest rate applied. The total catch OY of 6,410 mt is about 4% higher than the low OY alternative being considered by the Council, about 14% lower than the high OY alternative, and about 16% lower than last year's OY. Of the alternative harvest levels being considered for Dover sole for 2002, Alternative 1.1 entails the least risk, Alternative 1.2 entails the most risk, and Alternative 1.3 entails an intermediate degree of risk of further decline.

Pacific ocean perch

Under Alternative 1.1, the total catch OY for POP is 290 mt, which is 29% lower than Alternative 1.2 and only 4% lower than the status quo alternative. The total catch OY under this alternative is projected to have an 80% probability of rebuilding the stock within the allowable time frame of 42 years and the lowest median rebuilding period (19.5 years) of the alternatives considered. Under Alternative 1.2, the total catch OY for POP is 410 mt, which is 26% higher than the status quo alternative. The total catch OY under this alternative is projected to have a 60% probability of rebuilding the stock within the allowable time frame and the highest median rebuilding period (31.8 years) of the alternatives considered. Under the Council-preferred Alternative 1.3, the total catch OY for POP is 350 mt, which is about 17% higher than Alternative 1.1, about 15% lower than Alternative 1.2, and about 13% higher than the status quo alternative. The total catch OY under Alternative 1.3 is projected to have a 70% probability of rebuilding the stock within the allowable time frame and an intermediate median rebuilding period (24.8 years) of the alternatives considered.

Sablefish

The sablefish ABCs and OYs that vary from the status quo alternative (2001 specifications) apply only for the portion of the stock north of Point Conception. The 2001 assessment indicated that, even under the most optimistic recruitment assumptions, the sablefish stock north of Point Conception was at risk of declining further and being declared overfished in the next few years. Relative to status quo, all the alternative harvest levels considered would decrease this risk given our current understanding of potential productivity and future recruitment of the sablefish stock. Relative to the alternatives to status quo, Alternative 1.1 has the least risk, Alternative 1.2 the most risk, and Alternative 1.3 has an intermediate risk of further declines. The GMT is recommending the same specifications as in 2001 for the portion of the stock south of Point Conception (see section 3.2.1.2).

Under Alternative 1.1, the ABC is based on an $F_{50\%}$ harvest rate applied to the 2001 estimated biomass. The total catch OY of 3,200 mt is about 29% lower than Alternative 1.2 and 54% lower than the status quo alternative. The sablefish ABC under Alternative 1.2 is based on an $F_{45\%}$ harvest rate. The total catch OY of 4,500 mt is about 29% higher than Alternative 1.1 and 36% lower than the status quo alternative The ABC under the Council-preferred Alternative 1.3 is also based on an $F_{45\%}$ harvest rate. However, the total catch OY of 4,000 mt is intermediate Alternatives 1.1 and 1.2 and represents the first year of a "ramp down" strategy designed to attain an OY corresponding to an $F_{50\%}$ harvest rate in the next three years. The total catch OY under Alternative 1.3 is 20% higher than Alternative 1.1, about 11% lower than Alternative 1.2, and about 43% lower than the status quo alternative.

Shortspine thornyhead

The 2002 ABC for shortspine thornyhead would be 880 mt and applies coastwide under Alternative 1.1. This is the same as the total 2001 ABC north and south of the Conception/Monterey INPFC boundary at 36° N. latitude and therefore corresponds to the status quo. The combined total catch OY would be 751 mt under this alternative. The ABC and total catch OY under Alternative 1.2 is 1,004 mt and 955 mt, respectively. The Alternative 1.1 total catch OY is about 21% lower than Alternative 1.2 and is therefore less likely to have biologically impacts on the stock. However, it is noted that it is uncertain whether this stock is above its $B_{40\%}$ abundance or in the "precautionary zone" where potential biological impacts are more of a concern. The Council did not specify a preferred harvest level alternative for shortspine thornyhead for 2002.

Widow Rockfish

The widow rockfish ABC would remain at 3,727 mt (same as the status quo alternative) for all the alternatives considered, but the total catch OY varies. The total catch OY of 726 mt under Alternative 1.1 is 68% lower than the status quo alternative and 15% lower than Alternative 1.2. This OY has an estimated 80% probability of rebuilding within the allowable period of 38 years and the lowest median time to rebuild (34 years) of the alternatives considered. The total catch OY under Alternative 1.2 is 856 mt, which is 63% lower than the

status quo alternative. This OY has an estimated 60% probability of rebuilding within the allowable period and the highest median time to rebuild (37 years) of the options considered. The Council specified Alternative 1.2 as its preferred harvest level alternative for widow rockfish in 2002.

4.1.3 Physical Impacts of Alternative Harvest Levels

Between 1999 and 2000, it is likely the amount of physical contact between groundfish bottom trawl gear and the seafloor was substantially reduced due to the requirement that small footrope trawl gear without chafing gear must be used in order to land most groundfish species that reside on the continental shelf. Physical impacts to rocky shelf areas in particular have probably been reduced most because only large footrope trawls with chafing gear to protect the net from abrasion are necessary for fishing in such areas. Initial 2000 ODFW logbook data show a significant decrease in trawl activity in rocky areas of the continental shelf. All the alternative harvest levels continue these requirements and all of the alternative harvest levels for the affected stocks decrease the level of fishing activity relative to the status quo alternative, which would, in turn, incrementally reduce potential habitat impacts. Of the harvest level alternatives considered for 2002, Alternative 1.1 entails the lowest level of fishing and therefore should have the least potential to impact benthic habitats. Conversely, Alternative 1.2 should have the greatest potential and Alternative 1.3 should have an intermediate potential to impact the physical structure of the environment.

4.1.4 Social and Economic Impacts of Alternative Harvest Levels

The relative change in harvest levels of each alternative from 2001 and 2000, with the 2000 exvessel revenues from landings is displayed in Table 4.1.4-1 for stocks for which OYs may be changed in 2002 (with the exception of yelloweye rockfish). Further comparison of the economic effects of altering harvest levels for these stocks in 2002 can be inferred from Table 4.1.4-2 which displays the landings, exvessel values, and price by gear group of these stocks in 2000. Under Alternative 1.1 harvest levels would decline for nearly all of the stocks for which alternative harvest levels are identified, as compared to status quo. For Alternatives 1.2 and 1.3, harvest levels would decline for about half of the stocks for which potential changes have been identified and increase for the other half (see Table 2.1-1). The stocks declining generally have substantially larger declines than the stocks for which there are increases. Additionally, the stocks for which there are declines (sablefish, widow rockfish and Dover sole) are particularly significant with respect to the Council's general disposition for maintaining a year round fishery. Tables 3.3.1.3-1 and 3.3.1.3-2a through 2f (see attached addendum) show that these three species, along with thornyheads are the some of the most significant components of the year round fishery (note: in these tables "0" indicates more than zero but less than one half of one percent, a dash indicates no landings were made). On the other hand, some of the species for which harvest levels would increase may relieve some constraints in achieving total landings OYs.

4.2 Impacts of Alternative Bycatch Rates

This information will be provided as a supplemental attachment to the Council prior to decision making.

4.3 Impacts of Alternative Commercial Fishery Management Measures (Season Options)

Alternative commercial fishery management measures represent various season options with trip and landing limits specified. This analysis compares a year round alternative developed by the GMT which is consistent with the alternative harvest levels and bycatch rates considered for 2002 fisheries. The intent of this analysis is to generally compare a year round fishery to a coastwide six month seasonal fishery for relative socioeconomic effects. Two year round season options with their specified trip and landing limits are analyzed with respect to whether they are within specified landed catch OYs for constraining stocks given the range of bycatch rates considered. Biological effects were analyzed in Section 4.1 and are not addressed in the context of alternative commercial fishery management measures. Alternative bycatch rates are considered in this analysis since trip and landing limits with implied rates of discard are sensitive to variable bycatch rate assumptions.

4.3.1 Impacts of Alternative Commercial Fishery Management Measure 3.1 (Year Round GMT-Recommended Season)

This information will be provided in supplemental attachments to the Council prior to decision making.

4.3.2 Impacts of Alternative Commercial Fishery Management Measure 3.2 (Coastwide Six Month Season)

This information will be provided in supplemental attachments to the Council prior to decision making.

4.3.3 Impacts of Alternative Commercial Fishery Management Measure 3.3 (Year Round GAP-Recommended Season- Council-preferred OY Option)

This information will be provided in supplemental attachments to the Council prior to decision making.

4.3.4 Impacts of Alternative Commercial Fishery Management Measure 3.3 (Year Round GAP-Recommended Season- High OY Option)

Alternative management measure 3.3 was discussed by the GMT in September. The GMT determined that the specified landing limits failed to stay within the landed catch OYs for various constraining stocks given the range of bycatch rates considered for 2002. No further analysis of this alternative will be done in this EA/RIR.

4.4 Impacts of Alternative Recreational Fishery Management Measures

In September the Council adopted for public comment recreational fishery management measure alternatives proposed by Council representatives from the states of Washington, Oregon, and California. The Council also adopted preliminary recreational set asides recommended by the Ad Hoc Allocation Committee in August as well as preliminary recreational catch allocations by area. The GMT projected the recreational catches of constraining stocks and complexes associated with these recreational alternatives. The potential biological and socioeconomic impacts of recreational fishery management alternatives are addressed in this section. Biological impacts are assessed relative to how well the recreational fishery management measures meet the proposed recreational set asides and allocations based on the GMT catch projections.

4.4.1 Biological Impacts of Alternative Recreational Fishery Management Measures

Recreational catch estimates of groundfish from the RecFIN database for Washington, Oregon and California are displayed for the years 1996-2000 in Table 4.4.1-1. Catch estimates for Washington, Oregon, northern California, and southern California are depicted in Table 4.4.1-2 through Table 4.4.1-5, respectively. Despite the recreational fishery restrictions implemented for bocaccio and canary rockfish in 2000, these catch estimates do not indicate a significant decrease in the catch of these stocks in 2000. The 2001 recreational groundfish catch estimates are not yet available; however preliminary catch estimates of bocaccio and canary rockfish indicate recreational catches will likely exceed the yields set aside for the 2001 recreational fisheries. Rebuilding strategies for these stocks depend on effective management measures to reduce harvest. Reducing recreational yelloweye rockfish harvest in 2002 will be an additional challenge.

The preliminary recreational set asides and allocations adopted by the Council in September are displayed in Table 4.4.1-6. These are the standards against which recreational fishery management measures will be judged relative to their predicted efficacy. Note that the recreational set aside for bocaccio south of Cape Mendocino may be in error. The Council originally allocated 48 mt of bocaccio to the recreational fishery and 52 mt to the commercial fishery south of Cape Mendocino in November 2000. The Council needs to decide whether the recreational set aside of 52 mt of bocaccio for 2002 was an intentional recommendation by the Ad Hoc Allocation Committee or a mistaken transposition of the original allocations set in 2000.

Projected recreational catches of key groundfish stocks associated with the recreational fishery management alternatives are noted in Table 4.4.1-7. Comparing the various recreational fishery set asides and allocations (Table 4.4.1-6) for each state and area to the associated catch projections made by the GMT in September (Table 4.4.1-7) leads to the following conclusions:

1. Alternative 2 for southern California exceeds the recreational set aside for bocaccio under any circumstance.
2. Any combination of state recreational fishery management alternatives stays within 1 mt of the recreational set aside for canary rockfish.
3. Alternatives 1 and 2 for Washington exceed the recreational set aside (and meet or exceed the entire coastwide total catch OY) for yelloweye rockfish.
4. The lack of a catch projection for minor nearshore rockfish in California precludes an analysis for that stock complex.
5. The lack of a catch projection for lingcod in California precludes an analysis for that stock.

By far, the most constraining groundfish stock in 2002 caught in recreational fisheries is yelloweye rockfish. In all of the Washington recreational fishery alternatives, there is the caveat that "WDFW will monitor the fishery and track recreational groundfish catch. If the Washington recreational yelloweye harvest guideline is projected to be exceeded, WDFW will take action to prohibit recreational groundfish fishing outside of 25 fathoms". This "insurance policy" should address any uncertainty in Washington yelloweye rockfish catch projections and ensure Washington management measures stay within harvest guidelines.

4.4.2 Socioeconomic Impacts of Alternative Recreational Fishery Management Measures

The general trend in West Coast recreational groundfish fisheries has been increasing restrictions due mainly to the need to protect overfished lingcod and rockfish stocks. In 1996 recreational groundfish fisheries in Washington, Oregon, and California were open year round with relatively liberal rockfish and lingcod bag limits (Figure 4.4.2-1). By 2000 the fishery was limited by decreased bag and size limits as well as time and area closures (Figure 4.4.2-2). Individual species bag limits were also imposed for bocaccio in California and canary rockfish in all three states. In 2001 limits became even more restrictive for rockfish in general, and particularly canary rockfish in Oregon and California (Figure 4.4.2-3). Additionally, a yelloweye rockfish limit was added in Washington and California prohibited retention of cowcod. This trend of increasingly restrictive regulations will continue for 2002 recreational groundfish fisheries as the states' proposals indicate (Table 4.4.1-2, Figure 4.4.2-4). Recreational proposals for 2002 groundfish fisheries in Washington, Oregon, and California (north and south of Point Conception) are further displayed in Figures 4.4.2-5 through 4.4.2-8. Superimposed on these figures are 2000 effort estimates by month for the private and charter (Commercial Passenger Fishing Vessels in California) recreational fishing sectors in these areas. A sense of the expected changes in recreational fishing effort due to proposed management measures may be inferred by comparing 2000 groundfish regulations (Figure 4.4.2-2) and 2000 effort profiles to the 2002 recreational fishery management alternatives (Figures 4.4.2-5 through 4.4.2-8). In projecting the effects of management regulations on total effort and local communities, account must be taken of anglers' opportunities to shift effort from one time period to another or from one area to another in response to a closure. Effort shifts from one groundfish time-area opening to another will reduce the harvest reductions achieved by time-area closures. At the same time some of the benefits to communities from tourism activity involving fishing may continue to flow to communities, depending on the degree to which fishing was a significant factor in attracting tourists to the community, i.e. all else equal in the economy, tourists will likely spend their vacation dollars. The main questions are where and on what economic activities vacation dollars will be spent.

4.5 Impacts of Alternative Tribal Fishery Management Measures

The Council adopted preliminary tribal fishery management measures for 2002 in September. Also in September the Makah tribe provided groundfish catch projections consistent with the proposed management measures (Table 4.5-1). The tribes announced their intention to pursue some midwater trawl, bottom trawl using small footropes, halibut long line, and fixed gear sablefish strategies. A new bottom trawl evaluation fishery will be implemented by the tribes in 2002. A suballocation of sablefish will be made for that fishery and small footropes will be required. Treaty trip limits in this fishery will be the same as limited entry trip limits for Pacific cod, petrale sole, English sole, rex sole, arrowtooth flounder, and other flatfish. The fishery will close once the sablefish suballocation is attained. Tribal allocations of sablefish and whiting are the same as for 2001 and specified by negotiated agreements with 10% of the U.S. harvest guideline of sablefish allocated to the tribes and a whiting allocation consistent with the court-approved proposal in *United States v. Washington*, subproceeding 96-2. The tribes also announced their intent to pursue fully competitive fisheries for halibut and sablefish with no limit on retention of incidental harvests of slope rockfish. Trip limits for slope rockfish will be specified for other tribal fisheries and will be determined on the basis of final harvest levels for these species, expected effort, and other relevant factors. The same criteria will be used to set tribal trip limits on shelf and nearshore rockfish. Tribal midwater trawl fisheries will operate with a cumulative landing limit of 30,000 lbs of yellowtail and other midwater rockfish per 2 month period with no carry-over between landing limit periods. The tribes will adjust trip limits to minimize landings of widow and canary rockfish; canary will start out with a 300 lbs/trip limit. Lingcod landing limits will be 300 lbs/day/vessel and 900 lbs/week/vessel to allow retention of incidental harvest. The expected effort for the Makah Tribe is 3- 4 vessels, which is similar to the effort observed in 2001. If more Makah vessels enter the fishery in 2002, the Tribe will reduce trip limits accordingly. The Makah Tribe will develop and implement an observer program to monitor and enforce the limits proposed above and, as in 2001, implement a voluntary full retention program to obtain more sampling information beyond what is derived from the observer program. The Makah Tribe also expected to improve their shoreside sampling program to improve species composition of their landings. This was judged particularly important to better estimate landings of darkblotched rockfish.

5.0 SUMMARY OF IMPACTS OF THE ALTERNATIVES

	Net Economic Benefits	
	Short-term	Long-term
Alt 1.1	Lowest	Lowest risk of reduced benefits
Alt 1.2	Highest	Likely Negative
Alt 1.3	Medium	Moderate risk of reduced benefits

The choice of harvest levels for 2002 involves a tradeoff between levels of risk to the resources and severe short term negative economic impacts to the users. On one side is the need to reduce human impacts (harvest) in order to achieve a timely recovery of overfished stocks (to ensure long-term benefits related to production, ecosystem services and existence values). On the other side, the imposition of severe short-term negative economic effects on commercial and recreational fisheries, along with the businesses and communities that depend on those fisheries, must be considered. The risks of overfishing and the consequent reduction of long-term benefits from the fishery are greatest under Alternative 1.2. The opposite is true of Alternative 1.1; Alternative 1.3 is, for the most part intermediate with respect to risk and economic benefit. Given this year's stock assessments and risk averse policies, the Council has made a preliminary assessment that Alternative 1.3 would best balance conservation risks and economic costs. Currently, the groundfish fishing and processing sectors are severely overcapitalized. Given fixed business expenses and general economies of scale that come with greater levels of production under the current situation, it is likely that net commercial fishery benefits will decline at a greater rate than exvessel value. Income impact estimates take into account the values to the greater community, including not just fishers but also those dependent on income generated by the fishery. Income impacts provide a sense for the scale of the economic impacts. They are a better indicator of potential dislocational effects from changes in the fishery than they are an indicator of overall economic benefits. Historic estimates and income impacts are provided in Section 3.0. Estimates for the alternatives will be developed as bycatch assumptions are established so that catch projections can be made.

[Description of effects of alternative bycatch rates- in Appendix]. This information will be provided in supplemental attachments to the Council prior to decision making.

Cumulative limit and trip limit management have been used to maintain a year round fishery. The expected benefit of year round fishing is the maintenance of fish harvesting and processing activities. The benefit of maintaining local fishing industry operations is a social benefit and does not necessarily imply greater net economic benefit for the nation as a whole. Year-round opportunity may be important to the local industry because short term closures during the year make it difficult for local processors to maintain workforces and justify the expenses of waterfront processing plants. When product flow from all fisheries (including groundfish) is not sufficient to maintain local processors, larger more diversified processors gain advantage, product is shipped out of the local communities to centralized sites that draw fish from a variety of fisheries and locations along the coast. Given that product is to be shipped out of the local ports, buyers may potentially gain additional advantage by locating processing facilities in areas where labor and facilities can be shared with other more stable segments of the food processing industry (e.g. agricultural areas). Economic impacts can be severe to some local port communities when processors become more centralized.

Counter to the arguments for maintaining a year round commercial seasonal structure are the theoretical benefits of a shorter seasonal option where trip and landing limits can potentially be increased and discards minimized. There is a potential benefit to fishermen, especially those who can employ their boats and gear to prosecute other fishing opportunities such as crab, shrimp, salmon, or other sectors of the groundfish fishery. It may be possible to logically stagger opportunities to optimize commercial fishing opportunities for individual fishermen. These opportunities certainly vary coastwide necessitating a complex matrix of fishing seasons to maximize economic benefits to fishermen. The ability of commercial fish buyers and processors to flexibly process and market product under a staggered season approach will largely determine the economic effect for that sector of the industry and the associated community effects. The transition to such a fishing structure might be expected to result in reduced active processing capacity, especially in those ports that tend to rely on limited fisheries. Prior to a final Council decision, additional information will be provided to assess the trade-offs made between year round and shorter seasonal management measures.

In conjunction with a new assessment of the status of the yelloweye rockfish resource, substantial restrictions on the recreational groundfish fishery were proposed by the states for consideration in 2002. These will result in shorter fishing seasons and reduced catch allowances for several species, primarily rockfish. The economic impact of these recreational fishery alternatives will largely depend on other recreational opportunities such as salmon, tuna, other target recreational fisheries, and non-fishing activities in the coastal

communities. The amount of effort targeted on shelf rockfish and, in the case of Washington anglers, Pacific halibut, may dictate the total recreational fishing-induced mortality of yelloweye rockfish and therefore the potential to rebuild the stock.

6.0 CONSISTENCY WITH THE FMP AND OTHER APPLICABLE LAWS

6.1 Consistency with the FMP

The Pacific Coast Groundfish FMP states that

> "each fishing year, the Council will assess the biological, social, and economic condition of the Pacific coast groundfish fishery and update MSY estimates or proxies for specific stocks (management units) where new information on the population dynamics is available... Based upon the best scientific information available, the Council will evaluate the current level of fishing relative to the MSY level for stocks where sufficient data are available. Estimates of the ABC for major stocks will be developed, and the Council will identify those species or species groups which it proposes to be managed by the establishment of numerical harvest levels (OYs, harvest guidelines, or quotas). For those stocks judged to be below their overfished/rebuilding threshold, the Council will develop a stock rebuilding management strategy."

All management actions recommended by the Council are evaluated for consistency with the goals, objectives and procedures of the FMP.

Goals and Objectives of the FMP

The Council is committed to developing long-range plans for managing the Pacific Coast groundfish fisheries that prevent overfishing and loss of habitat, yet provide the maximum net value of the resource, and achieve maximum biological yield. Alternatives 1.1, 1.2, and 1.3 are consistent with FMP goal 1 and objective 2 under that goal (emphasis added). All three alternatives are consistent with objective 5.

Goal 1- Conservation: **Prevent overfishing by managing for appropriate harvest levels**, and prevent any net loss of the habitat of living marine resources.

Objective 2. **Adopt harvest specifications and management measures consistent with resource stewardship responsibilities for each groundfish species or species group**. Alternatives 1.1, 1.2, and 1.3 would establish OYs and management measures to achieve them that are consistent with current scientific knowledge. The Status Quo harvest alternative would allow harvest in excess of scientific standards for several species.

Objective 5. Describe and identify essential fish habitat (EFH), adverse impacts on EFH, and other actions to conserve and enhance EFH, and **adopt management measures that minimize, to the extent practicable, adverse impacts from fishing on EFH**. Deleterious impacts of fishing gear on groundfish EFH have not been documented. However, each alternative would reduce the magnitude of contact between on-bottom groundfish trawl gear and the ocean floor, compared to years prior to 2000. Alternative 1.1, which is the most restrictive, would reduce that contact more than the other alternatives.

Each of the alternatives is consistent with Goal 2 - Economics, in particular objectives 7 and 8 under that goal:

Objective 7. Identify those sectors of the groundfish fishery for which it is beneficial to promote year-round marketing opportunities and **establish management policies that extend those sectors' fishing and marketing opportunities as long as practicable during the fishing year**. The commercial trip limits, recreational bag limits, seasons and other measures are designed to allow recreational and commercial fishing as long as possible through the 2002 fishing year without exceeding the specified OYs. The Council will also assess the trade-offs of potentially higher OYs and reduced discards with a shorter seasonal structure. A staggered season approach across the various groundfish and non-groundfish fishery sectors may optimize landed catch OYs for individual stocks that are more cleanly targeted during portions of the year as well as provide extended or year round fishing and marketing opportunities.

Objective 8. **Gear restrictions to minimize the necessity for other management measures** will be used whenever practicable. All alternatives use restrictions on the type of bottom trawl gear (footrope and chafing gear) and recreational hook limits, which reduce the need for other management measures.

All alternatives are consistent with Goal 3 - Utilization, in particular objectives 10 and 11..

Objective 10. Recognizing the multispecies nature of the fishery and establish a concept of **managing by species and gear or by groups of interrelated species**. Each alternative combines the minor rockfish into groups of interrelated species, and sets trip limits in proportion to how the fish are caught.

Objective 11. Strive to reduce the economic incentives and regulatory measures that lead to wastage of fish. Also, **develop management measures that minimize bycatch to the extent practicable** and, to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. Each alternative sets trip limits for related species in roughly the proportions they are expected to be caught. However, the basic trip limit management approach requires fishers to discard all fish in excess of the specified limits. That basic management approach encourages discard, especially if compared to a management system that would require fishers to retain all fish they catch. The shorter seasonal structure alternative may result in minimized bycatch and regulatory discards.

6.2 Likely Impacts on Other Management Measures and Other Fisheries

Harvest reductions that would be imposed by Alternatives 1.1-1.3 would continue the trend of reduced groundfish fishing opportunities for the commercial fishing sector. As these stocks become more constraining in fisheries where these stocks are incidentally caught, trip and landing limits will need to be decreased accordingly. Fishers are likely to respond by searching for alternative fishing opportunities. Three primary alternatives are the pink shrimp trawl fishery, the Dungeness crab pot (trap) fishery, and the albacore hook-and-line fishery. Increased participation in the pink shrimp fishery could easily result in increased bycatch of canary rockfish.

6.3 Economic Impacts, Particularly on the Cost to the Fishing Industry

The economic impacts and costs to the industry have been addressed in sections 4.1.4, 4.3, 4.4.2, and 5.0.

6.4 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Act provides parameters and guidance for federal fisheries management, requiring that the Councils and NMFS adhere to a broad array of policy ideals. Overarching principles for fisheries management are found in the Act's National Standards. In crafting fisheries management regimes, the Councils and NMFS must balance their recommendations to meet these different national standards.

For the 2002 specifications and management measures, the Council's recommendations will be driven by Section 304 (e) of the Act, which requires that Councils rebuild species that have been designated as overfished. As discussed above, seven groundfish stocks have been designated as overfished (lingcod, bocaccio, POP, canary rockfish, cowcod, darkblotched rockfish, and widow rockfish) and one additional stock will likely be designated as overfished in January 2002 (yelloweye rockfish). Managing to protect these stocks while also allowing the fisheries to have access to healthy stocks has been a challenging goal for the Council and has illustrated some of the conflicts that arise from trying to meet several different National Standards in one regulatory package. The following National Standards will be of particular concern to the Council as it works on the 2002 specifications and management measures:

National Standard 1 requires that "Conservation and management measures shall prevent overfishing while achieving on a continuing basis, the optimum yield from each fishery for the United States fishing industry." The Status Quo alternative would not prevent overfishing, the primary reason for its rejection. Alternatives 1.1, 1.2, and 1.3 would prevent overfishing, but Alternative 1.3 is the most balanced alternative for achieving the optimum yield from healthy stocks while still protecting overfished stocks.

National Standard 2 requires the use of the best available scientific information. Again, the Status Quo Alternative would not use the best available information, and Alternatives 1.1-1.3 would calibrate 2002 harvest levels consistent with the updated information obtained in 2001.

National Standard 4 requires that "Conservation and management measures shall not discriminate between residents of different States." All alternatives are intended to meet this standard, as is particularly evident in the state-specific management measures for recreational fisheries. Each state brings recreational fishery management measures to the Council that are designed to match the needs of the fisheries in those states, and to recognize the different effects that different State fisheries have on overfished species. Commercial management measures have also been designed to account for the differences in fishing activities in various parts of the coast.

National Standard 6 requires that "Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches." While the Council's primary goal in crafting specifications and management measures for 2002 will be to protect overfished species, it will do so with an eye to how those measures will affect the various fisheries that incidentally take overfished species. Protecting overfished stocks, particularly yelloweye rockfish, from incidental capture will be particularly challenging, as these species can be taken in almost every West Coast fishery: at-sea whiting, state-managed pink shrimp trawl fisheries, salmon troll fisheries, directed commercial groundfish fisheries, and recreational fisheries. Management measures for 2002 are intended, in part, to distribute the burdens of overfished groundfish protection among these fleets, while still ensuring that these fleets have some access to the their target stocks, where those stocks are viable. Considerations for a more in depth look at bycatch and discard assumptions and a shorter seasonal structure address the dual objectives of accounting for and managing total mortality of overfished stocks while maximizing equitable economic opportunities for West Coast coastal communities.

National Standard 8 provides protection to fishing communities: "Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities." Implementing rebuilding measures for West Coast groundfish has been difficult on the socioeconomic structure of fishing communities. In January 2000, the Secretary of Commerce declared West Coast groundfish fisheries to be a "federal fishery failure." There are two components that need protection in a federal fishery failure, the depleted fish stocks and the fishing communities that have traditionally depended on those stocks. For fishing communities to survive and thrive, West Coast groundfish stocks must be healthy. Where fish stocks are not healthy, the Council must consider even more carefully the economic burdens created by its policies. The 2002 annual specifications and management measures are intended to provide as much access to healthy groundfish and non-groundfish stocks as possible while protecting overfished stocks. Numerous management measures have been recommended to soften the burden of rebuilding on fishing communities, including area-specific regulations for recreational fisheries and for some of the smaller commercial fisheries.

National Standard 9 requires that conservation and management measures minimize bycatch and minimize the mortality of bycatch. As discussed above, measures to protect overfished species are essentially designed to prevent vessels from directed and incidental catch of those species, and where incidental catch is unavoidable, to allow some minimal retention. Recreational and commercial hook-and-line fisheries for lingcod and shelf rockfish have recently been closed for several months in central and southern California to protect those species from incidental capture. Further restrictions are contemplated coastwide to achieve the same objectives. For all groundfish sectors, the Council is considering updated bycatch rates for constraining stocks. These updated rates are expected to better reflect the actual encounter rates in the fishery. All of these measures are expected to either minimize bycatch and bycatch mortality, or to better account for unavoidable bycatch.

Essential Fish Habitat (EFH)

The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH for WOC groundfish is further defined in Amendment 11 to the Pacific Coast FMP as "the entire EEZ and marine coastal waters inshore of the EEZ." NMFS guidelines (62 FR 66553, December 19, 1997) state that "adverse effects from fishing may include physical, chemical, or biological alterations of the substrate, and loss of, or injury to, benthic organisms, prey species and their habitat, and other components of the ecosystem". The adopted measure that allows commercial fishers to land several groundfish species only if they use trawl gear that is ineffective in rocky areas inhabited by canary rockfish, yelloweye rockfish, and other depleted species has resulted in reduced impacts on the physical environment, particularly the rocky shelf strata. In addition, the Cowcod Conservation Areas closed a large area and small area off southern California to all groundfish fishing except in shallow water which has also resulted in reduced impacts in essential fish habitats. No adverse impacts on EFH are expected from any of the alternatives considered for 2002 fisheries.

6.5 Paperwork Reduction Act

None of the alternatives require collection-of-information subject to the PRA.

6.6 Endangered Species Act

NMFS issued Biological Opinions under the ESA on August 10, 1990, November 26, 1991, August 28, 1992,September 27, 1993, May 14, 1996, and December 15, 1999 pertaining to the effects of the groundfish fishery on chinook salmon (Puget Sound, Snake River spring/summer, Snake River fall, upper Columbia River spring, lower Columbia River, upper Willamette River, Sacramento River winter, Central Valley, California coastal), coho salmon (Central California coastal, southern Oregon/northern California coastal, Oregon coastal), chum salmon (Hood Canal, Columbia River), sockeye salmon(Snake River, Ozette Lake), and steelhead (upper, middle and lower Columbia River, Snake River Basin, upper Willamette River, central California coast, California Central Valley, south-central California, northern California, southern California). The biological opinions have concluded that implementation of the FMP for the Pacific Coast groundfish fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. NMFS has re-initiated consultation on the Pacific whiting fishery associated with the Biological Opinion issued on December 15,1999. During the 2000 whiting season, the whiting fisheries exceeded the chinook bycatch amount specified in the Biological Opinion's incidental take statement's incidental take estimates, 11,000 fish, by approximately 500 fish. The re-initiation will focus primarily on additional actions that the whiting fisheries would take to reduce chinook interception, such as time/area management. NMFS is gathering data from the 2001 whiting fisheries and expects that the re-initiated Biological Opinion will be complete by February 2002. During there initiation, fishing under the FMP is within the scope of the December15, 1999 Biological Opinion, so long as the annual incidental take of chinook stays under the 11,000 fish bycatch limit. The biological opinions have concluded that implementation of the FMP for the Pacific Coast groundfish fishery is not expected to jeopardize the continued existence of any endangered or threatened species under the jurisdiction of NMFS, or result in the destruction or adverse modification of critical habitat. This action is within the scope of these consultations.

Since 1992, the shore-based whiting fishery has used Exempted Fishing Permits to allow vessel operators to land unsorted catch at shore-based processing facilities where state samplers monitor the number of salmon in landings. In 2000, 23% of the whiting landings were monitored by state samplers. Since 1991, all at-sea processors carried at least one NMFS-trained observer to collect data used to estimate total catch of salmonids by species. For 2000, it is estimated that 11,516 chinook, 86 coho, 18 pink, and 15 chum salmon were taken in the whiting fishery. Observer program data for the 2001 bottom trawl fishery is not available at this time. The incidental take statement permits an annual bycatch of 9,000 salmon in the non-whiting groundfish fisheries; but this figure is based on a fishery with significantly higher groundfish landings than will be available in 2002. Incidental salmon take in groundfish fisheries managed under the current overfished species rebuilding regime is likely to be lower than permitted in the incidental take statement.

6.7 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) of 1972 is the principle federal legislation that guides marine mammal species protection and conservation policy in the United States. Under the MMPA, NMFS is responsible for the management and conservation of 153 stocks of whales, dolphins, porpoise, as well as seals, sea lions, and fur seals while the FWS is responsible for walrus, sea otters, and the West Indian manatee.

In the WOC region, the Steller sea lion (*Eumetopias jubatus*) Eastern stock, Guadalupe fur seal (*Arctocephalus townsendi*), and Southern sea otter (*Enhydra lutris*) California stock are listed as threatened under the ESA and the sperm whale (*Physeter macrocephalus*) WOC Stock, humpback whale (*Megaptera novaeangliae*) WOC - Mexico Stock, blue whale (*Balaenoptera musculus*) Eastern north Pacific stock, and Fin whale (*Balaenoptera physalus*) WOC Stock are listed as depleted under the MMPA. Any species listed as endangered or threatened under the ESA is automatically considered depleted under the MMPA.

The WOC groundfish fisheries are considered a Category III fishery, indicating a remote likelihood of or no known serious injuries or mortalities to marine mammals, in the annual list of fisheries published in the Federal Register. Based on its Category III status, the incidental take of marine mammals in the WOC groundfish fisheries does not significantly impact marine mammal stocks.

None of the proposed management alternatives are likely to affect the incidental mortality levels of species protected by the MMPA. Implementation of the NMFS West Coast groundfish observer program should provide additional information about the incidental take of marine mammals in groundfish fisheries.

6.8 Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 was designed to end the commercial trade of migratory birds and their feathers that, by the early years of the 20th century, had diminished populations of many native bird species. The Act states that it is unlawful to take, kill, or possess migratory birds and their parts (including eggs, nests, and feathers) and is a shared agreement between the United States, Canada, Japan, Mexico, and Russia to protect a common migratory bird resource.

The Migratory Bird Treaty Act prohibits the directed take of seabirds, but the incidental take of seabirds does occur. Only limited information exists quantifying the incidental take of seabirds in WOC groundfish fisheries. However, none of the proposed management alternatives are likely to affect the incidental take of seabirds protected by the Migratory Bird Treaty Act. Implementation of the NMFS West Coast groundfish observer program should provide additional information about the incidental take of seabirds in groundfish fisheries.

6.9 Coastal Zone Management Act

Section 307(c)(1) of the Federal Coastal Zone Management Act (CZMA) of 1972 requires all federal activities which directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. Under the CZMA, each state develops its own coastal zone management program which is then submitted for federal approval. This has resulted in programs which vary widely from one state to the next. Because the proposed action is to prevent overfishing and achieve the OY for the available groundfish resource, the Council believes that it is consistent with each state's coastal management program.

6.10 Executive Orders 12866 and 13132

None of the recommended changes to annual specifications and management measures for 2002 would be a significant action according to E.O. 12866. This action will not have a cumulative effect on the economy of $100 million or more nor will it result in a major increase in costs to consumers, industries, government agencies, or geographical regions. No significant adverse impacts are anticipated on competition, employment, investments, productivity, innovation, or competitiveness of U.S.-based enterprises.

None of the alternative actions would have federalism implications subject to E.O. 13132.

6.11 Executive Order 13175

Executive Order 13175 is intended to ensure regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes.

The Secretary of Commerce recognizes the sovereign status and co-manager role of Indian tribes over shared Federal and tribal fishery resources. At Section 302(b)(5), the Magnuson-Stevens Act reserves a seat on the Pacific Fishery Management Council for a representative of an Indian tribe with Federally recognized fishing rights from California, Oregon, Washington, or Idaho.

The U.S. government formally recognizes that the four Washington Coastal Tribes (Makah, Quileute, Hoh, and Quinault) have treaty rights to fish for groundfish. In general terms, the quantification of those rights is 50 percent of the harvestable surplus of groundfish available in the tribes' usual and accustomed (U and A) fishing areas (described at 50 CFR 660.324). Each of the treaty tribes has the discretion to administer their fisheries and to establish their own policies to achieve program objectives. Accordingly, tribal allocations and regulations have been developed in consultation with the affected tribe(s) and, insofar as possible, with tribal consensus.

At the Council's September meeting the Council considered a treaty groundfish fishery request for 2002. After consideration of the tribal request and the comments of the public, the Council recommended adopting the treaty fishery proposal for public review.

7.0 CONCLUSIONS OR FINDINGS OF NO SIGNIFICANT IMPACT

This action would set 2002 fishery specifications and the management measures that are designed to rebuild overfished stocks through constraining direct and incidental mortality, to prevent overfishing, and to achieve as much of the OYs as practicable for healthier groundfish stocks managed under the FMP. Seven stocks managed under the FMP have been determined by NMFS as overfished: lingcod, bocaccio, POP, canary rockfish, cowcod, darkblotched rockfish, and widow rockfish. The Council expects that NMFS will declare one additional stock (yelloweye rockfish) overfished in January 2002. Under Magnuson-Stevens Act requirements for protecting overfished species, managing to keep directed and incidental catch of overfished species at levels that will allow those species to rebuild their populations has become the Council's first priority for setting annual specifications and management measures for all West Coast groundfish. For 2002, commercial landings limits and recreational bag limits are recommended to be reduced to protect overfished species. These fisheries have been operating under protective measures for several years.

Based on the biological, physical, and socioeconomic impacts of the alternatives that have been assessed in this document, it has been determined that implementation of the management alternatives would not significantly affect the quality of the human environment. Therefore, the preparation of an environmental impact statement for the proposed action is not required by Section 102 (2) (C) of the National Environmental Policy Act or its implementing regulations.

Assistant Administrator for Fisheries, NOAA

Date

8.0 REGULATORY IMPACT REVIEW (RIR)

The RIR analysis has many aspects in common with EAs. Much of the information required for the RIR analysis has been provided above in the EA. Table 8.1 identifies where previous discussions relevant to the EA can be found in this document. In addition to the information provided in the EA, above, a basic economic profile of the fishery is provided annually in the Council's SAFE document.

Table 8.1 Regulatory Impact Review

RIR Elements of Analysis	Corresponding Sections in EA
Description of management objectives	1.0, 6.1
Description of the Fishery	3.3
Statement of the Problem	1.0
Description of each selected alternative	2.0
An economic analysis of the expected effects of each selected alternative relative to status quo	4.1, 4.3, 4.4, 5.0

The RIR is designed to determine whether the proposed actions could be considered a "significant regulatory actions" according to E.O. 12866. Table 8.2 identifies E.O. 12866 test requirements used to assess whether or not an action would be a "significant regulatory action", and identifies the expected outcomes of the proposed management alternatives. Regulatory actions are judged as significant if they: 1. have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; 2. create a serious inconsistency or otherwise interfere with action taken or planned by another agency; 3 materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or 4. raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order. For the purposes of E.O. 12866, none of the proposed alternatives would meet the E.O.'s criteria for a significant regulatory action.

Table 8.2 Summary of E.O. 12866 Test Requirements

E.O 12866 Test of "Significant Regulatory Actions	Alternative 1.1 Low OYs	Alternative 1.2 High OYs	Alternative 1.3 Preferred OYs
1) Have a annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities;	No	No	No
2) Create a serious inconsistency or otherwise interfere with action taken or planned by another agency;	No	No	No
3) Materially alter the budgetary impact of entitlement, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or	No	No	No
4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.	No	No	No

9.0 PUBLIC NOTICE AND COMMENT

In 1997 the Council implemented a new stock assessment review process in an attempt to improve public participation in the process, to increase the level of scientific peer review, and to provide a greater separation between the scientific and management processes. The terms of reference for the process are revised each year to better accomplish the stated goals. In 2001 a pre-assessment public workshop was held to review and evaluate data and identify problems and modeling assumptions. This year, as in the past, all assessments were reviewed by Stock Assessment Review (STAR) Panels at public workshops. The Council's GMT then met in August 2001 to develop ABC and OY recommendations based on the "best scientific information" forwarded by the STAR Panels. The proposed actions were developed at the Council's September 10-14, 2001 meeting in Portland, Oregon and announced to the public in its September news brief. Opportunity for testimony was provided at the September meeting. Written public comment was accepted between the meetings. Final action will be taken at the Council's October 29 -November 2, 2001 meeting in Millbrae, California.

10.0 PREPARERS, CONTRIBUTORS, AND AGENCIES AND PERSONS CONSULTED

This document was prepared by John DeVore, and Jim Seger of the Pacific Fishery Management Council. Daniel Waldeck, Charles Tracy, Kerry Aden, and Renee Heyden of the Pacific Fishery Management Council, Jim Hastie and John Harms of the National Marine Fisheries Service NW Fishery Science Center, Dr. Alec MacCall of the National Marine Fisheries Service SW Fishery Science Center, and Carrie Nordeen and Yvonne deReynier of the National Marine Fisheries Service NW Regional Office made significant contributions.

Representatives of the following agencies, tribes, and industry groups were consulted:

California Department of Fish and Game
The Makah Indian Nation
National Marine Fisheries Service
Northwest Indian Fisheries Commission
Oregon Department of Fish and Wildlife
Pacific States Marine Fisheries Commission
Washington Department of Fish and Wildlife
West Coast Seafood Processors Association

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12.0 APPENDIX

This section will comprise a description of alternative bycatch and discard rates, including methodology and data documentation, considered for the 2002 Pacific Coast groundfish fishery. Alternative trip limits for Council adopted commercial season alternatives that vary by the range of alternative bycatch and discard rates will also be included. This information will be provided as a supplemental attachment to the Council prior to decision making.

TABLE 2.1-1. Acceptable biological catch (ABC) and total catch optimum yield (OY) alternatives for 2002 for the Washington, Oregon, and California region (metric tons) under the proposed alternatives. (Overfished stocks in CAPS). (Page 66 of 1)

	Status Quo Alternative 2001 ABCs/OYs		**Alternative 1.1** 2002 Low ABCs/OYs		**Alternative 1.2** 2002 High ABCs/OYs		**Alternative 1.3** 2002 Preferred ABCs/OYs	
	ABC	OY	ABC	OY	ABC	OY	ABC	OY
LINGCOD	1,119	611					745	577
Pacific Cod	3,200	3,200					3,200	3,200
Whiting	238,000	190,400					238,000	190,400
Sablefish	7,895	7,011	4,062	3,200	4,786	4,500	4,786	4,000
S. of Pt. Conception	191	96					191	96
PACIFIC OCEAN	1,541	303	640	290	640	410	640	350
Shortbelly Rockfish	13,900	13,900					13,900	13,900
WIDOW ROCKFISH	3,727	2,300	3,727	726	3,727	856	3,727	856
CANARY ROCKFISH	223	93					223	93
Chilipepper Rockfish	2,700	2,000					2,700	2,000
BOCACCIO	122	100					122	100
Splitnose Rockfish	615	461					615	461
Yellowtail Rockfish	3,146	3,146					3,146	3,146
Shortspine Thornyhead	880	751	880	751	1,004	955	See text	
Longspine Thornyhead	2,461	2,461					2,461	2,461
Conception area	390	195					390	195
COWCOD (S. Concep)	2.4	2.4					2.4	2.4
N. Concep & Monterey	19	2.4					19	2.4
DARKBLOTCHED	349	130	187	157	187	181	187	168
YELLOWEYE - Coastwide							27	11
Monterey							5	2-3
N. of 40°10'	29	22					22	8-9
Minor Rockfish N	4,823	3,137					4,794	3,115
Minor Rockfish S	3,556	2,040					3,506	2,015
Remaining Rockfish	2,755						2,755	
Black	1,115						1,115	
Bocaccio	318						318	
Chilipepper - Eureka	32						32	
Redstripe	576						576	
Sharpchin	307						307	
Silvergrey	38						38	
Splitnose	242						242	
Yellowmouth	99						99	
Remaining Rockfish	854						854	
Bank	350						350	
Blackgill	343						343	
Sharpchin	45						45	
Yellowtail	116						116	
Other rockfish North	2,068						2,068	
South	2,702						2,652	
Dover Sole	8,204	7,677	6,142	5,520	8,510	7,440	7,221	6,410
English Sole	3,100						3,100	
Petrale Sole	2,740						2,740	
Arrowtooth Flounder	5,800						5,800	
Other Flatfish	7,700						7,700	
Other Fish	14,700						14,700	

TABLE 2.3-1. Trip limits for constraining target species landings in the limited entry trawl for 2002, under the GMT year round fishery season alternative. These do NOT reflect restrictions needed for bycatch species. (Page 1 of 2)

Species/Groups	Landed Catch	January-February	March-April	May-June	July-August	September-October	November-December
Minor Slope Rockfish							
North of Cape Mendocino	low	1,500 lb/2 months					
	med	1,800 lb/2 months [a/]					
	high	2,000 lb/2 months					
South of Cape Mendocino		25,000 lb/2 months					
Splitnose-South		1,000 lb/2 months		2,000 lb/2 months			1,000 lbs/2 months
Pacific Ocean	244	1,800 lb/month		3,600 lb/month			1,800 lb/month
	294	2,000 lb/month a/		4,000 lb/month a/			2,000 lb/month a/
	344	2,500 lb/month		4,500 lb/month			2,500 lb/month
Dover Sole/Thornyhead/ Trawl-Caught Sablefish							
Dover sole	5,244	13,500 lb/2 months					
	6,090	17,000 lb/2 months a/					
	7,068	22,000 lb/2 months					
Sablefish	1,180	2,800 lb/2 months					
	1,476	3,600 lb/2 months a/					
	1,660	4,500 lb/2 months					
Shortspine	614	1,700 lb/2 months					
	759	2,000 lb/2 months a/					
Longspine	low	7,000 lb/2 months					
	high	9,000 lb/2 months a/					
Arrowtooth		20,000 lb/trip		Sm. Footrope: 7,500 lb/trip, up to 30,000 lb/mo			20,000 lb/trip
Petrale sole		No restriction		Small Footrope: 45,000 lb/mo for all non-Dover flatfish species combined using small footrope, no more than 15,000 lb of which may be petrale			No restriction
Rex sole		No limit					No limit
All Other Flatfish		Small Footrope: 45,000 lb/m Large Footrope: 1,000 lb/trip					Small Footrope: 45,000 lb/mo Large Footrope: 1,000 lb/trip
Shoreside Whiting [b/]		20,000 lb/trip		Open			20,000 lb/trip
Use of Small Footrope Required for Landing All Shelf and Near-shore Rockfish							
Minor Shelf Rockfish							
North of Cape Mendocino		300 lb/month		1,000 lb/month			300 lb/month
South of Cape Mendocino		500 lb/month		1,000 lb/month			500 lb/month
Canary-Coastwide		100 lb/month		300 lb/month			100 lb/month
Widow-Coastwide (mid-water only)	low	Closed		with >=10,000 lb whiting, 2,500 lb/mo; combined widow+yellowtail of 500 lb/trip			Evaluate remaining widow OY
	high	10,000 lb/ 2 months	Closed	with >=10,000 lb whiting, 1,500 lb/mo; combined widow+yellowtail of 500 lb/trip a/			Evaluate remaining widow OY
Small Footrope	low	1,000 lb/month					
	high	800 lb/month a/					
Yellowtail-North (mid-water only)	low	Closed		with >=10,000 lb whiting, 2,500 lb/mo; combined widow+yellowtail of 500 lb/trip			Evaluate remaining widow OY
	high	20,000 lb/ 2 months	Closed	with >=10,000 lb whiting, 2,000 lb/mo; combined widow+yellowtail of 500 lb/trip a/			Evaluate remaining widow OY
Small Footrope		1,000 lb/month					
(as flatfish bycatch)		Up to 33% of all flatfish (excluding arrowtooth) plus 10% of weight of Arrowtooth not to exceed:					
		2,500 lbs/trip		7,500 lb/trip			2,500 lb/trip
		<---------- and 20,000 lb/2 months ---------->					
Bocaccio-South		300 lb/month		500 lb/month			300 lb/month
Chilipepper-South (mid-water only)		25,000 lb/2 months					
Small Footrope		7,500 lb/2 months					
Cowcod		No retention					
Minor Nearshore Rockfish							
North of Cape Mendocino		300 lb/month		1,000 lb/month			300 lb/month
South of Cape Mendocino		300 lb/month		1,000 lb/month			300 lb/month

TABLE 2.3-1. Trip limits for constraining target species landings in the limited entry trawl for 2002, under the GMT year round fishery season alternative. These do NOT reflect restrictions needed for bycatch species. (Page 3 of 2)

Species/Groups	Landed Catch	January-February	March-April	May-June	July-August	September-October	November-December
Lingcod		No retention		400 lb/month			No retention

TABLE 2.3-2a. GMT-recommended option for 2002 limited entry trawl trip limits assuming the low end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-2b. GMT-recommended option for 2002 limited entry fixed gear trip limits assuming the low end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-2c. GMT-recommended option for 2002 open access (other than exempted trawl) trip limits assuming the low end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-3a. GMT-recommended option for 2002 limited entry trawl trip limits assuming the high end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-3b. GMT-recommended option for 2002 limited entry fixed gear trip limits assuming the high end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-3c. GMT-recommended option for 2002 open access (other than exempted trawl) trip limits assuming the high end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-4a. Coastwide six month season option for 2002 limited entry trawl trip limits assuming the low end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-4b. Coastwide six month season option for 2002 limited entry fixed gear trip limits assuming the low end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-4c. Coastwide six month season option for 2002 open access (other than exempted trawl) trip limits assuming the low end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-5a. Coastwide six month season option for 2002 limited entry trawl trip limits assuming the high end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-5b. Coastwide six month season option for 2002 limited entry fixed gear trip limits assuming the high end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-5c. Coastwide six month season option for 2002 open access (other than exempted trawl) trip limits assuming the high end of the range of bycatch rates of overfished stocks.

This table will be provided in a supplemental attachment to the Council prior to decision making.

TABLE 2.3-6. GAP-recommended limited entry trawl trip limits for 2002 with the Council preferred total catch OY alternatives. (Page 1 of 1)

Species/Groups	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
Minor Slope Rockfish						
North	1,500 lb / 2 months					
South	25,000 lb / 2 months					
Splitnose-South	25,000 lb / 2 months					
Darkblotched	??? lb / 2 months					
POP	4,000 lb / month		4,000 lb / month			4,000 lb / month
Sablefish	4,000 lb / 2 months		6,000 lb / 2 months			4,000 lb / 2 months
Longspine	8,500 lb / 2 months		8,500 lb / 2 months			8,500 lb / 2 months
Shortspine	2,100 lb / 2 months		2,100 lb / 2 months			2,100 lb / 2 months
Dover Sole	40,000 lb / 2 months		20,000 lb / 2 months			40,000 lb / 2 months
Sablefish	5,000 lb / 2 months		5,000 lb / 2 months			5,000 lb / 2 months
Longspine	8,500 lb / 2 months		8,500 lb / 2 months			8,500 lb / 2 months
Shortspine	2,100 lb / 2 months		2,100 lb / 2 months			2,100 lb / 2 months
Dover Sole	30,000 lb / 2 months		30,000 lb / 2 months			30,000 lb / 2 months
Arrowtooth	30,000 lb / trip		small footrope required			30,000 lb / trip
Petrale Sole	No restriction		small footrope required			No restriction
Rex Sole	No restriction		small footrope required			No restriction
All Other Flatfish	No restriction		small footrope required			No restriction
Shoreside Whiting a/	20,000 lb / trip		Open			20,000 lb / trip
Use of Small Footrope Required for Landing All Shelf and Near-shore Rockfish						
Minor Shelf Rockfish						
North	300 lb / month		1000 lb / month			300 lb / month
South	500 lb / month		1000 lb / month			500 lb / month
Canary-Coastwide	100 lb / month		300 lb / month			100 lb / month
Widow						
(mid-water only)	??? lb / 2 months (coastwide)					
Small Footrope	1,000 lb / month		1,000 lb / month			1,000 lb / month
Yellowtail-North b/						
(mid-water only)	30,000 lb / 2 months		15,000 lb / 2 months			20,000 lb / 2 months
Small Footrope	1,500 lb / month		1,500 lb / month c/			1,500 lb / month
Bocaccio-South	300 lb / month		500 lb / month			300 lb / month
Chilipepper-South						
(mid-water only)	25,000 lb / 2 months					
Small Footrope	7,500 lb / 2 months					
Cowcod	No retention					
Minor Nearshore Rockfish						
North	200 lb / month		200 lb / month			200 lb / month
South	200 lb / month		200 lb / month			200 lb / month
Lingcod	No retention		400 lb / month			No retention

a/ Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb/ trip throughout the year.

b/ Yellowtail up to 33% of weight of flatfish (excluding Arrowtooth) plus 10% of weight of Arrowtooth not to exceed 7,500 lbs per trip or 30,000 lbs per 2 months.

c/ 5,000 lbs with large footrope.

TABLE 2.3-7. GAP-recommended limited entry trawl trip limits for 2002 with the high total catch OY alternatives. (Page 1 of 1)

Species/Groups	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sep-Oct	Nov-Dec
Minor Slope Rockfish						
North	1,500 lb / 2 months					
South	25,000 lb / 2 months					
Splitnose-South	25,000 lb / 2 months					
Darkblotched	??? lb / 2 months					
POP	4,000 lb / month		4,000 lb / month			4,000 lb / month
Sablefish	5,000 lb / 2 months		7,500 lb / 2 months			4,000 lb / 2 months
Longspine	8,500 lb / 2 months		8,500 lb / 2 months			8,500 lb / 2 months
Shortspine	2,100 lb / 2 months		2,100 lb / 2 months			2,100 lb / 2 months
Dover Sole	50,000 lb / 2 months		20,000 lb / 2 months			40,000 lb / 2 months
Sablefish	6,200 lb / 2 months		6,200 lb / 2 months			6,200 lb / 2 months
Longspine	8,500 lb / 2 months		8,500 lb / 2 months			8,500 lb / 2 months
Shortspine	2,100 lb / 2 months		2,100 lb / 2 months			2,100 lb / 2 months
Dover Sole	35,000 lb / 2 months		35,000 lb / 2 months			35,000 lb / 2 months
Arrowtooth	30,000 lb / trip		small footrope required			30,000 lb / trip
Petrale Sole	No restriction		small footrope required			No restriction
Rex Sole	No restriction		small footrope required			No restriction
All Other Flatfish	No restriction		small footrope required			No restriction
Shoreside Whiting a/	20,000 lb / trip		Open			20,000 lb / trip
Use of Small Footrope Required for Landing All Shelf and Near-shore Rockfish						
Minor Shelf rockfish						
North	300 lb / month		1000 lb / month			300 lb / month
South	500 lb / month		1000 lb / month			500 lb / month
Canary-Coastwide	100 lb / month		300 lb / month			100 lb / month
Widow						
(mid-water only)	??? lb / 2 months (coastwide)					
Small Footrope	1,000 lb / month		1,000 lb / month			1,000 lb / month
Yellowtail-North b/ (mid-water only)	30,000 lb / 2 months		15,000 lb / 2 months			20,000 lb / 2 months
Small Footrope	1,500 lb / month		1,500 lb / month c/			1,500 lb / month
Bocaccio-South	300 lb / month		500 lb / month			300 lb / month
Chilipepper-South (mid-water only)	25,000 lb / 2 months					
Small Footrope	7,500 lb / 2 months					
Cowcod	No retention					
Minor Nearshore Rockfish						
North	200 lb / month		200 lb / month			200 lb / month
South	200 lb / month		200 lb / month			200 lb / month
Lingcod	No retention		400 lb / month			No retention

a/ Whiting limit in the Eureka area for catch inside 100 fathoms is 10,000 lb / trip throughout the year.
b/ Yellowtail up to 33% of weight of flatfish (excluding Arrowtooth) plus 10% of weight of Arrowtooth not to exceed 7,500 lbs per trip or 30,000 lbs per 2 months.
c/ 5,000 lbs with large footrope.

TABLE 3.2.1.1-1. Rebuilding plan matrix for groundfish species declared overfished (parameters to be determined by the Council in bold italic). (Page 1 of 2)

Criteria	Species			
	Canary	Cowcod	Bocaccio	POP
% Unfished Spawning Biomass	7%-20%	4%-11%	2.1% (Southern portion of stock)	13% (1998)
Years to Rebuild w/ No Fishing (F_0)	41 years	61 years	26 years	12 years
Max. Rebuilding Time (F_0 + 1 mean generation)	58 years	98 years	38 years	42 years
Council-Adopted Rebuilding Time	57 years	95 years	34 years	42 years
Probability of Rebuilding Within Designated Timeframe	52%	55%	67%	***60-80% (range adopted in Sept 2001)***
Management Actions to Rebuild	Constant harvest (93 mt), 2001-02 Time/gear/bag limit restrictions	Constant harvest rate (E=0.01) Area closures Retention prohibited Sport gear restrictions	Constant harvest (100-103 mt), 2000-02 Constant harvest rate (E=0.03), 2003-33 Time/gear/bag limit restrictions Area closures (cowcod closures)	Constant harvest rate
Year Rebuilding Management Measures First Implemented	2000	2000	2000	2000
Target Rebuilding Year	2056	2094	2033	2041
2001 OY	93 mt	4.8 mt	100 mt	303 mt
2002 OY	***93 mt***	***4.8 mt***	***100 mt***	***290-410 mt***
Stock Assessment Used in Rebuilding Plan	1999	1999	1999	1998
Most Recent Stock Assessment	1999	1999	1999	2000
Next Stock Assessment	***2002***	***2004***	***2002***	***2003***
Next Council Review	2003	2003	2003	2001

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TABLE 3.2.1.1-1. Rebuilding plan matrix for groundfish species declared overfished (parameters to be determined by the Council in bold italic). (Page 2 of 2)

Criteria	Species			
	Lingcod	Widow	Darkblotched	Yelloweye
% Unfished Spawning Biomass	15% (1999)	24.6%	14%	7% (N. Cal.)-13% (OR) (2001)
Years to Rebuild w/ No Fishing (F_0)	10 years	22 years	14 years	***To be determined***
Max. Rebuilding Time (F_0 + 1 mean generation)	10 years	38 years	47 years	***To be determined***
Council-Adopted Rebuilding Time	10 years	38 years	47 years	***To be determined***
Probability of Rebuilding Within Designated Timeframe	60%	***60-80% (range adopted in June 2001)***	***60-80% (range adopted in Sept 2001)***	***To be determined***
Management Actions to Rebuild	Constant harvest rate ($F_{45\%}$) Time/gear/bag limit restrictions	Constant harvest rate ***(E=0.23-0.27)***	Constant harvest rate ($F_{50\%}$)	***To be determined***
Year Rebuilding Management Measures First Implemented	2000	2002	2002	***2002***
Target Rebuilding Year	2009	2039	2048	***To be determined***
2001 OY	611 mt	2300 mt	130 mt	Stock not specified
2002 OY	***577 mt***	***726-856 mt***	***157-181 mt***	***11 mt***
Stock Assessment Used in Rebuilding Plan	1999	2000	2000	2001
Most Recent Stock Assessment	2000	2000	2000	2001
Next Stock Assessment	***2003***	***2003***	***2003***	***2005***
Next Council Review	2001	2001	2001	***2004***

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TABLE 3.2.3-1. Mortality levels of marine mammals incidentally caught by at-sea processing trawl vessels in the Pacific whiting fishery. (Page 1 of 1)

Species	Year	Observed Mortality	Estimated Annual Mortality
California sea lion (*Zalophus californianus*)	1994	1	2
	1995	0	0
	1996	0	0
	1997	0	0
	1998	1	1
	1999	2	2
Pacific white-sided dolphin (*Lagenorhynchus obliquidens*)	1994	0	0
	1995	0	0
	1996	0	0
	1997	0	0
	1998	1	1
	1999	0	0
Dall's porposie (*Phocoenoides dalli*)	1994	0	0
	1995	0	0
	1996	0	0
	1997	5	27
	1998	2	3
	1999	1	2
Northern elephant seal (*Mirounga augustirostris*)	1994	a/	a/
	1995	a/	a/
	1996	a/	a/
	1997	0	0
	1998	1	1
	1999	1	a/
Stellar sea lion (*Eumetopias jubatus*)	1994	a/	a/
	1995	a/	a/
	1996	a/	a/
	1997	2	11
	1998	0	0
	1999	0	0
Harbor seal (Phoca vitulina)	1994	0	0
	1995	0	0
	1996	1	0
	1997	1	5
	1998	0	0
	1999	0	0

a/ These data were not available from the sources used to complete this table.

Sources: U.S. Pacific Marine Mammal Stock Assessments: 2000; Implementation of an Observer Program for the At-sea Processing Vessel in the Pacific Coast Groundfish Fishery, 2001; M. Perez, biologist, NMML, July 24, 2000.

TABLE 3.2.4-1. Mortality levels of seabirds incidentally caught by at-sea processing trawl vessels in the Pacific whiting fishery (based on observer data, 1996 - 2000). (Page 1 of 1)

Species	Year	Number of Birds in Sample
Unidentified puffin (*Fratercula spp.*)	1996	1
Northern fulmar (*Fulmarus glacialis*)	1997	1
Unidentified shearwater (*Puffinus spp.*)		1
Unidentified tubenose (*Procellariiformes*)		1
Unidentified seabird	1999	1
Unidentified petrel/shearwater (*Procellariidae*)	2000	1

TABLE 3.3.1.1-1a. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **2000**. (In $1,000, not adjusted for inflation.) (Page 1 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Washington (Inside Marine Waters)													
Sablefish		5				230		1,165					1,399
Whiting										0			0
Flatfish	0	70	15	42	17	50	0	345	36	119	24	20	739
Rockfish	1	89	21	22	11	66	68	134	204	20	118	39	793
Other GF		116				20	0	46		2	10		194
Shrimp/Prawns	7	12	16	413	219	242	209	129	38	15	9	8	1,319
Crab/Lobster	1,650	1,189	831	675	918	1,749	816	880	2,131	2,905	1,136	922	15,804
Salmon	8	0	0		2	6	751	3,092	1,067	1,480	437	64	6,908
HMS	5	0					3	17	25	28	93		172
CPS													
Other	1,272	1,131	1,726	1,813	2,669	3,044	4,351	3,208	3,524	2,738	1,943	1,247	28,664
GF Total	2	278	36	64	28	365	69	1,690	240	142	152	58	3,126
Non GF Total	2,942	2,332	2,574	2,902	3,808	5,041	6,131	7,327	6,785	7,165	3,618	2,242	52,867
Region Total	2,944	2,611	2,610	2,965	3,836	5,406	6,200	9,017	7,026	7,307	3,770	2,300	55,992
Coastal Washington (and Columbia River)													
Sablefish			178	689		51	793	1,386	779	276	75	57	4,286
Whiting						220	347	429	124				1,120
Flatfish	84	88	66	3	39	17	3	34	53	51	23	57	517
Rockfish	11	40	29	34	28	74	155	58	137	119	103	76	863
Other GF			2	7	6	11	14	9	7	1			57
Shrimp/Prawns	0	1	3	29	195	729	563	291	283	136	32	5	2,268
Crab/Lobster	7,087	3,129	1,668	987	1,053	540	618	605	528	415	1,083	4,684	22,396
Salmon	50	39	22	3	237	92	360	660	676	572	42	69	2,823
HMS							405	3,237	1,673	437	16		5,766
CPS						15	151	312	214	22	0		713
Other	636	645	860	1,528	1,367	1,097	867	936	568	684	676	519	10,383
GF Total	95	128	275	732	73	372	1,312	1,916	1,100	448	201	190	6,843
Non GF Total	7,774	3,814	2,552	2,548	2,852	2,473	2,963	6,040	3,942	2,265	1,849	5,277	44,349
Region Total	7,869	3,942	2,827	3,280	2,926	2,846	4,276	7,956	5,042	2,713	2,050	5,466	51,193
Oregon North of Yachats													
Sablefish	109	109	160	131	329	157	302	3,422	378	330	331	243	6,000
Whiting				0	0	471	1,687	2,528	1,381	0	0	0	6,070
Flatfish	429	441	365	399	366	306	368	310	261	229	267	355	4,096
Rockfish	255	194	238	217	586	307	623	400	647	627	606	405	5,104
Other GF	1	1	0	1	19	20	27	15	7	3	2	0	97
Shrimp/Prawns	8	11	25	98	342	1,703	2,126	1,382	1,530	549	61	11	7,845
Crab/Lobster	5,285	2,197	1,098	627	562	297	186	79	1	14	11	4,822	15,187
Salmon	0	31	4	110	237	250	188	617	705	377	0		2,519
HMS						57	855	2,823	1,839	1,154	77		6,805
CPS						18	277	513	320	46	0	0	1,175
Other	75	100	45	157	112	67	388	458	40	116	47	11	1,615
GF Total	794	746	764	749	1,300	1,261	3,006	6,674	2,673	1,189	1,206	1,005	21,367
Non GF Total	5,368	2,338	1,171	991	1,254	2,392	4,021	5,871	4,444	2,256	197	4,844	35,146
Region Total	6,162	3,084	1,935	1,739	2,554	3,653	7,027	12,545	7,117	3,444	1,403	5,850	56,514

TABLE 3.3.1.1-1a. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **2000**. (In $1,000, not adjusted for inflation.) (Page 2 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coos Bay-C. Mendocino													
Sablefish	92	131	184	224	410	195	521	2,039	478	480	387	235	5,378
Whiting	0			36	417	165	158	0		0			776
Flatfish	857	496	278	527	386	185	341	204	309	315	307	494	4,701
Rockfish	221	240	299	587	363	213	381	320	467	448	513	282	4,336
Other GF	6	6	8	36	86	58	104	46	59	43	15	15	483
Shrimp/Prawns	1	2	2	66	289	886	917	1,334	517	99	16	4	4,134
Crab/Lobster	4,629	1,895	900	1,226	794	387	299	80	4	3	3	7,652	17,870
Salmon				30	56	53	358	610	363	116	50	15	1,650
HMS		0			0	7	82	357	580	477	16		1,520
CPS				0	0	0	0		0				2
Other	59	53	74	180	215	132	244	98	123	48	73	127	1,426
GF Total	1,176	873	770	1,412	1,663	817	1,505	2,609	1,313	1,287	1,222	1,027	15,674
Non GF Total	4,689	1,950	977	1,501	1,356	1,465	1,901	2,479	1,587	743	158	7,797	26,602
Region Total	5,865	2,823	1,747	2,913	3,019	2,282	3,406	5,088	2,900	2,030	1,380	8,823	42,276
C. Mendocino-Pt. Conception													
Sablefish	83	39	90	120	76	178	159	869	251	258	336	298	2,755
Whiting				0			0						0
Flatfish	281	139	210	416	101	231	217	282	266	225	242	249	2,859
Rockfish	421	159	313	344	199	398	303	449	455	275	426	398	4,139
Other GF	41	15	23	65	103	186	189	191	147	86	64	74	1,183
Shrimp/Prawns	337	148	245	356	204	180	162	251	190	260	84	93	2,510
Crab/Lobster	432	263	258	231	121	119	31	18	22	22	1,778	1,133	4,428
Salmon	3	0	2	3	3,299	2,977	1,224	813	1,687	20			10,028
HMS	8	3	0	0	0	4	25	84	929	1,526	285	42	2,910
CPS	105	61	11	514	742	321	324	491	498	321	145	57	3,588
Other	2,158	794	502	756	406	518	157	492	412	443	392	240	7,271
GF Total	827	352	635	946	478	992	867	1,791	1,119	844	1,068	1,019	10,938
Non GF Total	3,043	1,270	1,019	1,860	4,773	4,119	1,923	2,148	3,737	2,591	2,685	1,566	30,735
Region Total	3,870	1,621	1,655	2,806	5,250	5,112	2,790	3,940	4,856	3,435	3,753	2,585	41,673
South of Point Conception													
Sablefish	24	12	23	21	22	28	32	29	28	24	27	29	299
Whiting										0			0
Flatfish	3	5	5	7	7	4	3	11	5	8	4	4	66
Rockfish	40	26	67	68	82	91	86	78	85	68	64	85	839
Other GF	11	9	24	28	42	49	28	32	41	24	28	38	353
Shrimp/Prawns	276	419	375	369	347	247	141	205	248	496	217	373	3,715
Crab/Lobster	619	610	393	113	115	125	136	125	121	2,388	972	717	6,434
Salmon					0				4				4
HMS	2,242	1,441	457	918	252	276	738	641	1,667	2,545	1,828	2,603	15,608
CPS	5,113	2,901	1,955	1,572	1,074	1,154	1,485	833	1,155	3,260	6,626	6,035	33,164
Other	1,528	553	1,149	997	840	1,159	719	1,005	975	1,331	1,217	1,491	12,966
GF Total	78	52	119	123	153	171	149	151	158	124	124	156	1,558
Non GF Total	9,779	5,924	4,330	3,969	2,630	2,962	3,219	2,809	4,170	10,020	10,860	11,218	71,892
Region Total	9,857	5,976	4,449	4,093	2,783	3,133	3,368	2,960	4,328	10,144	10,984	11,374	73,450

TABLE 3.3.1.1-1a. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **2000**. (In $1,000, not adjusted for inflation.) (Page 3 of 3)

Region	Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Coastwide														
	Sablefish	309	295	634	1,185	837	838	1,807	8,910	1,915	1,368	1,157	862	20,118
	Whiting	0			37	418	856	2,192	2,957	1,505	0	0	0	7,967
	Flatfish	1,654	1,239	940	1,395	916	792	934	1,201	930	948	867	1,178	12,966
	Rockfish	950	748	967	1,272	1,268	1,151	1,615	1,439	1,995	1,556	1,829	1,286	16,078
	Other GF	59	147	59	137	256	343	362	340	259	160	119	128	2,368
	Shrimp/Prawns	631	593	667	1,337	1,603	3,992	4,123	3,595	2,810	1,561	427	501	21,842
	Crab/Lobster	19,702	9,282	5,148	3,859	3,565	3,218	2,089	1,867	2,816	5,747	4,983	19,930	82,207
	Salmon	61	71	28	145	3,832	3,378	2,894	5,982	4,504	2,564	529	148	24,136
	HMS	2,256	1,445	458	918	253	344	2,111	7,159	6,712	6,166	2,315	2,645	32,782
	CPS	5,218	2,962	1,966	2,086	1,817	1,508	2,236	2,149	2,187	3,649	6,771	6,093	38,644
	Other	7,801	5,557	6,533	7,330	7,699	8,251	8,459	8,298	8,202	7,670	8,039	6,838	90,677
	GF Total	2,971	2,429	2,600	4,025	3,696	3,980	6,910	14,847	6,605	4,033	3,973	3,455	59,496
	Non GF Total	35,669	19,909	14,800	15,675	18,770	20,691	21,912	29,051	27,231	27,359	23,065	36,155	290,315
	Region Total	38,641	22,338	17,400	19,700	22,466	24,671	28,822	43,898	33,836	31,392	27,038	39,610	349,811

TABLE 3.3.1.1-1b. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1996**. (In $1,000, adjusted for inflation to year 2000 dollars.) (Page 1 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Washington (Inside Marine Waters)													
Sablefish	-	15	-	-	-	-	-	-	-	-	-	8	23
Whiting	-	-	-	-	-	-	-	-	-	-	-	-	-
Flatfish	65	54	1	1	0	-	-	9	1	16	82	77	306
Rockfish	98	78	70	57	151	62	48	90	-	262	166	93	1,174
Other GF	12	16	-	-	252	-	0	42	-	61	55	41	478
Shrimp/Prawns	3	12	6	152	459	239	103	39	227	226	22	10	1,500
Crab/Lobster	787	670	549	321	98	65	730	964	708	2,514	1,276	1,019	9,701
Salmon	59	2	3	2	1	8	295	2,902	529	545	1,403	60	5,810
HMS	-	-	-	-	-	-	-	3	5	29	-	-	37
CPS	2	0	0	-	0	0	1	0	0	0	2	0	7
Other	2,693	2,799	4,114	3,637	4,082	4,286	4,796	6,008	6,358	4,304	3,604	3,838	50,518
GF Total	175	163	71	58	403	62	48	141	1	338	303	219	1,980
Non GF Total	3,545	3,482	4,672	4,111	4,641	4,599	5,926	9,917	7,828	7,618	6,307	4,927	67,573
Region Total	3,720	3,646	4,742	4,169	5,044	4,661	5,973	10,058	7,829	7,956	6,610	5,146	69,553
Coastal Washington (and Columbia River)													
Sablefish	20	51	358	471	1,653	1,208	205	261	1,349	358	101	46	6,082
Whiting	-	-	-	-	100	191	242	191	44	-	-	-	767
Flatfish	81	154	158	83	94	154	119	109	128	36	6	1	1,124
Rockfish	94	128	171	190	284	255	269	247	197	89	133	55	2,113
Other GF	14	20	36	35	123	230	146	121	98	39	5	0	867
Shrimp/Prawns	3	4	9	184	472	578	590	667	741	292	1	1	3,542
Crab/Lobster	12,310	4,450	2,383	927	761	306	158	177	151	401	626	8,823	31,473
Salmon	83	32	32	83	46	78	141	998	1,219	919	89	53	3,770
HMS	-	-	-	30	-	83	680	5,797	2,318	682	26	-	9,616
CPS	-	-	-	-	-	4	12	13	28	0	-	10	68
Other	1,208	1,286	1,464	884	863	827	708	740	1,136	1,701	3,037	2,850	16,704
GF Total	210	353	723	779	2,255	2,038	982	927	1,816	522	245	103	10,953
Non GF Total	13,604	5,771	3,888	2,107	2,142	1,876	2,290	8,393	5,593	3,995	3,779	11,736	65,173
Region Total	13,814	6,124	4,611	2,886	4,397	3,914	3,272	9,320	7,409	4,517	4,024	11,839	76,126
Oregon North of Yachats													
Sablefish	128	241	318	254	405	420	429	362	2,901	507	292	190	6,448
Whiting	-	-	-	0	317	785	1,381	1,464	456	1	1	-	4,406
Flatfish	273	352	395	244	407	425	293	333	344	220	217	196	3,698
Rockfish	393	525	785	743	1,166	1,030	1,083	988	815	557	521	218	8,825
Other GF	73	39	98	82	182	233	130	123	149	73	69	25	1,276
Shrimp/Prawns	15	5	10	425	890	754	808	800	673	211	10	6	4,607
Crab/Lobster	7,231	3,040	1,280	603	457	241	166	97	3	8	5	5,873	19,003
Salmon	-	6	0	1	322	600	50	813	535	212	19	-	2,559
HMS	-	-	-	-	-	26	608	2,820	2,262	653	119	-	6,488
CPS	-	0	-	-	3	0	0	1	2	0	4	-	11
Other	22	125	77	29	90	133	398	318	153	78	25	12	1,460
GF Total	867	1,157	1,596	1,324	2,477	2,892	3,316	3,270	4,666	1,358	1,100	629	24,653
Non GF Total	7,268	3,177	1,367	1,058	1,762	1,754	2,029	4,849	3,629	1,162	182	5,891	34,128
Region Total	8,135	4,334	2,963	2,382	4,239	4,647	5,345	8,118	8,295	2,521	1,282	6,520	58,781

TABLE 3.3.1.1-1b. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1996**. (In $1,000, adjusted for inflation to year 2000 dollars.) (Page 2 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coos Bay-C. Mendocino													
Sablefish	194	292	432	358	477	505	619	551	2,393	728	522	295	7,368
Whiting	-	0	16	70	59	44	64	6	0	0	0	0	259
Flatfish	508	514	409	285	322	381	417	424	445	366	378	504	4,950
Rockfish	331	596	835	634	737	703	790	761	790	736	783	388	8,082
Other GF	53	79	103	83	136	164	136	141	112	109	75	30	1,221
Shrimp/Prawns	1	13	5	968	2,773	2,914	1,755	1,253	658	32	11	3	10,386
Crab/Lobster	10,787	3,545	1,522	980	985	538	316	153	2	3	3	4,578	23,411
Salmon	-	-	-	-	65	263	10	419	321	71	30	-	1,180
HMS	-	-	0	-	-	0	29	409	1,899	556	20	-	2,914
CPS	-	-	5	3	25	3	0	3	1	306	0	-	347
Other	259	172	115	113	145	161	206	144	153	142	126	129	1,865
GF Total	1,085	1,480	1,795	1,429	1,730	1,798	2,025	1,882	3,741	1,939	1,758	1,217	21,880
Non GF Total	11,047	3,730	1,648	2,065	3,994	3,879	2,316	2,380	3,033	1,111	191	4,710	40,103
Region Total	12,132	5,211	3,443	3,494	5,724	5,677	4,341	4,263	6,774	3,050	1,949	5,927	61,983
C. Mendocino-Pt. Conception													
Sablefish	226	233	403	331	241	245	355	287	2,062	611	542	367	5,902
Whiting	-	-	0	-	-	-	0	-	-	0	0	0	0
Flatfish	413	497	655	463	350	276	494	412	507	547	509	351	5,473
Rockfish	667	802	1,023	597	497	497	894	677	974	842	861	580	8,911
Other GF	156	180	206	169	203	194	411	242	272	274	291	227	2,823
Shrimp/Prawns	250	195	307	552	404	320	577	404	342	222	224	396	4,193
Crab/Lobster	406	330	313	188	168	222	76	39	41	26	1,530	824	4,163
Salmon	0	-	-	-	1,552	1,973	1,469	551	472	0	-	-	6,017
HMS	284	1	0	0	1	3	49	106	633	1,191	763	502	3,534
CPS	6	22	15	565	281	376	244	516	733	162	93	111	3,125
Other	13,635	289	727	220	512	374	435	470	565	791	572	2,895	21,486
GF Total	1,462	1,713	2,286	1,560	1,292	1,212	2,154	1,617	3,815	2,274	2,203	1,524	23,111
Non GF Total	14,582	837	1,362	1,525	2,919	3,269	2,850	2,085	2,786	2,392	3,183	4,729	42,518
Region Total	16,044	2,550	3,649	3,084	4,211	4,481	5,003	3,701	6,601	4,666	5,385	6,253	65,628
South of Point Conception													
Sablefish	24	28	24	22	31	40	26	31	36	35	24	21	343
Whiting	0	0	0	-	0	0	-	0	0	-	0	0	1
Flatfish	1	3	8	5	4	3	5	7	4	4	6	5	56
Rockfish	116	148	182	105	123	127	175	132	144	79	106	109	1,544
Other GF	33	29	51	28	43	55	68	45	38	35	17	23	464
Shrimp/Prawns	176	129	236	206	206	154	181	174	183	241	245	251	2,382
Crab/Lobster	531	461	349	104	103	115	117	111	83	2,663	1,149	771	6,556
Salmon	-	-	-	-	71	29	14	1	0	-	-	-	116
HMS	909	361	169	615	383	1,732	3,060	5,236	5,498	3,714	3,004	1,341	26,021
CPS	4,602	2,355	2,112	658	131	262	646	106	488	2,603	5,685	6,205	25,854
Other	2,481	1,435	2,214	1,311	1,388	1,495	1,372	1,207	1,846	2,118	2,372	2,941	22,179
GF Total	174	208	265	160	202	224	275	215	222	153	152	158	2,408
Non GF Total	8,700	4,741	5,080	2,893	2,282	3,788	5,390	6,835	8,099	11,339	12,454	11,508	83,109
Region Total	8,874	4,949	5,345	3,053	2,484	4,012	5,665	7,050	8,320	11,492	12,607	11,665	85,516

TABLE 3.3.1.1-1b. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1996**. (In $1,000, adjusted for inflation to year 2000 dollars.) (Page 3 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coastwide													
Sablefish	592	861	1,535	1,435	2,808	2,419	1,635	1,492	8,740	2,239	1,482	926	26,166
Whiting	0	0	16	71	475	1,020	1,687	1,660	501	1	1	0	5,433
Flatfish	1,341	1,575	1,626	1,080	1,177	1,240	1,327	1,293	1,430	1,189	1,197	1,134	15,608
Rockfish	1,699	2,277	3,066	2,326	2,959	2,673	3,258	2,894	2,920	2,564	2,569	1,443	30,649
Other GF	342	362	494	398	939	876	891	713	670	591	511	346	7,132
Shrimp/Prawns	449	358	573	2,486	5,205	4,960	4,023	3,342	2,830	1,225	513	667	26,630
Crab/Lobster	32,055	12,494	6,396	3,123	2,572	1,486	1,562	1,541	988	5,616	4,589	21,888	94,310
Salmon	142	40	35	86	2,058	2,951	1,980	5,684	3,076	1,746	1,542	112	19,453
HMS	1,193	362	169	645	383	1,845	4,426	14,370	12,615	6,826	3,932	1,843	48,611
CPS	4,611	2,377	2,132	1,226	441	646	903	640	1,253	3,072	5,784	6,326	29,411
Other	20,313	6,110	8,715	6,195	7,082	7,277	7,916	8,892	10,223	9,174	9,764	12,687	114,348
GF Total	3,974	5,075	6,737	5,310	8,360	8,227	8,798	8,052	14,261	6,584	5,760	3,850	84,988
Non GF Total	58,763	21,742	18,020	13,759	17,742	19,165	20,810	34,469	30,985	27,659	26,124	43,525	332,762
Region Total	62,737	26,818	24,757	19,069	26,101	27,392	29,608	42,521	45,246	34,243	31,885	47,374	417,751

TABLE 3.3.1.1-1c. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1986**. (In $1,000, adjusted for inflation to year 2000 dollars.) (Page 1 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Washington (Inside Marine Waters)													
Sablefish	-	6	-	-	-	-	-	-	-	-	-	-	6
Whiting	-	-	-	-	-	-	-	-	-	-	-	-	-
Flatfish	4	33	1	1	0	153	60	0	-	2	39	53	346
Rockfish	26	-	62	138	143	237	159	132	105	53	69	10	1,133
Other GF	16	1	-	-	-	509	-	-	0	-	-	3	529
Shrimp/Prawns	-	-	-	7	24	287	51	25	26	13	-	-	433
Crab/Lobster	137	81	89	87	9	18	76	24	69	1,564	308	196	2,657
Salmon	396	55	63	6	165	74	332	32,648	13,819	7,044	3,745	686	59,034
HMS	-	-	-	-	-	-	-	1	12	0	5	-	18
CPS	1	2	1	0	0	-	-	0	0	0	0	0	5
Other	2,045	2,224	2,583	4,926	9,340	7,811	4,607	2,762	6,201	3,302	2,748	2,559	51,107
GF Total	46	40	62	139	143	899	219	132	105	55	108	66	2,014
Non GF Total	2,578	2,361	2,736	5,026	9,538	8,189	5,065	35,461	20,127	11,925	6,806	3,441	113,254
Region Total	2,624	2,401	2,798	5,165	9,682	9,088	5,285	35,593	20,231	11,980	6,914	3,507	115,268
Coastal Washington (and Columbia River)													
Sablefish	28	51	23	34	204	218	378	407	314	180	-	37	1,872
Whiting	-	-	-	0	3	7	0	-	0	-	-	-	11
Flatfish	100	137	151	54	44	110	190	173	23	28	34	5	1,051
Rockfish	15	15	20	11	22	22	14	22	16	13	10	11	191
Other GF	300	393	457	243	-	0	500	563	453	273	1	10	3,193
Shrimp/Prawns	-	15	-	898	2,884	2,498	2,107	1,944	1,641	996	-	96	13,080
Crab/Lobster	1,093	760	471	218	230	408	513	634	310	24	12	2,481	7,154
Salmon	451	312	501	153	919	448	549	3,681	4,615	4,840	1,300	602	18,369
HMS	-	-	-	0	-	-	11	985	581	34	0	-	1,610
CPS	-	-	-	-	1	2	9	10	6	0	-	-	28
Other	962	1,120	763	622	1,143	1,544	982	734	805	1,349	1,601	1,740	13,363
GF Total	443	596	651	343	273	358	1,082	1,165	806	494	45	63	6,318
Non GF Total	2,507	2,207	1,734	1,890	5,177	4,901	4,171	7,988	7,956	7,243	2,912	4,919	53,605
Region Total	2,949	2,802	2,385	2,233	5,450	5,259	5,253	9,153	8,763	7,736	2,957	4,981	59,923
Oregon North of Yachats													
Sablefish	81	145	143	133	301	283	405	461	353	222	58	94	2,678
Whiting	-	0	-	-	11	6	7	12	-	13	-	-	48
Flatfish	137	272	347	302	437	248	540	560	404	316	181	522	4,267
Rockfish	913	740	775	444	376	352	520	451	490	162	112	226	5,561
Other GF	90	144	196	178	417	296	309	304	293	248	77	205	2,754
Shrimp/Prawns	12	12	25	2,245	4,304	3,050	2,112	2,533	2,193	2,410	11	14	18,922
Crab/Lobster	1,097	694	400	148	146	148	83	36	5	12	7	2,597	5,373
Salmon	2	156	343	-	468	364	2,467	741	5,032	4,047	1,015	-	14,635
HMS	-	-	0	-	-	-	195	1,502	531	24	9	-	2,261
CPS	-	-	0	0	4	-	0	-	-	-	0	0	4
Other	32	237	169	43	601	790	914	300	791	73	34	17	4,001
GF Total	1,221	1,300	1,461	1,057	1,541	1,184	1,780	1,789	1,540	961	428	1,048	15,309
Non GF Total	1,143	1,099	937	2,435	5,523	4,352	5,771	5,112	8,552	6,567	1,075	2,629	45,195
Region Total	2,364	2,400	2,399	3,492	7,063	5,536	7,550	6,901	10,092	7,528	1,503	3,677	60,504

TABLE 3.3.1.1-1c. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1986**. (In $1,000, adjusted for inflation to year 2000 dollars.) (Page 2 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coos Bay-C. Mendocino													
Sablefish	117	144	248	201	404	528	682	661	532	448	203	236	4,402
Whiting	-	-	-	90	191	138	78	65	9	2	0	-	572
Flatfish	572	637	879	364	717	480	575	718	668	968	803	973	8,354
Rockfish	515	400	696	290	327	405	287	355	297	284	261	226	4,343
Other GF	83	72	189	105	182	249	210	261	267	240	181	97	2,136
Shrimp/Prawns	-	0	1	1,479	1,461	1,967	1,415	2,162	1,855	942	11	12	11,305
Crab/Lobster	1,605	599	382	219	321	136	63	55	16	14	14	12,518	15,942
Salmon	-	-	-	-	640	1,733	2,762	2,739	485	65	34	-	8,458
HMS	-	-	-	0	-	41	116	757	568	91	6	16	1,596
CPS	0	-	-	-	-	-	-	-	-	0	-	-	0
Other	188	32	49	56	60	177	196	28	28	23	17	16	869
GF Total	1,287	1,253	2,012	1,049	1,820	1,800	1,833	2,059	1,772	1,942	1,448	1,532	19,808
Non GF Total	1,793	631	431	1,755	2,482	4,054	4,552	5,740	2,953	1,135	82	12,562	38,171
Region Total	3,080	1,884	2,443	2,804	4,302	5,855	6,385	7,799	4,725	3,077	1,531	14,094	57,979
C. Mendocino-Pt. Conception													
Sablefish	138	274	194	273	583	410	296	550	516	601	132	163	4,129
Whiting	0	0	-	0	0	1	1	0	0	-	-	0	2
Flatfish	1,001	572	792	618	561	614	620	609	788	916	656	750	8,496
Rockfish	661	342	584	464	373	612	399	615	647	625	435	459	6,216
Other GF	764	238	442	304	244	457	326	532	467	563	336	368	5,041
Shrimp/Prawns	57	41	34	160	292	337	57	68	53	68	63	63	1,292
Crab/Lobster	134	134	223	130	141	116	51	42	45	61	2,289	886	4,251
Salmon	0	-	-	0	5,907	6,624	4,194	1,673	223	2	-	-	18,623
HMS	92	0	0	1	94	97	315	591	2,549	2,257	588	216	6,802
CPS	0	1	2	142	388	310	506	693	275	165	207	99	2,787
Other	4,401	1,600	1,009	230	253	462	750	798	876	780	722	1,941	13,821
GF Total	2,563	1,427	2,012	1,661	1,761	2,093	1,641	2,306	2,418	2,705	1,559	1,739	23,884
Non GF Total	4,685	1,776	1,268	662	7,075	7,945	5,872	3,864	4,020	3,334	3,869	3,206	47,576
Region Total	7,248	3,202	3,281	2,323	8,836	10,039	7,513	6,170	6,438	6,039	5,428	4,945	71,460
South of Point Conception													
Sablefish	58	34	292	7	2	4	5	6	0	31	1	1	439
Whiting	0	0	0	-	-	0	0	1	0	0	0	0	1
Flatfish	13	7	7	12	15	13	20	23	25	20	18	9	181
Rockfish	241	115	264	256	213	187	234	180	147	218	137	172	2,365
Other GF	187	169	218	255	203	221	244	175	129	133	89	121	2,146
Shrimp/Prawns	159	163	169	132	149	60	53	64	46	170	140	77	1,379
Crab/Lobster	406	281	270	167	194	173	201	202	178	1,524	758	681	5,036
Salmon	-	-	-	-	101	68	45	4	-	-	-	-	217
HMS	3,615	969	4,458	1,582	2,338	5,025	5,625	5,746	6,715	6,207	4,796	3,903	50,978
CPS	1,088	455	136	201	512	636	302	933	905	1,491	1,757	1,963	10,381
Other	1,945	1,472	2,741	2,757	1,735	1,589	1,302	1,324	1,566	1,934	1,957	2,231	22,556
GF Total	499	324	781	530	433	425	504	384	302	402	245	303	5,132
Non GF Total	7,212	3,341	7,775	4,839	5,029	7,550	7,528	8,274	9,409	11,326	9,408	8,856	90,547
Region Total	7,711	3,666	8,556	5,369	5,462	7,975	8,031	8,658	9,711	11,729	9,653	9,159	95,679

TABLE 3.3.1.1-1c. Exvessel value of **all commercial fishery landings** made on the West Coast, in various fisheries stratified by month and port group, **1986**. (In $1,000, adjusted for inflation to year 2000 dollars.) (Page 3 of 3)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
Coastwide													
Sablefish	421	653	900	648	1,494	1,442	1,765	2,084	1,715	1,482	393	530	13,527
Whiting	0	0	0	90	204	152	86	78	10	15	0	0	635
Flatfish	1,827	1,659	2,177	1,353	1,775	1,617	2,004	2,083	1,908	2,250	1,731	2,311	22,695
Rockfish	2,371	1,611	2,402	1,603	1,452	1,816	1,614	1,755	1,700	1,355	1,024	1,105	19,808
Other GF	1,440	1,016	1,502	1,085	1,046	1,732	1,589	1,835	1,610	1,456	685	804	15,799
Shrimp/Prawns	228	231	229	4,921	9,114	8,198	5,794	6,796	5,814	4,600	225	262	46,411
Crab/Lobster	4,472	2,549	1,834	968	1,042	998	986	994	623	3,200	3,388	19,359	40,413
Salmon	850	523	907	159	8,200	9,311	10,348	41,485	24,174	15,999	6,093	1,288	119,337
HMS	3,707	970	4,458	1,583	2,432	5,163	6,262	9,582	10,955	8,614	5,404	4,136	63,265
CPS	1,088	458	139	344	905	948	817	1,636	1,185	1,657	1,964	2,063	13,206
Other	9,573	6,685	7,313	8,633	13,131	12,373	8,751	5,946	10,266	7,461	7,079	8,505	105,717
GF Total	6,058	4,939	6,980	4,779	5,972	6,760	7,058	7,834	6,943	6,559	3,833	4,751	72,465
Non GF Total	19,917	11,415	14,881	16,608	34,823	36,991	32,959	66,439	53,017	41,531	24,153	35,612	388,348
Region Total	25,976	16,354	21,862	21,387	40,795	43,751	40,017	74,273	59,960	48,090	27,986	40,363	460,814

TABLE 3.3.1.1-2. Value of landings by **groundfish limited entry vessels** in various fisheries stratified by month and port group, **2000**. (In $1,000, not deflated.) (Page 1 of 2)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
All Washington													
Sablefish	26	22	29	66	72	104	150	2,098	424	195	72	75	3,332
Whiting						220	347	429	124	0	0		1,120
Flatfish	147	169	110	147	150	194	479	415	104	166	37	84	2,202
Rockfish	17	44	38	60	143	104	192	138	301	150	171	109	1,466
Other GF	5	23	42	58	156	79	44	52	18	27	12	16	533
Shrimp/Prawns	1	1	3	9	87	111	152	89	65	69	32	5	626
Crab	8,111	3,836	2,114	1,230	1,184	513	404	397	268			4,185	22,243
Salmon					134	48	2	63	3	26			275
Tuna	5	0					401	3,240	1,632	448	109		5,836
CPEL						15	152	312	215	22	0		717
Other	1	1	2	19	168	650	528	264	293	86	1	3	2,018
GF Total	195	257	220	330	521	701	1,211	3,133	972	538	292	284	8,654
Non GF Total	8,118	3,839	2,119	1,258	1,574	1,338	1,639	4,365	2,476	651	143	4,193	31,714
Region Total	8,314	4,096	2,340	1,588	2,094	2,038	2,850	7,498	3,449	1,190	434	4,477	40,368
Oregon North of Yachats													
Sablefish	109	109	160	131	329	157	302	3,422	378	330	331	246	6,003
Whiting				1	1	471	1,687	2,528	1,381	0	0	1	6,070
Flatfish	429	441	365	399	366	306	368	310	261	229	267	355	4,096
Rockfish	255	194	238	339	586	307	623	399	647	626	606	405	5,225
Other GF	1	1	1	2	23	23	28	17	9	4	2	1	111
Shrimp/Prawns	8	11	25	47	124	36	87	61	72	44	61	11	586
Crab	5,283	2,196	1,098	627	562	297	186	79	10	14	11	4,787	15,150
Salmon				19	142	240	185	510	295	162	1		1,554
Tuna						57	837	2,774	1,812	1,102	77		6,658
CPEL				0	0	18	277	513	320	46	0	1	1,175
Other	7	10	9	71	301	1,720	2,403	1,373	1,476	530	12	10	7,923
GF Total	794	746	764	871	1,304	1,263	3,008	6,676	2,676	1,189	1,206	1,009	21,506
Non GF Total	5,299	2,217	1,132	764	1,129	2,368	3,973	5,310	3,985	1,898	162	4,809	33,045
Regional Total	6,093	2,963	1,896	1,635	2,432	3,631	6,981	11,986	6,660	3,087	1,368	5,818	54,550
Coos Bay-C. Mendocino													
Sablefish	92	131	184	224	366	195	429	2,039	478	480	387	235	5,241
Whiting	0			36	417	165	158	0	0	0			776
Flatfish	857	496	278	527	386	185	341	204	309	315	307	494	4,701
Rockfish	221	240	299	588	363	214	381	321	456	448	513	282	4,328
Other GF	6	6	8	36	85	58	103	46	57	43	15	15	478
Shrimp/Prawns	1	2	2	2	27	84	74	73	50	49	16	4	385
Crab	4,629	1,894	900	1,226	794	387	299	80	4	3	3	7,652	17,869
Salmon				30	56	53	358	608	363	116	50	15	1,648
Tuna		0		0		7	82	357	580	315	16		1,357
CPEL	0	6		1	1	0	1	0	0	0			9
Other	57	37	31	189	435	903	1,044	1,341	586	259	73	126	5,081
GF Total	1,176	873	770	1,411	1,618	817	1,412	2,609	1,300	1,287	1,222	1,027	15,523
Non GF Total	4,687	1,940	933	1,447	1,313	1,433	1,859	2,459	1,583	742	157	7,796	26,349
Regional Total	5,863	2,813	1,703	2,859	2,931	2,250	3,271	5,068	2,883	2,029	1,379	8,823	41,872

TABLE 3.3.1.1-2. Value of landings by **groundfish limited entry vessels** in various fisheries stratified by month and port group, **2000**. (In $1,000, not deflated.) (Page 2 of 2)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
C. Mendocino-Pt. Conception													
Sablefish	83	38	90	120	76	178	159	869	251	258	336	298	2,755
Whiting				0		0	0		0	0	0	0	0
Flatfish	281	139	210	416	101	231	217	282	266	225	242	249	2,859
Rockfish	423	163	313	345	199	400	303	457	463	279	427	395	4,167
Other GF	39	11	23	64	102	184	188	183	139	81	62	70	1,147
Shrimp/Prawns	337	148	245	195	137	180	162	249	190	260	84	93	2,281
Crab	432	263	258	231	121	119	31	18	22	22	1,778	1,133	4,428
Salmon	3	1	2	3	3,299	2,977	1,224	812	1,687	20			10,028
Tuna	0	2	1			2	25	73	817	758	94	17	1,789
CPEL	1,716	512	192	514	742	326	326	491	498	321	147	59	5,845
Other	551	343	319	913	472	514	154	503	521	1,203	578	269	6,341
GF Total	827	351	635	945	477	992	867	1,792	1,119	844	1,067	1,011	10,928
Non GF Total	3,039	1,269	1,017	1,856	4,771	4,119	1,922	2,147	3,735	2,584	2,683	1,571	30,713
Regional Total	3,866	1,620	1,652	2,802	5,248	5,111	2,789	3,938	4,854	3,427	3,750	2,583	41,641
South of Pt. Conception													
Sablefish	24	12	23	21	22	28	32	29	28	24	27	29	299
Whiting	0		0				0	0		0		0	0
Flatfish	3	5	5	7	7	4	3	11	5	8	4	4	66
Rockfish	43	27	79	78	92	112	105	87	93	76	78	113	983
Other GF	11	9	18	21	38	43	25	30	35	22	25	32	308
Shrimp/Prawns	277	419	375	373	354	250	140	207	252	503	224	381	3,754
Crab	76	84	136	111	115	124	136	125	121	84	70	97	1,280
Salmon					1				4				4
Tuna	403	328	119	917	89	111	458	281	446	1,016	114	113	4,395
CPEL	5,114	2,901	1,957	1,574	1,075	1,157	1,485	834	1,156	3,260	6,627	6,040	33,179
Other	3,912	2,191	1,735	995	997	1,305	987	1,360	2,200	5,167	3,837	4,590	29,275
GF Total	81	52	126	127	159	186	165	158	161	131	134	177	1,657
Non GF Total	9,783	5,923	4,323	3,970	2,630	2,947	3,205	2,807	4,178	10,030	10,872	11,221	71,889
Regional Total	9,864	5,975	4,448	4,097	2,789	3,133	3,370	2,965	4,340	10,161	11,007	11,397	73,545
Coastwide													
Sablefish	335	313	486	561	864	661	1,071	8,457	1,560	1,286	1,154	883	17,630
Whiting	0		0	37	418	856	2,192	2,957	1,505	1	0	1	7,967
Flatfish	1,716	1,250	969	1,496	1,010	919	1,409	1,223	945	943	857	1,185	13,924
Rockfish	959	668	968	1,409	1,383	1,136	1,604	1,403	1,960	1,581	1,795	1,304	16,169
Other GF	62	50	92	181	403	386	388	328	258	178	116	134	2,577
Shrimp/Prawns	624	581	651	626	729	661	615	680	629	925	418	493	7,632
Crab	18,531	8,274	4,506	3,424	2,777	1,440	1,055	698	425	123	1,862	17,854	60,970
Salmon	3	1	2	52	3,631	3,318	1,768	1,994	2,352	323	50	15	13,509
Tuna	409	330	120	917	89	176	1,803	6,725	5,287	3,639	410	130	20,035
CPEL	6,830	3,420	2,149	2,089	1,817	1,516	2,242	2,150	2,189	3,650	6,775	6,100	40,925
Other	4,529	2,582	2,096	2,187	2,374	5,092	5,115	4,841	5,076	7,245	4,502	4,998	50,639
GF Total	3,073	2,280	2,515	3,685	4,079	3,959	6,663	14,368	6,228	3,989	3,922	3,507	58,267
Non GF Total	30,926	15,187	9,524	9,295	11,416	12,204	12,598	17,088	15,958	15,904	14,017	29,590	193,710
Coastwide Total	33,998	17,467	12,040	12,980	15,495	16,163	19,261	31,456	22,186	19,893	17,939	33,097	251,977

TABLE 3.3.1.1-3. Number of **groundfish limited entry vessels** participating in various fisheries stratified by month and port group, **2000**. (Page 1 of 2)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
All Washington													
Sablefish	13	16	14	25	33	32	42	70	53	37	14	18	86
Whiting						7	7	5	5	1	1		10
Flatfish	12	13	15	21	28	35	34	38	35	30	13	15	52
Rockfish	15	21	20	30	36	46	44	66	56	38	25	23	90
Other	13	13	13	20	31	34	41	39	40	27	7	11	63
Shrimp/Prawns	1	1	2	1	1	1	1	2	1	1	1	1	3
Crab	18	17	17	13	11	6	5	5	5			16	23
Salmon					1	7	8	6	4	1			8
Tuna	1	1					6	5	4	3	1		8
CPS						4	7	7	6	1	1		8
Other	5	7	11	16	22	31	35	24	22	14	9	12	54
GF Total	16	21	20	31	37	46	49	74	62	39	25	24	99
Non GF Total	23	24	27	29	31	36	41	33	30	16	10	26	71
Regional Total (any species)	34	37	36	41	45	52	55	80	68	41	25	37	109
Oregon North of Yachats													
Sablefish	29	32	37	43	53	61	91	101	82	59	58	41	130
Whiting				1	2	17	22	22	24	3	4	5	32
Flatfish	29	33	38	44	52	59	82	71	62	55	45	34	100
Rockfish	38	39	40	52	62	76	90	100	94	64	54	42	136
Other	15	15	17	23	50	66	92	55	58	38	24	12	109
Shrimp/Prawns	1	1	1	1	1	1	1	1	1	1	1	1	1
Crab	36	35	27	19	17	11	10	1	1	1	1	53	59
Salmon				1	4	18	22	20	19	2	1		33
Tuna						1	12	31	22	7	2		43
CPS				2	1	12	26	25	24	4	4	1	39
Other	22	26	32	40	49	69	105	71	66	46	33	31	123
GF Total	38	39	42	56	65	80	106	110	103	70	64	49	143
Non GF Total	57	60	56	53	63	84	110	96	88	53	36	77	151
Regional Total (any species)	73	71	66	68	74	93	115	121	113	78	64	94	162
Coos Bay-C. Mendocino													
Sablefish	44	50	49	64	61	58	81	96	97	73	66	42	130
Whiting	1			3	9	7	6	2	1	2			14
Flatfish	44	48	49	65	61	57	71	67	63	63	61	38	105
Rockfish	47	55	58	81	80	76	93	90	89	80	76	51	132
Other	15	25	31	45	71	59	76	55	53	56	38	30	122
Shrimp/Prawns	2	1	1	1	1	3	2	2	2	2	5	2	6
Crab	74	59	49	41	35	30	28	6	2	1	1	77	97
Salmon				1	5	3	7	8	6	10	7	2	22
Tuna		1		1		1	5	7	13	4	1		23
CPS	1	2		4	5	4	5	2	3	2			14
Other	43	44	45	65	81	84	88	76	77	63	57	43	121
GF Total	49	57	60	84	87	84	98	108	107	85	79	52	142
Non GF Total	108	98	87	94	99	102	102	88	93	71	64	103	150
Regional Total (any species)	113	107	98	111	110	108	111	117	115	91	84	114	154

TABLE 3.3.1.1-3. Number of **groundfish limited entry vessels** participating in various fisheries stratified by month and port group, **2000**. (Page 2 of 2)

Species Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Region													
C. Mendocino-Pt. Conception													
Sablefish	44	32	41	46	32	42	41	61	59	46	53	44	103
Whiting				2		2	2		1	1	1	1	5
Flatfish	43	38	49	50	34	41	43	48	50	42	42	34	83
Rockfish	51	41	56	56	48	62	63	72	67	62	61	49	118
Other	24	17	26	17	31	42	42	47	45	44	24	22	91
Shrimp/Prawns	5	5	6	9	5	5	6	7	2	10	2	2	20
Crab	20	15	17	16	11	8	4	4	2	2	29	26	44
Salmon	1	1	1	1	34	33	27	6	9	3			39
Tuna	1	1	1			1	3	5	21	10	3	2	30
CPEL	3	2	4	2	2	6	5	4	4	2	1	3	16
Other	42	34	39	54	35	36	32	42	38	37	33	23	84
GF Total	57	47	60	59	51	66	66	74	68	64	62	50	122
Non GF Total	61	49	55	69	74	75	61	51	61	49	56	46	120
Regional Total (any species)	72	61	74	77	83	91	78	82	84	73	83	71	139
South of Pt. Conception													
Sablefish	9	6	11	9	8	9	11	9	9	8	11	10	16
Whiting	1		1				1	2		1		2	2
Flatfish	4	4	7	5	5	4	4	4	2	4	5	3	13
Rockfish	9	8	14	11	14	13	12	13	11	10	15	13	21
Other	1	2	3	1	5	3	5	3	3	4	1	1	9
Shrimp/Prawns	3	4	4	3	3	2	2	2	2	3	2	2	7
Crab	2	2	1	1	1	2	2	1	1	2	1	1	6
Salmon					1				1				1
Tuna	1	1	1	1	1	3	3	5	5	5	3	2	10
CPEL	5	5	4	3	3	6	2	3	5	5	6	6	9
Other	5	5	7	4	6	6	6	7	7	9	12	11	19
GF Total	11	10	16	12	14	13	12	13	11	11	15	13	22
Non GF Total	9	9	11	6	8	12	8	8	11	12	13	12	28
Regional Total (any species)	16	14	19	13	15	16	15	16	17	16	21	19	32
Coastwide													
Sablefish	137	133	143	182	180	197	250	326	282	215	194	149	393
Whiting	2		1	6	11	31	34	30	28	8	6	8	55
Flatfish	130	133	150	180	171	191	217	221	196	187	160	120	292
Rockfish	155	157	177	222	227	261	279	332	298	242	220	171	401
Other	66	69	86	102	181	199	243	194	188	162	92	74	343
Shrimp/Prawns	8	6	9	10	6	6	7	9	4	13	7	4	29
Crab	142	124	106	85	71	52	44	13	7	3	29	167	202
Salmon	1	1	1	1	41	55	58	37	33	13	7	2	89
Tuna	1	1	1	1	1	3	25	48	58	24	6	3	98
CPEL	8	7	7	8	10	29	39	38	35	11	10	9	73
Other	113	113	128	173	184	208	246	210	195	162	140	115	331
GF Total	166	167	186	234	241	274	307	364	329	256	233	181	420
Non GF Total	249	232	228	240	263	286	295	263	261	193	174	256	392
Coastwide Total (any species)	298	280	278	297	312	335	343	394	367	283	264	323	439

TABLE 3.3.1.1-4. Pink shrimp exvessel value, pounds landed, and number of vessels, 1996-2000.

Year	Landings (1,000 pounds)	Revenue ($1,000)	Number of Vessels
1996	31,653.00	18,851.90	237
1997	39,295.10	15,555.40	216
1998	10,659.20	5,588.90	188
1999	28,437.50	13,221.60	185
2000	32,974.40	13,193.10	N/A

TABLE 3.3.1.1-5. Ocean non-Indian commercial salmon (chinook and coho) fishery, 1996-2000.

Year	Vessel Landings Salmon	Vessels With Permits	Active Portion of Permitted Vessels	Nominal Exvessel Value ($ 1,000)	Real (Inflation Adjusted) Exvessel Value ($ 1,000)	Real Average Exvessel Value Per Vessel
1996	1,530	3,932	0.39	$9,074.00	$9,656.00	$6,311.11
1997	1,319	3,688	0.36	$9,882.00	$10,315.00	$7,820.32
1998	1,066	3,405	0.31	$5,480.00	$5,650.00	$5,300.19
1999	1,051	3,123	0.34	$9,226.00	$9,371.00	$8,916.27
2000	1,173	2,937	0.40	$12,159.00	$12,159.00	$10,365.73

TABLE 3.3.1.2-1a. Groundfish landings (including at-sea whiting) and estimated exvessel revenue ($1,000) for **2000**, not adjusted for inflation. (Page 1 of 2)

				Percent of Total	
INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	mt	Value
All Areas	Nets	93.40	122.10	0.04%	0.17%
	Trawl	238,392.50	53,489.70	97.76%	73.42%
	Pot/Trap	896.10	3,820.60	0.37%	5.24%
	Hook & Line	4,113.10	14,853.80	1.69%	20.39%
	Dredges				
	Trawl-Shrimp	310.80	469.50	0.13%	0.64%
	Troll	35.10	65.00	0.01%	0.09%
	Other Gear	10.30	38.20	0.00%	0.05%
	All Gear - Total	243,851.30	72,858.80		
Vancouver - U.S.	Nets	0.10	trace	0.00%	0.00%
	Trawl	81,108.40	12,595.60	98.45%	78.03%
	Pot/Trap	15.00	64.50	0.02%	0.40%
	Hook & Line	1,241.20	3,447.10	1.51%	21.35%
	Dredges				
	Trawl-Shrimp				
	Troll	11.20	11.50	0.01%	0.07%
	Other Gear	6.40	23.60	0.01%	0.15%
	All Gear	82,382.30	16,142.30		
Columbia	Nets	trace	trace	0.00%	0.00%
	Trawl	139,283.30	25,228.70	98.55%	78.08%
	Pot/Trap	601.20	2,338.40	0.43%	7.24%
	Hook & Line	1,187.20	4,359.50	0.84%	13.49%
	Dredges				
	Trawl-Shrimp	254.40	360.00	0.18%	1.11%
	Troll	11.40	23.00	0.01%	0.07%
	Other Gear	trace	trace	0.00%	0.00%
	All Gear	141,337.60	32,309.60		
OR Coast	Nets				
	Trawl				
	Pot/Trap	11.30	44.30	16.17%	17.94%
	Hook & Line	49.70	191.60	71.10%	77.60%
	Dredges			0.00%	0.00%
	Trawl-Shrimp	8.90	11.00	12.73%	4.46%
	Troll				
	Other Gear				
	All Gear	69.90	246.90		
Eureka	Nets	trace	trace	0.00%	0.00%
	Trawl	11,327.20	8,327.60	95.40%	81.45%
	Pot/Trap	89.20	322.90	0.75%	3.16%
	Hook & Line	446.10	1,555.20	3.76%	15.21%
	Dredges				
	Trawl-Shrimp	9.20	13.00	0.08%	0.13%
	Troll	1.60	4.20	0.01%	0.04%
	Other Gear	0.40	1.30	0.00%	0.01%
	All Gear	11,873.80	10,224.30		

TABLE 3.3.1.2-1a. Groundfish landings (including at-sea whiting) and estimated exvessel revenue ($1,000) for **2000**, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
Monterey	Nets	26.30	42.10	0.44%	0.45%
	Trawl	4,899.60	5,603.60	82.37%	59.33%
	Pot/Trap	125.40	525.40	2.11%	5.56%
	Hook & Line	873.90	3,221.40	14.69%	34.11%
	Dredges				
	Trawl-Shrimp	10.50	19.90	0.18%	0.21%
	Troll	9.40	21.60	0.16%	0.23%
	Other Gear	2.90	11.40	0.30%	0.12%
	All Gear	5,948.10	9,445.50		
Conception	Nets	67.00	79.90	6.83%	2.35%
	Trawl	514.60	647.90	52.49%	19.03%
	Pot/Trap	54.00	525.20	5.51%	15.43%
	Hook & Line	314.90	2,078.90	32.12%	61.07%
	Dredges				
	Trawl-Shrimp	27.80	65.50	2.84%	1.92%
	Troll	1.40	4.70	0.14%	0.14%
	Other Gear	0.70	1.90	0.07%	0.06%
	All Gear	980.30	3,404.10		
Unknown PFMC	Nets				
	Trawl	1,259.30	1,086.20	100.00%	100.00%
	Pot/Trap				
	Hook & Line				
	Dredges				
	Trawl-Shrimp				
	Troll				
	Other Gear				
	All Gear	1,259.30	1,086.20		

TABLE 3.3.1.2-1b. Groundfish landings and estimated exvessel revenue ($1,000) for **1999**, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
All Areas	Nets	158.80	200.60	0.06%	0.29%
	Trawl	260,199.40	52,056.00	97.70%	75.06%
	Pot/Trap	811.30	2,695.10	0.30%	3.89%
	Hook & Line	4,634.50	13,818.90	1.74%	19.92%
	Dredges				
	Trawl-Shrimp	425.20	460.80	0.16%	0.66%
	Troll	92.70	120.80	0.03%	0.17%
	Other Gear	0.80	3.50	0.00%	0.01%
	All Gear - Total	266,322.60	69,355.80		
Vancouver - U.S.	Nets				
	Trawl	112,154.40	15,007.90	98.94%	82.44%
	Pot/Trap			0.00%	0.00%
	Hook & Line	1,181.80	3,175.20	1.04%	17.44%
	Dredges				
	Trawl-Shrimp	1.90	2.00	0.00%	0.01%
	Troll	23.60	20.30	0.02%	0.11%
	Other Gear				
	All Gear	113,361.60	18,205.50		
Columbia	Nets	4.20	1.10		
	Trawl	132,795.90	22,501.10	98.36%	79.67%
	Pot/Trap	627.60	1,939.50	0.46%	6.87%
	Hook & Line	1,251.20	3,461.90	0.93%	12.26%
	Dredges				
	Trawl-Shrimp	321.70	322.00	0.24%	1.14%
	Troll	11.90	18.50	0.01%	0.07%
	Other Gear				
	All Gear	135,012.40	28,244.00		
OR Coast	Nets				
	Trawl				
	Pot/Trap	3.40	10.80	6.17%	7.07%
	Hook & Line	39.10	129.60	70.96%	84.87%
	Dredges				
	Trawl-Shrimp	12.50	12.20	22.69%	7.99%
	Troll				
	Other Gear				
	All Gear	55.10	152.70		
Eureka	Nets	0.60	0.80	0.01%	0.01%
	Trawl	8,266.30	7,504.20	90.99%	78.15%
	Pot/Trap	63.40	103.20	0.70%	1.07%
	Hook & Line	712.40	1,950.90	7.84%	20.32%
	Dredges				
	Trawl-Shrimp	40.40	37.70	0.44%	0.39%
	Troll	1.90	4.20	0.02%	0.04%
	Other Gear	0.20	0.70	0.00%	0.01%
	All Gear	9,085.30	9,601.70		

TABLE 3.3.1.2-1b. Groundfish landings and estimated exvessel revenue ($1,000) for **1999**, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
Monterey	Nets	41.20	56.50	0.57%	0.60%
	Trawl	5,959.00	6,059.40	83.07%	64.62%
	Pot/Trap	80.70	354.50	1.13%	3.78%
	Hook & Line	1,026.80	2,817.30	14.31%	30.05%
	Dredges				
	Trawl-Shrimp	10.30	11.80	0.14%	0.13%
	Troll	54.90	76.20	0.77%	0.81%
	Other Gear	0.30	1.30	0.00%	0.01%
	All Gear	7,173.30	9,376.90		
Conception	Nets	112.70	142.20	7.49%	3.83%
	Trawl	893.10	923.50	59.37%	24.86%
	Pot/Trap	36.20	287.00	2.41%	7.73%
	Hook & Line	423.10	2,284.10	28.13%	61.48%
	Dredges				
	Trawl-Shrimp	38.30	75.10	2.55%	2.02%
	Troll	0.40	1.70	0.03%	0.05%
	Other Gear	0.30	1.50	0.02%	0.04%
	All Gear	1,504.20	3,715.00		
Unknown PFMC	Nets				
	Trawl	130.70	59.90	100.00%	100.00%
	Pot/Trap				
	Hook & Line				
	Dredges				
	Trawl-Shrimp				
	Troll				
	Other Gear				
	All Gear	130.70	59.90		

TABLE 3.3.1.2-1c. Groundfish landings and estimated exvessel revenue ($1,000) for **1996**, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
All Areas	Nets	330.20	418.40	0.13%	0.45%
	Trawl	242,842.60	69,460.70	96.11%	74.10%
	Pot/Trap	861.80	3,194.40	0.34%	3.41%
	Hook & Line	7,485.40	19,506.70	2.96%	20.81%
	Dredges	1.30	0.90	0.00%	0.00%
	Trawl-Shrimp	890.40	842.60	0.35%	0.90%
	Troll	224.00	262.80	0.09%	0.28%
	Other Gear	45.30	57.70	0.02%	0.06%
	All Gear - Total	252,680.90	93,744.30		
Vancouver - U.S.	Nets	0.50	0.10	0.00%	0.00%
	Trawl	56,116.90	13,581.10	97.29%	74.33%
	Pot/Trap	35.70	111.80	0.06%	0.61%
	Hook & Line	1,431.20	4,485.30	2.48%	24.55%
	Dredges				
	Trawl-Shrimp	90.30	83.80	0.16%	0.46%
	Troll	6.80	9.40	0.01%	0.05%
	Other Gear				
	All Gear	57,681.40	18,271.40		
Columbia	Nets	trace	0.10	0.00%	0.00%
	Trawl	150,641.50	29,281.30	98.35%	81.31%
	Pot/Trap	490.50	2,015.30	0.32%	5.60%
	Hook & Line	1,347.20	4,108.40	0.88%	11.41%
	Dredges				
	Trawl-Shrimp	633.30	557.00	0.41%	1.55%
	Troll	48.60	48.50	0.03%	0.13%
	Other Gear				
	All Gear	153,161.20	36,010.50		
OR Coast	Nets				
	Trawl				
	Pot/Trap				
	Hook & Line	53.50	125.10	95.20%	98.35%
	Dredges				
	Trawl-Shrimp	2.50	2.00	4.45%	1.57%
	Troll	0.20	0.10	0.36%	0.08%
	Other Gear				
	All Gear	56.20	127.20		
Eureka	Nets	0.20	0.30	0.00%	0.00%
	Trawl	22,411.70	12,654.90	95.30%	84.25%
	Pot/Trap	106.30	201.00	0.45%	1.34%
	Hook & Line	893.70	2,060.60	3.80%	13.72%
	Dredges				
	Trawl-Shrimp	81.80	71.90	0.35%	0.48%
	Troll	11.40	15.80	0.05%	0.11%
	Other Gear	12.20	16.50	0.05%	0.11%
	All Gear	23,517.30	15,021.00		

TABLE 3.3.1.2-1c. Groundfish landings and estimated exvessel revenue ($1,000) for **1996**, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
Monterey	Nets	87.40	100.00	0.62%	0.58%
	Trawl	10,970.70	11,074.90	77.79%	64.46%
	Pot/Trap	174.50	507.70	1.24%	2.95%
	Hook & Line	2,683.90	5,284.60	19.03%	30.76%
	Dredges	1.30	0.90	0.01%	0.01%
	Trawl-Shrimp	8.90	10.60	0.06%	0.06%
	Troll	145.90	173.60	1.03%	1.01%
	Other Gear	29.70	29.50	0.21%	0.17%
	All Gear	14,102.40	17,181.70		
Conception	Nets	242.00	317.90	5.96%	4.51%
	Trawl	2,603.40	2,801.10	64.10%	39.73%
	Pot/Trap	54.50	355.60	1.34%	5.04%
	Hook & Line	1,073.80	3,431.50	26.44%	48.67%
	Dredges				
	Trawl-Shrimp	73.30	116.70	1.80%	1.66%
	Troll	11.20	15.40	0.28%	0.22%
	Other Gear	3.30	11.70	0.08%	0.17%
	All Gear	4,061.50	7,049.90		
Unknown PFMC	Nets				
	Trawl	98.40	67.50	97.43%	81.72%
	Pot/Trap	0.30	3.00	0.30%	3.63%
	Hook & Line	2.00	11.30	1.98%	13.68%
	Dredges			0.00%	0.00%
	Trawl-Shrimp	0.20	0.70	0.20%	0.85%
	Troll				
	Other Gear				
	All Gear	101.00	82.60		

TABLE 3.3.1.2-2a. Non-whiting groundfish landings and estimated exvessel revenue ($1,000) for **2000**, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
All Areas	Nets	93.40	122.10	0.25%	0.23%
	Trawl	31,954.10	34,754.40	85.41%	64.21%
	Pot/Trap	896.10	3,820.60	2.40%	7.06%
	Hook & Line	4,113.00	14,853.50	10.99%	27.44%
	Dredges				
	Trawl-Shrimp	310.80	469.50	0.83%	0.87%
	Troll	35.10	65.00	0.09%	0.12%
	Other Gear	10.30	38.20	0.03%	0.07%
	All Gear - Total	37,412.70	54,123.20		
Vancouver - U.S.	Nets	0.10	trace	0.00%	0.00%
	Trawl	7,129.20	5,974.40	84.84%	62.75%
	Pot/Trap	15.00	64.50	0.18%	0.68%
	Hook & Line	1,241.20	3,447.10	14.77%	36.20%
	Dredges				
	Trawl-Shrimp				
	Troll	11.20	11.50	0.13%	0.12%
	Other Gear	6.40	23.60	0.08%	0.25%
	All Gear	8,403.10	9,521.10		
Columbia	Nets	trace	trace	0.00%	0.00%
	Trawl	12,510.00	13,956.20	85.90%	66.34%
	Pot/Trap	601.20	2,338.40	4.13%	11.12%
	Hook & Line	1,187.20	4,359.50	8.15%	20.72%
	Dredges				
	Trawl-Shrimp	254.40	360.00	1.75%	1.71%
	Troll	11.40	23.00	0.08%	0.11%
	Other Gear	trace	trace	0.00%	0.00%
	All Gear	14,564.30	21,037.10		
OR Coast	Nets				
	Trawl				
	Pot/Trap	11.30	44.30	16.17%	17.94%
	Hook & Line	49.70	191.60	71.10%	77.60%
	Dredges			0.00%	0.00%
	Trawl-Shrimp	8.90	11.00	12.73%	4.46%
	Troll				
	Other Gear				
	All Gear	69.90	246.90		
Eureka	Nets	trace	trace	0.00%	0.00%
	Trawl	5,867.20	7,508.30	91.48%	79.83%
	Pot/Trap	89.20	322.90	1.39%	3.43%
	Hook & Line	446.10	1,555.20	6.96%	16.54%
	Dredges				
	Trawl-Shrimp	9.20	13.00	0.14%	0.14%
	Troll	1.60	4.20	0.02%	0.04%
	Other Gear	0.40	1.30	0.01%	0.01%
	All Gear	6,413.80	9,405.00		

TABLE 3.3.1.2-2a. Non-whiting groundfish landings and estimated exvessel revenue ($1,000) for **2000**, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
Monterey	Nets	26.30	42.10	0.44%	0.45%
	Trawl	4,891.50	5,603.30	82.25%	59.32%
	Pot/Trap	125.40	525.40	2.11%	5.56%
	Hook & Line	873.90	3,221.40	14.69%	34.11%
	Dredges				
	Trawl-Shrimp	10.50	19.90	0.18%	0.21%
	Troll	9.40	21.60	0.16%	0.23%
	Other Gear	2.90	11.40	0.30%	0.12%
	All Gear	5,947.00	9,445.20		
Conception	Nets	67.00	79.90	6.84%	2.35%
	Trawl	514.60	647.90	52.50%	19.04%
	Pot/Trap	54.00	525.20	5.51%	15.43%
	Hook & Line	314.80	2,078.60	32.12%	61.07%
	Dredges				
	Trawl-Shrimp	27.80	65.50	2.84%	1.92%
	Troll	1.40	4.70	0.14%	0.14%
	Other Gear	0.70	1.90	0.07%	0.06%
	All Gear	980.20	3,403.70		
Unknown PFMC Area	Nets				
	Trawl	1,034.50	1,064.30	100.00%	100.00%
	Pot/Trap				
	Hook & Line				
	Dredges				
	Trawl-Shrimp				
	Troll				
	Other Gear				
	All Gear	1,034.50	1,064.30		

TABLE 3.3.1.2-2b. Non-whiting groundfish landings and estimated exvessel revenue ($1,000) for **1999**, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
All Areas	Nets	158.40	200.30	0.37%	0.40%
	Trawl	36,815.10	33,413.90	85.74%	65.89%
	Pot/Trap	811.30	2,695.10	1.89%	5.31%
	Hook & Line	4,634.50	13,818.90	10.79%	27.25%
	Dredges				
	Trawl-Shrimp	425.20	460.80	0.99%	0.91%
	Troll	92.70	120.80	0.22%	0.24%
	Other Gear	0.80	3.50	0.00%	0.01%
	All Gear - Total	42,937.90	50,713.40		
Vancouver - U.S.	Nets				
	Trawl	9,537.70	6,206.10	88.76%	66.00%
	Pot/Trap			0.00%	0.00%
	Hook & Line	1,181.80	3,175.20	11.00%	33.77%
	Dredges				
	Trawl-Shrimp	1.90	2.00	0.02%	0.02%
	Troll	23.60	20.30	0.22%	0.22%
	Other Gear				
	All Gear	10,745.30	9,403.70		
Columbia	Nets	4.20	1.10		
	Trawl	13,513.00	12,791.70	85.91%	69.02%
	Pot/Trap	627.60	1,939.50	3.99%	10.46%
	Hook & Line	1,251.20	3,461.90	7.95%	18.68%
	Dredges				
	Trawl-Shrimp	321.70	322.00	2.05%	1.74%
	Troll	11.90	18.50	0.08%	0.10%
	Other Gear				
	All Gear	15,729.50	18,534.60		
OR Coast	Nets				
	Trawl				
	Pot/Trap	3.40	10.80	6.17%	7.07%
	Hook & Line	39.10	129.60	70.96%	84.87%
	Dredges				
	Trawl-Shrimp	12.50	12.20	22.69%	7.99%
	Troll				
	Other Gear				
	All Gear	55.10	152.70		
Eureka	Nets	0.60	0.80	0.01%	0.01%
	Trawl	6,837.30	7,378.50	89.30%	77.87%
	Pot/Trap	63.40	103.20	0.83%	1.09%
	Hook & Line	712.40	1,950.90	9.30%	20.59%
	Dredges				
	Trawl-Shrimp	40.40	37.70	0.53%	0.40%
	Troll	1.90	4.20	0.02%	0.04%
	Other Gear	0.20	0.70	0.00%	0.01%
	All Gear	7,656.30	9,476.00		

TABLE 3.3.1.2-2b. Non-whiting groundfish landings and estimated exvessel revenue ($1,000) for **1999**, not adjusted for inflation. (Page 2 of 2)

				Percent of Total	
INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	mt	Value
Monterey	Nets	40.80	56.20	0.57%	0.60%
	Trawl	5,959.00	6,059.40	83.08%	64.62%
	Pot/Trap	80.70	354.50	1.13%	3.78%
	Hook & Line	1,026.80	2,817.30	14.32%	30.05%
	Dredges				
	Trawl-Shrimp	10.30	11.80	0.14%	0.13%
	Troll	54.90	76.20	0.77%	0.81%
	Other Gear	0.30	1.30	0.00%	0.01%
	All Gear	7,172.60	9,376.60		
Conception	Nets	112.70	142.20	7.49%	3.83%
	Trawl	893.10	923.50	59.37%	24.86%
	Pot/Trap	36.20	287.00	2.41%	7.73%
	Hook & Line	423.10	2,284.10	28.13%	61.48%
	Dredges				
	Trawl-Shrimp	38.30	75.10	2.55%	2.02%
	Troll	0.40	1.70	0.03%	0.05%
	Other Gear	0.30	1.50	0.02%	0.04%
	All Gear	1,504.20	3,715.00		
Unknown PFMC	Nets				
	Trawl	74.70	54.70	100.00%	100.00%
	Pot/Trap				
	Hook & Line				
	Dredges				
	Trawl-Shrimp				
	Troll				
	Other Gear				
	All Gear	74.70	54.70		

TABLE 3.3.1.2-2c. Non-whiting groundfish landings and estimated exvessel revenue ($1,000) for **1996**, not adjusted for inflation. (Page 1 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
All Areas	Nets	330.20	418.40	0.54%	0.54%
	Trawl	51,554.60	52,752.70	84.04%	68.48%
	Pot/Trap	816.80	3,164.40	1.33%	4.11%
	Hook & Line	7,485.10	19,505.80	12.20%	25.32%
	Dredges	1.30	0.90	0.00%	0.00%
	Trawl-Shrimp	890.40	842.60	1.45%	1.09%
	Troll	224.00	262.80	0.37%	0.34%
	Other Gear	45.30	57.70	0.07%	0.07%
	All Gear - Total	61,343.50	77,032.40		
Vancouver - U.S.	Nets	0.50	0.10	0.00%	0.00%
	Trawl	8,583.60	7,530.70	84.58%	61.62%
	Pot/Trap	35.70	111.80	0.35%	0.91%
	Hook & Line	1,431.20	4,485.30	14.10%	36.70%
	Dredges				
	Trawl-Shrimp	90.30	83.80	0.89%	0.69%
	Troll	6.80	9.40	0.07%	0.08%
	Other Gear				
	All Gear	10,148.10	12,221.00		
Columbia	Nets	trace	0.10	0.00%	0.00%
	Trawl	19,778.50	19,726.50	88.70%	74.57%
	Pot/Trap	490.50	2,015.30	2.20%	7.62%
	Hook & Line	1,347.20	4,108.40	6.04%	15.53%
	Dredges				
	Trawl-Shrimp	633.30	557.00	2.84%	2.11%
	Troll	48.60	48.50	0.22%	0.18%
	Other Gear				
	All Gear	22,298.20	26,452.70		
OR Coast	Nets				
	Trawl				
	Pot/Trap				
	Hook & Line	53.50	125.10	95.20%	98.35%
	Dredges				
	Trawl-Shrimp	2.50	2.00	4.45%	1.57%
	Troll	0.20	0.10	0.36%	0.08%
	Other Gear				
	All Gear	56.20	127.20		
Eureka	Nets	0.20	0.30	0.00%	0.00%
	Trawl	9,596.80	11,560.00	90.05%	83.03%
	Pot/Trap	61.30	198.00	0.58%	1.42%
	Hook & Line	893.70	2,060.60	8.39%	14.80%
	Dredges				
	Trawl-Shrimp	81.80	71.90	0.77%	0.52%
	Troll	11.40	15.80	0.11%	0.11%
	Other Gear	12.20	16.50	0.11%	0.12%
	All Gear	10,657.30	13,923.10		

TABLE 3.3.1.2-2c. Non-whiting groundfish landings and estimated exvessel revenue ($1,000) for **1996**, not adjusted for inflation. (Page 2 of 2)

INPFC Area	Gear	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
Monterey	Nets	87.40	100.00	0.62%	0.58%
	Trawl	10,900.30	11,070.60	77.68%	64.45%
	Pot/Trap	174.50	507.70	1.24%	2.96%
	Hook & Line	2,683.90	5,284.60	19.13%	30.76%
	Dredges	1.30	0.90	0.01%	0.01%
	Trawl-Shrimp	8.90	10.60	0.06%	0.06%
	Troll	145.90	173.60	1.04%	1.01%
	Other Gear	29.70	29.50	0.21%	0.17%
	All Gear	14,032.00	17,177.40		
Conception	Nets	242.00	317.90	5.96%	4.51%
	Trawl	2,603.40	2,801.10	64.11%	39.74%
	Pot/Trap	54.50	355.60	1.34%	5.04%
	Hook & Line	1,073.50	3,430.60	26.43%	48.67%
	Dredges				
	Trawl-Shrimp	73.30	116.70	1.80%	1.66%
	Troll	11.20	15.40	0.28%	0.22%
	Other Gear	3.30	11.70	0.08%	0.17%
	All Gear	4,061.10	7,049.00		
Unknown PFMC	Nets				
	Trawl	92.00	66.90	97.25%	81.59%
	Pot/Trap	0.30	3.00	0.32%	3.66%
	Hook & Line	2.00	11.30	2.11%	13.78%
	Dredges			0.00%	0.00%
	Trawl-Shrimp	0.20	0.70	0.21%	0.85%
	Troll				
	Other Gear				
	All Gear	94.60	82.00		

TABLE 3.3.1.2-3a. Pacific whiting landings and estimated exvessel revenue ($1,000) for **1996**, not adjusted for inflation. Includes at-sea and shoreside. Predominately trawl.

INPFC Area	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
All Areas	191,333.40	16,711.90		
Vancouver - U.S.	47,533.30	6,050.40	24.84%	36.20%
Columbia	130,863.00	9,557.80	68.40%	57.19%
OR Coast	-	-	-	-
Eureka	12,860.00	1,097.90	6.72%	6.57%
Monterey	70.40	4.30	0.04%	0.03%
Conception	0.40	0.90	0.00%	0.01%
Unknown PFMC Area	6.40	0.60	0.00%	0.00%

TABLE 3.3.1.2-3b. Pacific whiting landings and estimated exvessel revenue ($1,000) for **1999**, not adjusted for inflation. Includes at-sea and shoreside. Predominately trawl.

INPFC Area	Landings (mt)	Revenue ($1,000)	Percent of Total mt	Percent of Total Value
All Areas	223,384.70	18,642.40		
Vancouver - U.S.	102,616.30	8,801.80	45.94%	47.21%
Columbia	119,282.90	9,709.40	53.40%	52.08%
OR Coast	-	-	0.00%	0.00%
Eureka	1,429.00	125.70	0.64%	0.67%
Monterey	0.40	0.30	0.00%	0.00%
Conception	-	-	0.00%	0.00%
Unknown PFMC Area	56.00	5.20	0.03%	0.03%

TABLE 3.3.1.2-3c. Pacific whiting landings and estimated exvessel revenue ($1,000) for **2000**, not adjusted for inflation. Includes at-sea and shoreside. Predominately trawl.

INPFC Area	Landings (mt)	Revenue ($,1000)	Percent of Total mt	Percent of Total Value
All Areas	206,438.60	18,735.60		
Vancouver - U.S.	73,979.20	6,621.20	35.84%	35.34%
Columbia	126,773.30	11,272.50	61.41%	60.17%
OR Coast	-	-	0.00%	0.00%
Eureka	5,460.00	819.30	2.64%	4.37%
Monterey	1.10	0.30	0.00%	0.00%
Conception	0.20	0.40	0.00%	0.00%
Unknown PFMC Area	224.80	21.90	0.11%	0.12%

TABLE 3.3.1.4-1. Exvessel revenue by port area and species group in **2000**[a/] (Page 1 of 1)

	Limited Entry									Open Access Vessels			All Vessels							
	Trawl						Fixed Gear						All Gears							
	Sablefish	Whiting	Flatfish	October 2001 Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species	Total
Inside Puget Sound	350	0	1,033	255	481	84	1,100	8	142	2	0	8	0	111	3,109	0	167	0	103	6,954
Olympic and Kitsap Peninsula	171	b/	314	157	363	7	848	b/	b/	157	b/	b/	21	5	1,014	145	b/	b/	178	3,559
Central Washington Coast	159	b/	271	256	407	10	466	26	3	79	21	13	52	2,208	15,764	130	5,255	b/	142	26,848
Astoria-Tillamook	1,698	2,157	1,130	2,511	2,510	28	1,455	10	2	67	77	20	145	4,314	6,896	449	2,835	1,159	170	27,635
Newport	1,215	934	585	948	1,487	27	978	7	10	53	35	30	172	3,527	6,254	1,104	3,041	16	191	20,615
Coos Bay	1,203	11	986	1,898	599	37	719	5	1	99	19	26	71	2,623	5,101	1,251	608	0	249	15,483
Brookings	355	c/	151	497	382	10	480	135	54	17	242	161	c/	339	2,986	260	79	-	659	6,832
Crescent City	420	d/	222	670	184	23	238	31	18	72	162	101	d/	977	5,999	6	270	1	65	9,696
Eureka	931	421	815	1,530	384	41	353	51	8	97	36	29	4	195	2,893	131	406	0	129	8,215
Fort Bragg	490	-	221	1,048	349	21	201	26	14	385	177	335	2	173	850	861	60	-	3,232	8,446
San Francisco	194	c/	1,009	478	420	26	422	163	8	30	379	107	792	674	3,359	5,314	226	64	2,903	16,569
Monterey	125	0	161	698	194	14	494	261	49	322	237	133	102	390	92	3,059	833	3,422	84	10,670
San Luis Obispo	78	-	68	373	121	2	b/	25	b/	0	538	522	109	1,272	128	793	1,559	0	31	5,628
Santa Barbara	c/	-	c/	1	c/	0	16	63	3	40	470	310	626	2,619	2,249	4	493	11,452	5,298	23,652
Los Angeles	-	-	-	-	-	-	159	212	7	35	41	63	635	594	1,656	1	10,192	13,857	5,188	32,639
San Diego	-	-	-	-	-	-	b/	b/	b/	34	43	27	177	329	2,009	-	2,239	21	1,034	5,937
Inland California	-	-	-	-	-	-	-	-	-	-	b/	b/	-	51	3	-	b/	-	59	116
Totals	7,391	4,643	6,966	11,320	7,883	330	7,959	1,068	332	1,489	2,485	1,896	2,906	20,402	60,363	13,509	28,377	30,459	19,718	229,494

a/ With respect to groundfish, all landings by any vessel with a limited entry trawl permit were counted as trawl limited entry landings (including permits endorsed for both trawl and fixed gear). Thus a licensed vessel will not show up under both fixed gear and trawl limited entry categories. Limited entry vessels may however show up multiple times within a limited entry category (e.g., the limited entry trawl category) if they (1) landed in more than one port or (2) landed more than one of the indicated groundfish species groups. Additionally, a limited entry vessel will show up at least once in the "All Vessels Category" for each category of species that the vessel landed (the vessel will show up more than once in the category if the vessel landed in more than one port).

b/ Omitted to preserve confidentiality. Value included in total for column and row.

c/ Value combined with next row up in order to protect confidentiality. Totals include the value in the row for the proper port.

d/ Value combined with next row down in order to protect confidentiality. Totals include the value in the row for the proper port.

TABLE 3.3.1.4-2. Number of vessels delivering by port and species group in **2000**[c/]. (Page 1 of 3)

	Limited Entry									Open Access Vessels			All Vessels						
	Trawl						Fixed Gear						All Gears						
	Sablefish	Whiting	October-June	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
Blaine	3	2	4	3	5	3			1						16		1		3
Bellingham	6		6	6	6	7	18	15	15	3	3	3		1	25		1		10
Anacortes															3		1		
LaConner							1	1											
Everett															21				
Seattle							6	4	3					1	33		5		
Tacoma																	1		
Olympia															2				
Shelton															1				
Centralia	2		1	1	1	1								1	1				1
Port Townsend					1		2	2	3					1	2	2	3		1
Port Angeles	7		6	6	6	6	20	18	14	9	30	26	19		4	19	3		23
Neah Bay	8		8	8	11	8	2			2	7	7	3			3			10
La Push							9	9	8	10	13	13			13	1	2		4
Quillayute															4		3		
Copalis							1		1				1	1	1				
Aberdeen							3	1	1	2	2	2	1		27	3	3	1	
Westport (WA)	12	7	16	10	27	17	15	14	7	16	18	19	11	34	131	32	60	11	39
Tokeland							1	1		5	6	6	2	10	35		1		66
Ilwaco	4	2	4	3	5	3	3	2	2	14	5	8	13	7	56	10	114	7	10
Pacific County															2		1		
Astoria	57	17	55	51	63	56	24	22	9	27	24	24	31	37	104	81	115	36	72
Gearhart-Seaside																4	1		9
Cannon Beach																3			
Nehalem Bay														2	2				3
Garibaldi (Tillamook)	2		2	2	2	3				7	26	27	14	7	21	56	19		19
Netarts														2					
Pacific City											19	14		6	1	7	2		9
Depoe Bay										3	2	4	3		8	3	1		5
Newport	41	17	37	36	47	35	21	19	17	32	91	97	83	49	94	149	200	13	68
Waldport														10	5				
Florence			1		1		5	1	1	1	9	6	6	3	12	25	12		1
Winchester							4	3	3		10	9	7	2	24	31	9	1	4
Charleston (Coos Bay)	31	4	32	30	36	30	13	10	7	25	87	63	26	45	69	126	52	5	63
Bandon											7	5	3		3	13	3		
Port Orford							14	16	17	5	45	38	9	1	39	31	3		56
Gold Beach								1	2		39	37	1	1	7	5			38
Brookings	11	1	11	11	11	9	1	2	4	2	42	36	1	22	48	38	10		44
Crescent City	25	2	23	23	22	19	7	4	3	16	54	58	4	42	144	11	18	2	34
Requa																			1

TABLE 3.3.1.4-2. Number of vessels delivering by port and species group in **2000**[c/]. (Page 2 of 3)

	Limited Entry									Open Access Vessels			All Vessels						
	Trawl						Fixed Gear						All Gears						
	October 2001 Sablefish	Whiting	October-December Flatfish	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
Trinidad											7	7			31	3			
Eureka Area	20	6	21	20	26	21	7	7	7	16	19	18	5	9	94	38	23	7	38
Fields Landing	13	4	13	13	14	14	1	1	1	3	4	2	2	2	19	5	9	2	16
Orick	1		1	1						1	12	9	1	1	5	4	1		3
Fort Bragg	16		16	16	17	16	7	6	5	37	73	64	2	4	41	111	11		82
Albion								1	1		11	12			1	3			24
Point Arena	1				1	1				1	16	17		1	5	8	2		22
Elk	1		1	1	1	1				4				2	7	2			6
Bodega Bay	9		9	10	10	9	3	5	4	2	51	39	18	3	72	222	22	2	25
Cloverdale											5	5	6	4	5	7	2		6
Yountville			1		1						5	4	3	8	4	4	1	1	13
Tomales Bay											1	2	2			1			1
Point Reyes													7		8	33			1
Sausilito											3	3	5		3	84	11		36
Oakland											1	1				3	1		3
Alameda											2	2	2		4	4	1		3
Berkeley								1	1	1	9	8	6		9	15	3		12
Richmond							1	1			3	2	4	2	1	3			2
San Francisco	14		15	15	16	13	7	11	9	8	43	30	39	4	53	146	13	4	145
Princeton	10	1	11	9	11	11	2	9	4	9	70	47	48	3	63	258	19	30	41
Gilroy											25	26	3			1			4
Santa Cruz	4		4	3	4	3	3	9	1	16	42	31	23		16	132	34	9	18
Moss Landing	11		10	11	10	7	12	16	13	28	68	61	25	13	15	242	53	27	32
Monterey	3	2	4	3	5	4	2	2	2	2	55	50	13	9	7	60	17	22	19
San Simeon											24	23	1			2			6
Morro Bay	11		14	11	14	10	1	5	2	5	106	91	24	18	13	72	98	1	65
Avila	7		7	7	8	4	4	3	1		72	62	32	7	18	32	29	2	35
Santa Barbara			3		2	2		1	2	1	68	88	58	38	72	2	20	16	176
Santa Cruz Island										1	2	1			1				4
Port Hueneme							1	1			5	4	2	3			1	49	15
Oxnard							3	3	2	8	38	52	27	15	38		21	11	103
Ventura	1		1	1			2	2	1	2	17	33	32	15	28	1	23	42	48
Terminal Island							3	3	2	3	12	33	52	22	25		92	48	154
San Pedro							1	2	1		7	37	34	6	34		102	80	125
Willmington							1	1	1				1				3	1	3
Catalina Island							4	6	4	4	11	16	18	6	30	1	24	14	46
Long Beach							1	1	1	1	4	5	3	5	3		5	3	21
Newport Beach							3	4	4	1	3	6	6	2	9		8	3	26
Dana Point							3	3	1			3		6	36		8		26
North Shore										5	15	18	13	7	48		33	5	63

TABLE 3.3.1.4-2. Number of vessels delivering by port and species group in **2000**[c/]. (Page 3 of 3)

	Limited Entry									Open Access Vessels			All Vessels						
	Trawl						Fixed Gear						All Gears						
	Sablefish	Whiting	Flatfish	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
San Diego										5	23	23	10	6	62		77	10	91
Oceanside							2	2	1	2	3	10	11	4	17		43	2	22
Inland California											2	1		4	8		2		9

TABLE 3.3.1.7-1. Groundfish trawl fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 1 of 2)

Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	($ '000) Number of Vessels	($ '000) October 2001 Average Rev Per Yr	Avg Rev/Ves/Yr Fished October 2001	Cum Perc of Vessels	Cum Perc of Revenue	Average Percent of Revenue from Each Fishery: Trl Albacore All Areas	CR&WACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthrGr Swdf&Shks	Pot OthCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-ff	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AllGr Ech&Mol
Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr, Twl Wh	5	2408	482	0	1	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	-	-	37	25	14	-	-	-	-
Pot DCrb Oc&PS, Twl GF(xWHT), Twl Wh	8	3,762	470	0	2	-	-	-	-	-	-	-	-	-	17	-	-	-	-	-	-	-	-	30	-	49	-	-	-	-
Twl GF(xWHT), Twl ShPr, Twl Wh	7	2,628	438	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71	10	15	-	-	-	-
Twl GF(xWHT), Twl Wh	26	5,899	284	0	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	60	-	-	-	-
Trl Alb All, Twl GF(xWHT), Twl ShPr	6	1,647	274	1	6	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51	32	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr	4	1,071	268	1	6	-	-	-	-	-	3	-	-	-	35	-	-	-	-	-	-	-	-	46	12	-	-	-	-	-
Twl GF(xWHT), Twl ShPr	63	15,801	268	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	73	22	-	-	-	-	-
Trl Alb All, Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr	7	1,825	261	1	12	3	-	-	-	-	-	-	-	-	32	-	-	-	-	-	-	-	-	41	18	-	-	-	-	-
Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr	37	9,152	247	2	15	-	-	-	-	-	-	-	-	-	29	-	-	-	-	-	-	-	-	41	24	-	-	-	-	-
Twl GF(xWHT)	73	13,646	247	2	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91	-	-	-	-	-	-
Twl CAHalb, Twl GF(xWHT)	9	1,790	224	3	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	69	-	-	-	-	-	-
Pot DCrb Oc&PS, Twl GF(xWHT)	11	1,874	195	3	21	-	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-	-	-	62	-	-	-	-	-	-
Trl Alb All, Twl GF(xWHT)	10	1,523	166	3	22	29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	-	-	-	-	-	-
Twl CAHalb, Twl GF(xWHT), Twl ShPr	9	1,148	137	3	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	47	21	-	-	-	-	-
Trl Alb All, Pot DCrb Oc&PS, Twl GF(xWHT)	5	577	137	3	22	12	-	-	-	-	-	-	-	-	53	-	-	-	-	-	-	-	-	31	-	-	-	-	-	-
Pot DCrb Oc&PS, Twl CAHalb, Twl GF(xWHT), Twl ShPr	3	386	129	3	22	-	-	-	-	-	-	-	-	-	23	-	-	-	-	-	-	-	2	56	6	-	-	-	-	-
Twl GF(xWHT), Twl ShPr-GF-Ec PS	8	374	62	3	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	-	-	15	-	-	-
Pot DCrb Oc&PS, Twl CAHalb, Twl GF(xWHT)	3	158	53	3	23	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	18	49	-	-	-	-	-	-
HKL GF&Halbs, Trl Salm, Twl GF(xWHT)	4	170	50	3	23	-	-	-	-	-	52	-	-	-	-	-	-	-	-	-	-	17	-	27	-	-	-	-	-	-
Twl CAHalb, Twl	4	94	39	3	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	5	-	-	-	-	-	45

TABLE 3.3.1.7-1. Groundfish trawl fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 2 of 2)

Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	($ '000) Number of Vessels	($ '000) Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Average Percent of Revenue from Each Fishery: Trl Albacore All Areas	CR&WACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthrGr Swdf&Shks	Pot OthCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-ff	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AlGr Ech&Mol
GF(xWHT), AllGr Ech&Mol																														
HKL GF&Halbs, Twl CAHalb, Twl GF(xWHT), Twl ShPr, AllGr Ech&Mol	3	115	38	3	23	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	18	8	9	-	-	-	-	44
EntNet GF, HKL GF&Halbs, Twl GF(xWHT)	5	144	34	3	23	-	-	-	22	-	72	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
HKL GF&Halbs, Twl CAHalb, Twl GF(xWHT), AllGr Ech&Mol	4	80	27	3	23	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	35	5	-	-	-	-	-	30
Twl CAHalb, Twl GF(xWHT), Twl ShPr, AllGr Ech&Mol	3	66	24	3	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	5	1	-	-	-	-	33
EntNet CAHalb, Twl CAHalb, Twl GF(xWHT)	3	54	21	3	23	-	-	23	-	-	-	-	-	-	-	-	-	-	-	-	-	32	4	-	-	-	-	-	-
HKL GF&Halbs, Twl GF(xWHT)	12	105	19	4	23	-	-	-	-	-	81	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-
Twl GF(xWHT), Net Salm PS	3	29	13	4	23	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	36	-	-	-	56	-	-
Total of Above 27 Combinations	335	66,526																											
52 Other Combinations	60	5,774		<1	2																								
Total	395	72,300		4	25																								

NOTES: Each vessel was assigned to a combination based on strategies from which the vessel derived 5% of its revenue in at leat one year from 1994-1998. Areas of catch are Council managed areas, unless otherwise noted. Cumulative percentages are expressed as a proportion of the totals for all vessels landing on the West Coast. Percentages do not add to 100 because vessels derive some income from species/gear/area combinations not included here. See Appendix C for methodology and key to abbreviations.

TABLE 3.3.1.7-2. Groundfish and halibut hook-and-line fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 1 of 3)

October 2001

Fishery Combinations (Gear, Species Area--if area is different from Council managed areas)	($ '000) Number of Vessels	Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Average Percent of Revenue from Each Fishery: Trl Albacore All Areas	CR&WACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthrGr Swdf&Shks	Pot OthCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-ff	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AlGr Ech&Mol
HKL GF&Halbs, Pot DCrb Oc&PS, Twl GF(xWHT), Twl ShPr	4	1,071	268	0	0	-	-	-	-	-	3	-	-	-	35	-	-	-	-	-	-	-	-	46	12	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF	21	2,308	115	0	1	-	-	-	-	-	19	-	-	-	51	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, EntNet Swdf&Shks, HKL GF&Halbs	3	289	96	0	1	45	-	-	-	24	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Pot DCrb Oc&PS	51	4,265	94	1	3	10	-	-	-	-	27	-	-	-	58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, Twl ShPr	3	247	82	1	3	11	-	-	-	-	3	-	-	-	46	-	-	-	-	-	-	-	-	-	35	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS, Pot Sh&Pr Oc&PS	4	295	74	1	3	-	-	-	-	-	34	-	-	-	53	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Pot GF, AllGr Ech&Mol	3	190	73	1	3	3	-	-	-	-	16	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	61
HKL GF&Halbs, Pot DCrb Oc&PS, AllGr Ech&Mol	4	228	71	1	3	-	-	-	-	-	16	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53
HKL GF&Halbs, Twl ShPr-GF-Ec PS	3	142	71	1	3	-	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77	-	-	-
Trl Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, AllGr Ech&Mol	3	198	66	1	3	3	-	-	-	-	14	-	-	-	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33
Trl Alb All, HKL GF&Halbs, Pot OthCrb, Pot DCrb Oc&PS	3	159	57	1	3	5	-	-	-	-	14	-	-	14	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS	120	4,557	51	2	5	-	-	-	-	-	37	-	-	-	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF, Trl Salm	8	388	51	2	5	6	-	-	-	-	24	-	-	-	44	4	-	-	-	-	-	17	-	-	-	-	-	-	-	-
HKL GF&Halbs, Trl Salm, Twl GF(xWHT)	4	170	50	2	5	-	-	-	-	-	52	-	-	-	-	-	-	-	-	-	-	17	-	27	-	-	-	-	-	-
HKL GF&Halbs, Pot GF, AllGr Ech&Mol	12	457	49	3	5	-	-	-	-	-	16	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	70
Trl Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, Trl Salm	62	2,738	47	3	6	13	-	-	-	-	18	-	-	-	37	-	-	-	-	-	-	27	-	-	-	-	-	-	-	-
HKL GF&Halbs, AllGr Ech&Mol	48	1,704	44	4	7	-	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	76
HKL GF&Halbs, Pot DCrb Oc&PS, Trl Salm, AllGr Herr All	4	151	44	4	7	-	-	-	-	-	5	-	-	-	45	-	-	-	-	-	-	12	-	-	-	-	-	-	34	-
HKL GF&Halbs, Pot OthCrb, Pot DCrb Oc&PS, Trl Salm	3	120	40	4	7	-	-	-	-	-	41	-	-	1	23	-	-	-	-	-	-	31	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF, Trl Salm	4	157	39	4	7	-	-	-	-	-	22	-	-	-	41	24	-	-	-	-	-	9	-	-	-	-	-	-	-	-
HKL GF&Halbs, Twl CAHalb, Twl GF(xWHT), Twl ShPr, AllGr Ech&Mol	3	115	38	4	7	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	18	8	9	-	-	-	-	44
EntNet GF, HKL GF&Halbs, Twl GF(xWHT)	5	144	34	4	7	-	-	-	22	-	72	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-

TABLE 3.3.1.7-2. Groundfish and halibut hook-and-line fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 2 of 3)

October 2001 Fishery Combinations (Gear, Species Area--if area is different from Council managed areas)	($ '000) Number of Vessels	Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Average Percent of Revenue from Each Fishery: Trl Albacore All Areas	CR&WACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthrGr Swdf&Shks	Pot OthCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-ff	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AlGr Ech&Mol
HKL GF&Halbs, Pot GF, Pot Sh&Pr Oc&PS	4	83	32	4	7	-	-	-	-	-	18	-	-	-	-	52	-	8	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS, Trl Salm	114	2,656	27	5	8	-	-	-	-	-	22	-	-	-	46	-	-	-	-	-	-	26	-	-	-	-	-	-	-	-
HKL GF&Halbs, Twl CAHalb, Twl GF(xWHT), AllGr Ech&Mol	4	80	27	5	8	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	35	5	-	-	-	-	-	30
EntNet GF, HKL GF&Halbs	26	491	27	6	8	-	-	-	33	-	61	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs	83	1,071	22	6	8	36	-	-	-	-	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Net Salm PS	5	72	20	6	8	-	-	-	-	-	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-
HKL GF&Halbs, Pot OthCrb, Pot Lob	8	116	19	7	8	-	-	-	-	-	9	-	-	33	-	-	47	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Twl GF(xWHT)	12	105	19	7	9	-	-	-	-	-	81	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Trl Salm	150	2,191	17	8	9	17	-	-	-	-	26	-	-	-	-	-	-	-	-	-	-	53	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot Sh&Pr Oc&PS	8	86	16	8	9	-	-	-	-	-	29	-	-	-	-	-	-	57	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs	1,285	8,516	16	22	12	-	-	-	-	-	92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Trl Salm, AllGr Herr All	3	45	15	22	12	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	38	-	-	-	-	-	-	58	-
HKL GF&Halbs, Pot GF	61	473	15	23	12	-	-	-	-	-	69	-	-	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, HKL TropTun-Swdf&Shks	51	374	13	23	13	-	-	-	-	-	61	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot GF, Trl Salm	22	199	12	23	13	-	-	-	-	-	34	-	-	-	-	17	-	-	-	-	-	44	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot Lob	14	112	11	24	13	-	-	-	-	-	23	-	-	-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Twl CAHalb, AllGr Ech&Mol	3	24	11	24	13	-	-	-	-	-	26	-	-	-	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	32
HKL GF&Halbs, Sn&Onet CPS-sqd	8	41	9	24	13	-	-	-	-	-	41	-	-	-	-	-	-	-	-	51	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot GF, Pot Lob	3	19	9	24	13	-	-	-	-	-	52	-	-	-	-	7	37	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot OthCrb, Pot GF, Trl Salm	3	24	9	24	13	-	-	-	-	-	26	-	-	8	-	26	-	-	-	-	-	35	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Pot GF, Trl Salm	6	39	8	24	13	7	-	-	-	-	49	-	-	-	-	18	-	-	-	-	-	22	-	-	-	-	-	-	-	-
HKL GF&Halbs, HKL TropTun-Swdf&Shks, Pot Lob	6	31	8	24	13	-	-	-	-	-	32	6	-	-	-	-	49	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot OthCrb, Trl Salm	6	28	8	24	13	-	-	-	-	-	20	-	-	20	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-
HKL GF&Halbs, Trl Salm	367	1,477	6	28	13	-	-	-	-	-	31	-	-	-	-	-	-	-	-	-	-	65	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Pot GF	5	18	6	28	13	16	-	-	-	-	56	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Trl Salm, AllGr Ech&Mol	4	16	5	28	13	-	-	-	-	-	22	-	-	-	-	-	-	-	-	-	-	39	-	-	-	-	-	-	-	36
CR&WACoast Salm, HKL GF&Halbs	5	14	4	28	13	-	46	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, HKL TropTun-Swdf&Shks	15	35	4	28	13	16	-	-	-	-	51	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3.3.1.7-2. Groundfish and halibut hook-and-line fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 3 of 3)

Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	($ '000) Number of Vessels	($ '000) Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Average Percent of Revenue from Each Fishery: Trl Albacore All Areas	CR&WACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthrGr Swdf&Shks	Pot OthCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-ff	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AlGr Ech&Mol
HKL GF&Halbs, Pot OthCrb	19	35	4	28	13	-	-	-	-	-	40	-	-	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, HKL TropTun-Swdf&Shks, Trl Salm	3	3	2	28	13	-	-	-	-	-	38	6	-	-	-	-	-	-	-	-	-	44	-	-	-	-	-	-	-	-
Total of Above 52 Combinations	2,678	38,567																												
142 Other Combinations	171	5,713		2	2																									
Total	2,849	44,280		30	15																									

NOTES: Each vessel was assigned to a combination based on strategies from which the vessel derived 5% of its revenue in at leat one year from 1994-1998. Areas of catch are Council managed areas, unless otherwise noted. Cumulative percentages are expressed as a proportion of the totals for all vessels landing on the West Coast. Percentages do not add to 100 because vessels derive some income from species/gear/area combinations not included here. See Appendix C for methodology and key to abbreviations.

TABLE 3.3.1.7-3. Groundfish pot fleet by combinations of fisheries in which vessels participate and percent of revenue from each fishery. (Page 1 of 1)

	($ '000)					Average Percent of Revenue from Each Fishery																										
Fishery Combinations (Gear, Species, Area--if area is different from Council managed areas)	October 2001 Vessels	Average Rev Per Yr	Avg Rev/Ves/Yr Fished	Cum Perc of Vessels	Cum Perc of Revenue	Trl Albacore All Areas	CR&WACoast Salm	EntNet CAHalb	EntNet GF	EntNet Swdf&Shks	HKL GF&Halbs	HKL TropTunSwdf&Shks	OthrGr Swdf&Shks	Pot OthCrb	Pot DCrb Oc&PS	Pot Groundfish	Pot Lobster	Pot Sh&Pr Oc&PS	Sn&Net CPS-ff	Sn&Net CPS-sqd	Sn&Onet Trop Tun	Troll Salmon	Trawl CA Halb	Trawl GF (not Whiting)	Trawl Shrimp&Prawns	Trawl Whiting	Trawl-Puget Sound	Net Sal Puget Sound	AllGr Herring All Areas	AlGr Ech&Mol
Trl Alb All, Pot DCrb Oc&PS, Pot GF	9	2,358	274	0	1	7	-	-	-	-	-	-	-	-	61	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, Pot DCrb Oc&PS, Pot GF, Trl Salm	3	338	121	0	1	16	-	-	-	-	-	-	-	-	64	7	-	-	-	-	-	10	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF	21	2,308	115	0	2	-	-	-	-	-	19	-	-	-	51	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pot DCrb Oc&PS, Pot GF	10	924	110	0	2	-	-	-	-	-	-	-	-	-	71	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pot OthCrb, Pot DCrb Oc&PS, Pot GF	3	203	85	0	2	-	-	-	-	-	-	-	-	10	59	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Pot GF, AllGr Ech&Mol	3	190	73	1	2	3	-	-	-	-	16	-	-	-	-	14	-	-	-	-	-	-	-	-	-	-	-	-	-	61
Pot GF, Pot Lob, AllGr Ech&Mol	3	171	66	1	2	-	-	-	-	-	-	-	-	-	-	1	19	-	-	-	-	-	-	-	-	-	-	-	-	73
Pot DCrb Oc&PS, Pot GF, Trl Salm	5	254	53	1	2	-	-	-	-	-	-	-	-	-	82	8	-	-	-	-	-	6	-	-	-	-	-	-	-	-
Trl Alb All, HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF, Trl Salm	8	388	51	1	2	6	-	-	-	-	24	-	-	-	44	4	-	-	-	-	-	17	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot GF, AllGr Ech&Mol	12	457	49	1	3	-	-	-	-	-	16	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	70
HKL GF&Halbs, Pot DCrb Oc&PS, Pot GF, Trl Salm	4	157	39	1	3	-	-	-	-	-	22	-	-	-	41	24	-	-	-	-	-	9	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot GF, Pot Sh&Pr Oc&PS	4	83	32	1	3	-	-	-	-	-	18	-	-	-	-	52	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Pot GF, AllGr Ech&Mol	6	152	29	1	3	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	85
HKL GF&Halbs, Pot GF	61	473	15	2	3	-	-	-	-	-	69	-	-	-	-	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pot GF	13	34	13	2	3	-	-	-	-	-	-	-	-	-	-	91	-	-	-	-	-	-	-	-	-	-	-	-	-	-
HKL GF&Halbs, Pot GF, Trl Salm	22	199	12	2	3	-	-	-	-	-	34	-	-	-	-	17	-	-	-	-	-	44	-	-	-	-	-	-	-	-
Total of Above 16 Combinations	187	8,689																												
54 Other Combinations	85	5,132		1	2																									
Total	272	13,821		3	5																									

NOTES: Each vessel was assigned to a combination based on strategies from which the vessel derived 5% of its revenue in at leat one year from 1994-1998. Areas of catch are Council managed areas, unless otherwise noted. Cumulative percentages are expressed as a proportion of the totals for all vessels landing on the West Coast. Percentages do not add to 100 because vessels derive some income from species/gear/area combinations not included here. See Appendix C for methodology and key to abbreviations.

TABLE 3.3.2-1. By port, number of buyers by species group (for groundfish purchases, separation is made between groundfish limited entry trawl, groundfish limited entry fixed gear, and open access deliveries of groundfish).[d/] (Page 1 of 3)

	Categories of Groundfish Deliveries													Categories of Nongroundfish Deliveries						
	Limited Entry									Open Access				All Vessels						
	Trawl						Fixed Gear							All Gears						
	Sablefish	October 2001 Whiting	Flatfish	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
Blaine	1	1	1	1	1	2			1						4		1		1
Bellingham	1		1	1	1	2	2	1	2	1	1	1		1	7		1		2
Anacortes															3		1		
La Conner							1	1											
Everett															1				
Seattle							1	1	1					1	7		5		
Tacoma																	1		
Olympia															1				
Shelton															1				
Centralia	1		1	1	1	1								1	1				1
Port Townsend					1		1	1	1					1	1	1	1		1
Port Angeles	1		1	1	1	1	1	1	1	1	1	2	2		1	2	1		1
Neah Bay	4		4	4	4	4	1			2	2	3	2			1			4
La Push							1	1	1	1	1	1			1	1	1		1
Quillayute															1		3		
Copalis							1		1				1	1	1				
Aberdeen							1	1	1	1	2	2	1		2	3	3	1	
Westport (WA)	3	1	2	2	5	4	4	2	3	6	6	9	6	12	17	11	11	2	4
Tokeland							1	1		3	2	2	1	5	10		1		6
Ilwaco	2	1	2	2	2	2	2	2	1	2	2	2	6	2	7	4	6	2	3
Pacific County															2		1		
Astoria	5	3	7	6	7	6	6	4	3	5	6	6	9	7	7	16	11	6	5
Gearhart-Seaside																4	1		2
Cannon Beach																2			
Nehalem Bay														2	1				2
Garibaldi (Tillamook)	3		3	3	3	3				4	11	12	8	5	10	15	6		13
Netarts														2					
Pacific City											3	4		5	4	2	2		2
Depoe Bay										2	4	3	2		5	5	1		4
Newport	6	3	6	5	6	6	8	6	9	5	22	20	21	8	22	37	31	4	11
Waldport														7	7				
Florence			1		1		2	1	1	1	3	2	3	3	8	7	7		1
Winchester							1	2	2		2	3	6	2	10	11	11	1	2
Charleston (Coos Bay)	3	2	5	4	4	6	4	5	3	5	13	13	12	5	8	25	22	2	12
Bandon											4	3	3		1	11	3		
Port Orford							3	4	4	2	6	5	3	1	6	7	2		5
Gold Beach								2	1		9	8	1	1	3	1			7
Brookings	5	1	6	5	5	5	1	3	3	3	13	10	1	6	13	12	8		12

TABLE 3.3.2-1. By port, number of buyers by species group (for groundfish purchases, separation is made between groundfish limited entry trawl, groundfish limited entry fixed gear, and open access deliveries of groundfish).[d/] (Page 2 of 3)

October 2001	Categories of Groundfish Deliveries												Categories of Nongroundfish Deliveries						
	Limited Entry									Open Access			All Vessels						
	Trawl						Fixed Gear						All Gears						
	Sablefish	Whiting	Flatfish	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
Crescent City	4	1	4	4	6	5	4	6	5	5	16	12	2	11	22	3	10	1	9
Requa																			1
Trinidad											4	4			10	2			
Eureka Area	3	1	4	3	3	2	5	8	7	7	11	11	2	2	19	7	8	1	8
Fields Landing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	2	1	1
Orick	1		1	1						2	8	7	1	1	8	5	1		3
Fort Bragg	5		5	3	5	6	3	3	2	3	12	9	2	6	14	13	7		14
Albion								2	1		4	5			1	2			10
Point Arena	1				1	1				1	4	6		1	4	6	2		7
Elk	1		1	1	1	1				3				2	5	2			5
Bodega Bay	6		6	6	5	5	3	7	4	2	21	20	6	3	15	34	7	2	13
Cloverdale											5	5	4	6	5	7	2		7
Yountville			1		1						6	4	3	6	4	4	1	1	14
Tomales Bay											1	2	3			1			1
Point Reyes													1		1	2			1
Sausilito											1	1	2		1	7	1		2
Oakland											4	2				3	1		4
Alameda											3	2	2		3	3	1		2
Berkeley								5	5	1	10	8	4		4	13	4		11
Richmond							1	1			3	2	3	3	1	5			1
San Francisco	7		8	8	8	8	4	19	13	9	28	25	20	4	16	19	10	2	38
Princeton	7	1	7	6	7	7	2	7	4	7	28	18	18	3	33	54	11	8	15
Gilroy											6	6	3			1			3
Santa Cruz	6		7	4	6	5	3	3	1	5	14	11	10		13	28	10	5	11
Moss Landing	7		9	7	9	7	7	9	6	6	13	13	13	5	6	41	13	6	11
Monterey	2	3	3	2	3	3	1	2	2	3	19	19	5	10	5	8	9	7	13
San Simeon											5	4	1			2			3
Morro Bay	4		7	3	7	5	4	12	4	5	17	17	9	11	8	19	30	1	26
Avila	3		3	2	3	1	3	3	1		10	10	4	5	8	8	8	1	8
Santa Barbara			4		3	3		1	2	1	20	29	27	34	35	2	6	16	58
Santa Cruz Island										1	2	1			2				3
Port Hueneme							1	1			5	5	2	3			1	12	9
Oxnard							3	9	9	5	14	26	24	15	23		15	11	50
Ventura	1		1	1			2	2	1	3	15	24	21	18	24	1	16	11	36
Terminal Island							5	5	3	6	10	16	15	12	12		16	10	48
San Pedro							2	3	1		2	13	13	6	21		24	16	35
Willmington							1	1	1				1				3	1	3
Catalina Island							3	5	2	4	10	9	10	7	26	1	11	12	26

TABLE 3.3.2-1. By port, number of buyers by species group (for groundfish purchases, separation is made between groundfish limited entry trawl, groundfish limited entry fixed gear, and open access deliveries of groundfish).[d/] (Page 3 of 3)

	Categories of Groundfish Deliveries												Categories of Nongroundfish Deliveries						
	Limited Entry									Open Access			All Vessels						
	Trawl						Fixed Gear						All Gears						
	Sablefish	Whiting	Flatfish	Dover/Thornyheads	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Sablefish	Rockfish	Other Groundfish	Halibut	Shrimp/Prawns	Crab/Lobster	Salmon	HMS	CPS	Other Species
Long Beach							1	1	1	1	4	5	3	4	3		5	3	18
Newport Beach							2	2	2	1	2	4	4	2	9		7	3	11
Dana Point							3	3	1			3		6	17		10		16
North Shore										7	11	15	10	9	25		19	4	30
San Diego										5	13	13	12	6	26		25	7	30
Oceanside							2	2	1	2	3	7	11	4	14		11	2	13
Inside Califomia											2	1		3	7		2		5
Total Buying "Locations"	94	19	112	87	111	102	108	162	119	140	480	506	360	287	626	482	451	162	735

TABLE 3.3.3-1. Trends in effort for recreational ocean fisheries in thousands of angler trips. (Page 1 of 1)

	Charter					Private				
Area	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
					Total Angler Trips					
Washington	51	50	44	49	49	52	55	37	52	52
Oregon	54	65	57	60	87	57	87	213	173	330
Northern California	90	139	158	162	206	253	312	528	549	523
Southern California	982	812	674	609	876	1,099	1,073	1,167	879	1,314
Total	1,177	1,066	933	880	1,218	1,461	1,527	1,945	1,653	2,219
					Groundfish Target and Incidental[e/]					
Washington	24	19	23	21	25	24	21	54	25	30
Oregon	43	47	47	44	69	33	57	119	88	153
Northern California	63	159	58	95	101	110	113	160	188	120
Southern California	59	23	33	45	57	35	11	15	30	28
Total	189	248	161	205	252	202	202	348	331	331

TABLE 3.3.3-2. Charter vessels engaging in saltwater fishing outside of Puget Sound in 2001 by port area. (Page 1 of 1)

State	Port Area	Charter Boats
Washington	Neah Bay	1
	La Push	0
	Westport	13
	Ilwaco	6
	Unknown	86
	TOTAL	106
Oregon	Astoria	22
	Tillamook	51
	Newport	45
	Coos Bay	13
	Brookings	15
	Unknown	86
	TOTAL	232
California	Crescent City	1
	Eureka	4
	Fort Bragg	14
	San Francisco	67
	Monterey	33
	Conception (Northern port[f/]ion)	129
	San Diego	95
	Unknown	72
	TOTAL	415
GRAND TOTAL		753

TABLE 3.3.3-3 Effort and economic value of recreational ocean fisheries off Washington, Oregon, and California.

Area	Angler Trips (thousands)			Coastal Community Income Impacts for the Recreational Fishery (thousands of dollars)		
	Charter	Private	Total	Charter	Private	Total
Washington Coast	49	52	101	$4,319	$1,927	$6,246
Oregon	87	330	417	$7,648	$20,195	$27,843
North/Central California [a/]	206	523	729	$25,128	$21,499	$46,628
Southern California [b/]	876	1,314	2,190	$107,132	$57,982	$165,114
California Total	1,082	1,837	2,919	$132,260	$79,481	$211,742
Grand Total	1,218	2,219	3,437	$144,228	$101,603	$245,831

a/ Includes counties from Monterey north.
b/ Includes counties from San Luis Obispo south.

TABLE 3.3.3-4 Effort and economic value of recreational groundfish fisheries off Washington, Oregon, and California (based on target and incidental catch as reported in Table 3.3.3-1.

Area	Angler Trips (thousands)			Coastal Community Income Impacts for the Recreational Fishery (thousands of dollars)		
	Charter	Private	Total	Charter	Private	Total
Washington Coast	25	30	55	$2,204	$1,112	$3,315
Oregon	69	153	222	$6,066	$9,363	$15,429
North/Central California [a/]	101	120	221	$12,320	$4,933	$17,253
Southern California [b/]	57	28	85	$6,971	$1,236	$8,206
California Total	158	148	306	$19,291	$6,168	$25,460
Grand Total	252	331	583	$27,561	$16,643	$44,204

TABLE 4.1.4-1. Total catch optimum yield (OY) alternatives for 2002 compared to OY, harvest, and exvessel revenue from 2000 and OY from 2001 for those species with changes in OY. (Page 1 of 1)

	2000				2001		2002 (Total catch OY)							
	Total Catch OY (mt)	Landed Catch OY (mt)	Final Harvest (mt)	Exvessel Revenue ($1,000)	Total Catch OY (mt)	Landed Catch OY (mt)	Status Quo (2001)	Change from 2001	Alt 1.1 (Low)	Change from 2001	Alt 1.2 (High)	Change from 2001	Alt 1.3 (Pref'rr'd)	Change from 2001
Lingcod	378	378	144.3	343.8	611	571	611	0.0%	-	N/A	-	N/A	577	-5.6%
Sablefish (coastwide)	8,391	7,553	6,260.5	20,204.5	7,107	6,418	7,107	0.0%	3,296	-53.6%	4,596	-35.3%	4,096	-42.4%
Pacific Ocean Perch (POP)	270	227	90.7	88.0	303	255	303	0.0%	290	-4.3%	410	35.3%	350	15.5%
Nominal POP	-	-	49.8	46.7	-	-								
Widow Rockfish	4,333	3,416	3,143.0	3,078.6	2,300	1,739	2,300	0.0%	726	-68.4%	856	-62.8%	856	-62.8%
Nominal Widow	-	-	721.1	713.8	-	-								
Shortspine Thornyhead (SST) (coastwide)	1,145	799	520.5	1,291.1	751	614	751	0.0%	751	0.0%	955	27.2%	-	-
Nominal SST	-	-	172.9	501.9	-	-								
Darkblotched Rockfish	N/A	N/A	N/A	N/A	130	106	130	0.0%	157	20.8%	181	39.2%	168	29.2%
Dover Sole	9,426	8,955	8,755.0	6,841.3	7,677	7,293	7,677	0.0%	5,520	-28.1%	7,440	-3.1%	6,410	-16.5%

TABLE 4.1.4-2. Landings, exvessel value, and price by gear group in 2000 for species with changes in 2002 optimum yield. Values not adjusted for inflation. Information not included for species coded as "nominal" in PacFIN (e.g., nominal widow rockfish).

Species	Gear	Landings (mt)	Revenue ($1,000)	Price ($ per pound)
Lingcod	Nets	3.4	$2.8	$0.377
	Trawl	61.5	$121.2	$0.893
	Pot/Trap	1.3	$4.6	$1.572
	Hook & Line	52.4	$163.4	$1.416
	Trawl-Shrimp	15.5	$31.3	$0.913
	Troll	10.1	$20.4	$0.915
	Other Gear	trace	$0.1	$1.500
	All Gear	144.3	$343.8	$1.081
Sablefish	Nets	1.3	$4.3	$1.471
	Trawl	2,642.9	$6,889.6	$1.182
	Pot/Trap	810.3	$3,078.9	$1.724
	Hook & Line	2,734.8	$10,019.2	$1.662
	Trawl-Shrimp	61.5	$178.4	$1.316
	Troll	2.9	$8.2	$1.294
	Other Gear	6.9	$25.8	$1.700
	All Gear	6,260.5	$20,204.5	$1.464
Pacific ocean	Nets	-	-	-
	Trawl	90.5	$87.7	$0.439
	Pot/Trap	-	-	-
	Hook & Line	0.2	$0.3	$0.979
	Trawl-Shrimp	trace	$0.0	$0.344
	Troll	-	-	-
	Other Gear	-	-	-
	All Gear	90.7	$88.0	$0.440
Widow rockfish	Nets	trace	$0.0	$1.394
	Trawl	3,131.9	$3,053.0	$0.442
	Pot/Trap	-	-	-
	Hook & Line	11.0	$25.0	$1.032
	Trawl-Shrimp	-	-	-
	Troll	0.1	$5.0	$1.863
	Other Gear	-	-	-
	All Gear	3,143.0	$3,078.6	$0.444
Shortspine	Nets	-	-	-
	Trawl	490.2	$1,123.5	$1.040
	Pot/Trap	-	-	-
	Hook & Line	30.2	$167.3	$2.511
	Trawl-Shrimp	-	-	-
	Troll	0.1	$0.3	$2.029
	Other Gear	-	-	-
	All Gear	520.5	$1,291.1	$1.125
Darkblotched	Nets	-	-	-
	Trawl	215.4	$199.3	$0.420
	Pot/Trap	-	-	-
	Hook & Line	0.3	$0.5	$0.870
	Trawl-Shrimp	trace	$0.0	$0.360
	Troll	trace	$0.0	$0.976
	Other Gear	-	-	-
	All Gear	215.7	$199.9	$0.420
Dover sole	Nets	trace	$0.0	$0.633
	Trawl	8,705.3	$6,800.1	$0.354
	Pot/Trap	1.1	$1.0	$0.383
	Hook & Line	2.7	$2.9	$0.484
	Trawl-Shrimp	45.8	$37.1	$0.367
	Troll	0.1	$0.3	$1.957
	Other Gear	-	-	-
	All Gear	8,755.0	$6,841.3	$0.354

TABLE 4.4.1-1. Recreational catches of groundfish in Washington, Oregon, and California, 1996-2000. Data from RecFIN.

	All Modes					Partyboat/Charter Only				
Stock	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Roundfish										
Lingcod	554	506	476	532	364	213	252	115	205	144
Pacific Cod										
Pacific Whiting										
Sablefish	1	7	3	T	1	1	7	3	T	1
Total Roundfish	555	513	479	532	365	213	259	118	205	145
Rockfish										
Black	734	724	1045	865	1073	436	416	476	406	510
Blue	313	463	393	311	270	228	337	213	188	179
Bocaccio	103	112	58	136	110	60	98	38	107	95
Canary	93	141	91	115	120	59	109	60	78	90
Chilipepper	37	74	7	7	38	24	73	1	2	32
Cowcod	5	2	2	4	4	1	1	1	3	1
Pacific Ocean Perch		1								
Shortbelly	T	T	T				T	T		
Shortspine Thornyhead				1					T	
Widow Rockfish	27	43	47	31	22	26	42	45	29	22
Yelloweye	24	37	35	51	22	13	24	19	27	16
Yellowtail	143	396	188	305	190	131	357	136	255	174
Rockfish Genus	1029	540	475	1009	611	537	308	196	590	328
Total Rockfish	2509	2532	2342	2834	2460	1515	1764	1186	1684	1446
Rockfish by Management Groups										
Species with OYs	310	403	276	333	349	213	351	204	253	291
Minor Rockfish "Other"										
Near-Shore	961	829	735	957	681	511	470	286	464	387
Shelf	538	271	253	529	334	277	194	125	331	161
Slope	T		1			T				
Minor Rockfish "Remaining"										
Near-Shore	578	631	926	700	939	406	399	474	386	468
Shelf	122	397	150	315	158	107	351	96	250	139
Slope		1								
Total Rockfish	2509	2532	2342	2834	2460	1515	1764	1186	1684	1446
Flatfish										
Arrowtooth Flounder										
California Halibut	219	169	234	433	398	52	25	30	70	110
Dover Sole										
Other Flatfish	50	37	18	25	84	15	13	4	12	51
Pacific Halibut	169	273	438	375	204	93	185	219	165	116
Petrale Sole	1	T	T	T	T	T	T	T	T	
Starry Flounder	2	3	8	3	5		1		T	1
Total Flatfish	441	482	699	835	691	160	224	254	248	278
Other Fish										
Cabezon	102	93	117	84	85	14	17	10	12	28
Greenlings	65	46	24	29	50	4	6	2	5	10
Leopard Shark	58	30	29	33	28	T		1	5	
Soupfin shark	2			4	T				4	T
Spiny Dogfish Shark	19	5	2	13	9	6			3	2
Total Other Fish	246	175	173	163	171	25	23	13	29	40

TABLE 4.4.1-2. Recreational catches of groundfish in Washington, Ocean only, 1996-2000. Data from RecFIN.

	All Modes					Partyboat/Charter Only				
Stock	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Roundfish										
Lingcod	54	48	38	43	29	31	27	20	22	18
Pacific Cod										
Pacific Whiting										
Sablefish										
Total Roundfish	54	48	38	43	29	31	27	20	22	18
Rockfish										
Black	231	180	239	156	139	194	154	209	129	115
Blue	1	1	2	2	1	1	1	1	1	1
Bocaccio	T		T	T	T	T		T	T	T
Canary	3	4	17	5	3	2	3	15	4	2
Chilipepper										
Cowcod										
Pacific Ocean Perch										
Shortbelly										
Shortspine Thornyhead										
Widow Rockfish										
Yelloweye	3	5	14	15	8	2	3	10	8	4
Yellowtail	4	6	29	6	9	4	6	27	5	7
Rockfish Genus	2	2	4	4	5	1	1	2	1	1
Total Rockfish	244	199	305	189	166	204	168	265	148	131
Rockfish by Management Groups										
Species with OYs	7	10	46	12	12	6	9	42	9	9
Minor Rockfish "Other"										
Near-Shore	3	3	5	5	6	2	2	3	1	2
Shelf	T	T	T	1	T	T	T	T	T	T
Slope										
Minor Rockfish "Remaining"										
Near-Shore	231	180	239	156	139	194	154	209	129	115
Shelf	3	5	15	16	8	2	3	10	8	5
Slope										
Total Rockfish	244	199	305	189	166	204	168	265	148	131
Flatfish										
Arrowtooth Flounder										
California Halibut										
Dover Sole										
Other Flatfish										
Pacific Halibut	141	147	340	263	137	71	68	169	132	74
Petrale Sole										
Starry Flounder										
Total Flatfish	141	147	340	263	137	71	68	169	132	74
Other Fish										
Cabezon	2	2	3	7	3	1	T	1	T	1
Greenlings	2	1	1	2	1	T	T	T	T	T
Leopard Shark										
Soupfin shark										
Spiny Dogfish Shark	2									
Total Other Fish	6	2	4	10	4	1	1	1	T	1

TABLE 4.4.1-3. Recreational catches of groundfish in Oregon, All Fishing Areas, 1996-2000. Data from RecFIN.

	All Modes					Partyboat/Charter Only				
Stock	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Roundfish										
Lingcod	135.2	197.2	178.8	115.6	130.4	73	88	45	43	56
Pacific Cod										
Pacific Whiting										
Sablefish	T	7	3	T	1	T	7	3	T	1
Total Roundfish	136	204	182	116	131	73	95	47	43	57
Rockfish										
Black	347	451	687	544	799	212	245	265	257	352
Blue	109	164	122	77	79	99	119	79	52	42
Bocaccio	T	1	T	3	1	T	1	T	1	1
Canary	26	43	49	43	32	18	31	31	23	23
Chilipepper				T					T	
Cowcod										
Pacific Ocean Perch										
Shortbelly										
Shortspine Thornyhead										
Widow Rockfish	4	4	9	2	15	4	4	9	1	15
Yelloweye	8	15	14	26	11	6	8	6	14	10
Yellowtail	41	26	41	37	47	40	24	32	30	46
Rockfish Genus	14	32	39	40	42	8	18	12	18	29
Total Rockfish	549	736	963	772	1028	387	449	434	394	518
Rockfish by Management Groups										
Species with OYs		73	100	81	94		58	72	53	84
Minor Rockfish "Other"										
Near-Shore	118	187	145	102	112	103	131	86	63	66
Shelf	5	9	14	15	10	3	6	3	6	5
Slope	T					T				
Minor Rockfish "Remaining"										
Near-Shore	347	451	687	544	799	212	245	265	257	352
Shelf	9	16	16	30	13	7	9	8	14	12
Slope										
Total Rockfish	549	736	963	772	1028	387	449	434	394	518
Flatfish										
Arrowtooth Flounder										
California Halibut			7							
Dover Sole										
Other Flatfish	T	T	1	T	1	T	T	T	T	T
Pacific Halibut	25	126	99	112	66	22	117	51	33	42
Petrale Sole			T	T				T	T	
Starry Flounder	T	T	2	1	1					T
Total Flatfish	25	126	109	113	68	22	117	51	33	43
Other Fish										
Cabezon	14	31	40	34	43	6	13	6	11	20
Greenlings	18	27	12	20	31	2	4	2	4	5
Leopard Shark				T						
Soupfin shark										
Spiny Dogfish Shark				1						
Total Other Fish	32	58	52	54	74	8	18	8	15	25

TABLE 4.4.1-4. Recreational catches of groundfish in Northern California, All Fishing Areas, 1996-2000. Data from RecFIN.

	All Modes					Partyboat/Charter Only				
Stock	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Roundfish										
Lingcod	339	250	248	345	200	89	136	43	121	67
Pacific Cod										
Pacific Whiting										
Sablefish	T			T	T	T				T
Total Roundfish	339	250	248	345	200	89	136	43	121	67
Rockfish										
Black	156	92	119	165	135	30	17	2	19	42
Blue	163	297	255	220	187	89	217	120	124	134
Bocaccio	28	66	28	72	61	25	64	25	64	55
Canary	62	93	24	65	84	39	74	13	49	65
Chilipepper	23	73	1	T	30	23	73	1		30
Cowcod		T		1			T		1	
Pacific Ocean Perch										
Shortbelly	T	T								
Shortspine Thornyhead				T						
Widow Rockfish	22	38	38	29	7	22	38	35	28	7
Yelloweye	13	16	6	7	2	5	13	3	4	1
Yellowtail	98	363	115	251	134	87	327	74	210	120
Rockfish Genus	543	390	239	474	338	272	205	71	244	203
Total Rockfish	1109	1430	824	1285	978	591	1029	345	744	657
Rockfish by Management Groups										
Species with OYs	136	271	90	167	182	108	250	74	142	156
Minor Rockfish "Other"										
Near-Shore	739	612	526	713	533	326	317	159	308	299
Shelf	136	184	92	153	130	70	135	37	85	81
Slope			1							
Minor Rockfish "Remaining"										
Near-Shore										
Shelf	99	363	115	251	134	87	327	74	210	120
Slope										
Total Rockfish	1109	1430	824	1284	978	591	1029	345	744	657
Flatfish										
Arrowtooth Flounder										
California Halibut						13	6	13	8	62
Dover Sole										
Other Flatfish	14	28	9	9	6	5	8	2	4	2
Pacific Halibut	3									
Petrale Sole	T	T				T	T			
Starry Flounder	1	3	6	2	4		1		T	1
Total Flatfish	19	31	16	11	10	19	16	15	12	65
Other Fish										
Cabezon	73	55	65	28	33	4	2	1	1	7
Greenlings	44	19	11	7	18	2	2	T	T	4
Leopard Shark	58	29	26	28	22	T		1	4	
Soupfin shark										
Spiny Dogfish Shark	1	4	2	3						
Total Other Fish	177	107	104	67	73	6	3	2	5	12

TABLE 4.4.1-5. Recreational catches of groundfish in Southern California, All Fishing Areas, 1996-2000. Data from RecFIN.

	All Modes					Partyboat/Charter Only				
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Roundfish										
Lingcod	27	11	12	28	4	19	2	7	20	3
Pacific Cod										
Pacific Whiting										
Sablefish										
Total Roundfish	27	11	12	28	4	19	2	7	20	3
Rockfish										
Black				T					T	
Blue	39		14	13	2	38		13	11	2
Bocaccio	75	45	30	61	47	35	32	13	41	38
Canary	2	1	1	2	T			1	2	T
Chilipepper	14	1	6	6	9	1	T	1	2	2
Cowcod	5	2	2	4	4	1	1	1	2	1
Pacific Ocean Perch		1								
Shortbelly		T	T				T	T		
Shortspine Thornyhead				T					T	
Widow Rockfish	T	T	T	T	T	T		T	T	T
Yelloweye				2					2	
Yellowtail	T	1	2	10	T	T	T	2	10	T
Rockfish Genus	471	116	194	491	225	257	84	112	326	95
Total Rockfish	607	167	250	589	288	332	119	143	397	139
Rockfish by Management Groups										
Species with OYs	97	50	40	73	61	37	34	16	48	42
Minor Rockfish "Other"										
Near-Shore	101	27	59	138	30	81	21	38	92	20
Shelf	398	78	146	359	194	204	52	85	240	75
Slope										
Minor Rockfish "Remaining" Near-Shore										
Shelf	11	13	4	19	3	10	12	4	18	3
Slope		1								
Total Rockfish	607	167	250	588	288	332	119	143	397	139
Flatfish										
Arrowtooth Flounder										
California Halibut	219	169	228	433	398	39	19	17	62	48
Dover Sole										
Other Flatfish	36	9	7	16	78	9	5	2	8	49
Pacific Halibut										
Petrale Sole	T			T	T				T	
Starry Flounder	1									
Total Flatfish	256	178	235	449	476	48	24	19	70	97
Other Fish										
Cabezon	14	5	9	14	6	4	2	2	T	T
Greenlings				T	T				T	
Leopard Shark		1	3	4	6				1	
Soupfin shark	2			4	T				4	T
Spiny Dogfish Shark	16	1		9	9	6			3	2
Total Other Fish	32	7	13	33	21	10	2	2	8	3

TABLE 4.4.1-6. Preliminary recreational groundfish fishery set asides and allocations (mts) by stock or stock complex approved by the Council in September 2001 for 2002.

State/Area	Bocaccio	Canary	Yelloweye	Minor Nearshore RF	Lingcod
North of Cape Mendocino	NA	NA	6	800	NA
South of Cape Mendocino	52 a/	NA	3	400	NA
Coastwide	NA	44	9	1,200	320

a/ Original recreational allocation set in November 2000 was 48 mt with 52 mt allocated to the commercial fishery. Council adopted 52 mt for the 2002 recreational fishery (out of 100 mt total) on basis of Ad Hoc Allocation Committee recommendation. Council should decide whether this recommendation was intentional or based on a mistaken transposition of the allocation amounts.

TABLE 4.4.1-7. Projected 2002 recreational groundfish fishery catches (mts) by stock or stock complex, state, and recreational fishery management alternative.

State/Area	Alternative	Bocaccio	Canary	Yelloweye	Yellowtail	Widow	Minor Nearshore	Minor Shelf	Lingcod
WA	1	NA	3	13	6	0	150	1	NA
	2	NA	2	11	6	0	150	1	NA
	3	NA	3	3	6	0	150	1	NA
	4	NA	2	2	6	0	150	1	NA
	Lingcod	NA	NA	NA	NA	NA	NA	NA	50
OR	1	NA	9	4	8	2	385	5	NA
	1- Lingcod	NA	NA	NA	NA	NA	NA	NA	70
	2	NA	12	4	9	3	455	?	NA
	2- Lingcod	NA	NA	NA	NA	NA	NA	NA	76
CA/N. a/	OR alt. 1	NA	6	0.6	NA	NA	NA	NA	NA
	OR alt. 2	NA	7	0.6	NA	NA	NA	NA	NA
CA/C. b/	1	NA	23	0.5	NA	NA	NA	NA	NA
	2	NA	20	0.5	NA	NA	NA	NA	NA
	3	NA	23	0.5	NA	NA	NA	NA	NA
CA/S. c/	1	47	NA	NA	NA	NA	NA	NA	NA
	2	59	NA	NA	NA	NA	NA	NA	NA

a/ CA north = Cape Mendocino to California/Oregon border. These alternatives match those considered for Oregon.
b/ CA central = Point Conception to Cape Mendocino.
c/ CA south = U.S./Mexico border to Point Conception.

TABLE 4.5-1. Tribal fishery groundfish catch projections for 2002.

Stock	Projected Catch (mts)	Comment
Canary Rockfish	2.5	All tribes
Darkblotched Rockfish	Prob. minimal	Need better spp. comp. from sampling
Lingcod	4-5 mt	All tribes
Pacific Ocean Perch	Trace	
Widow Rockfish	27 mt	Makah only - 95% a/
Yelloweye Rockfish	1.5-2 mt	All tribes- high end of range unlikely

a/ June-July 2001 closed, but expected to be open in 2002. Projection factors this in.

TABLE 3.3.1.3-1 All West Coast vessels (groundfish and non-groundfish), exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or groups)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gear Group													
Limited Entry Trawl													
Other Slope Rockfish	0	0	0	0	1	0	0	0	0	0	0	0	0
POP	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	1	2	3	4	5	3	4	4	4	5	5	2	3
Thornyheads	2	2	5	6	2	1	1	1	1	1	3	1	2
Dover Sole	2	3	7	8	4	2	3	1	3	3	4	2	3
Arrowtooth	0	0	0	0	0	0	1	1	0	0	0	0	0
Rex	0	0	0	0	0	0	0	0	0	0	0	0	0
Petrale	4	3	0	2	2	2	2	1	1	1	1	2	2
Other Flatfish	0	0	1	1	1	1	1	1	1	1	1	0	1
Whiting	0	-	-	0	1	5	7	4	4	0	0	0	2
Other Shelf RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	1	1	2	2	2	1	2	1	3	3	4	1	2
Yellowtail RF	0	0	0	0	2	2	2	1	2	2	2	1	1
Chilipepper	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Oth GF expt Whiting	0	0	0	0	0	0	0	0	0	0	0	0	0
Limited Entry Fixed Gear													
Slope Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	0	0	0	0	1	23	3	1	1	0	3
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Groundfish	0	0	0	0	1	0	0	0	0	0	0	0	0
Open Access Other not Trawl or Troll													
Slope Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	0	0	0	0	1	1	1	1	2	1	1
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore Rockfish	0	0	0	1	1	1	1	1	1	1	1	1	1
Other Groundfish	0	0	0	1	1	2	2	1	1	1	1	0	1
Open Access Trawl & Troll													
Slope Rockfish	0	0	0	0	0	0	0	0	0	0	-	0	0
Sablefish	0	0	0	0	0	0	0	0	0	0	0	0	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore Rockfish	-	0	-	0	0	0	0	0	0	0	0	0	0
Other Groundfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Groundfish as a Percent of All Species, by Gear Group													
Limited Entry Trawl	10	12	19	26	21	19	26	15	20	17	21	9	17
Limited Entry Fixed Gear	0	0	1	1	1	1	1	23	4	2	2	1	4
Open Access Other	1	0	1	2	3	4	4	3	3	3	4	2	2
Open Access Trawl & Troll	0	0	0	0	0	0	0	0	0	0	0	0	0
Total All Groundfish	11	13	21	30	25	24	32	42	27	22	27	12	23
Exvessel Revenue ($1,000)													
Limited Entry Trawl	2,757	2,113	2,189	3,193	3,153	3,067	4,776	4,354	4,203	3,049	3,032	2,645	38,533
Limited Entry Fixed Gear	112	60	112	166	218	192	229	6,579	762	362	315	253	9,359
Open Access Other	171	77	173	294	406	580	708	770	640	538	550	571	5,478
Open Access Trawl & Troll	25	25	9	9	29	65	82	63	55	20	4	4	391
Total All Groundfish	3,065	2,275	2,482	3,662	3,806	3,904	5,795	11,767	5,660	3,969	3,902	3,473	53,761
Total All Species	27,058	17,095	11,809	12,205	15,298	16,163	18,301	28,157	21,162	17,759	14,709	29,776	229,494

TABLE 3.3.1.3-2a. Washington internal marine waters, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gear Group													
Limited Entry Trawl													
Other Slope RF	0	0	0	0	0	2	1	0	1	0	0	0	0
POP	0	0	0	0	0	2	0	0	1	1	0	0	0
Sablefish	0	0	1	2	3	17	9	2	27	14	7	4	5
Thornyheads	0	0	0	1	0	1	0	0	1	1	1	0	0
Dover Sole	3	2	3	6	3	8	5	1	5	7	4	4	3
Arrowtooth	0	0	0	1	4	11	30	12	4	5	1	0	7
Rex	0	0	0	0	0	0	0	0	0	0	0	0	0
Petrale	4	7	-	1	2	14	25	7	2	23	0	1	7
Other Flatfish	0	-	-	0	2	3	4	1	1	7	1	0	1
Whiting	-	-	-	-	-	-	-	-	-	0	0	-	0
Other Shelf RF	0	-	0	0	0	1	1	0	1	1	0	0	0
Widow	-	0	0	0	0	0	1	1	18	6	19	3	2
Yellowtail RF	0	0	1	0	5	4	7	3	21	6	15	3	4
Nearshore RF	-	-	-	-	1	-	-	-	-	-	-	-	0
GF expt Whiting	0	0	0	1	6	7	1	0	1	6	0	0	1
Crab/Lobster	7	6	5	6	0	-	-	-	-	-	-	-	2
All Other Species	0	0	0	1	4	5	4	1	1	4	1	0	1
Limited Entry Fixed Gear													
Slope Rockfish	-	0	0	0	0	-	-	0	0	0	-	0	0
Sablefish	-	0	-	2	1	0	-	66	8	1	0	0	16
Flatfish	-	0	0	0	0	0	-	0	0	0	-	0	0
Shelf Rockfish	-	0	0	0	0	0	-	0	0	0	0	0	0
Other Groundfish	-	2	3	9	12	3	-	0	0	0	1	0	2
Crab/Lobster	-	1	1	0	-	1	0	-	-	-	-	12	1
HMS	-	-	-	-	-	-	-	0	-	-	-	-	0
Open Access Other													
All Other Species	-	0	0	0	0	0	-	0	0	0	-	0	0
Slope Rockfish	-	-	-	0	-	-	0	-	-	-	-	-	0
Sablefish	-	0	-	0	0	-	0	-	-	-	-	-	0
Shelf Rockfish	-	-	-	0	-	0	0	-	-	-	-	-	0
Other Groundfish	-	0	-	1	0	1	0	-	-	-	-	-	0
Shrimp/Prawns	-	-	-	2	1	2	-	-	1	-	-	-	0
Crab/Lobster	85	81	86	66	49	15	6	0	1	-	-	69	41
All Other Species	-	-	0	-	-	-	-	-	-	-	-	-	0
Salmon	-	-	-	-	-	-	-	-	-	7	-	-	0
Shrimp/Prawns	-	-	-	-	5	0	6	2	-	-	-	-	1
HMS	1	0	-	-	-	-	1	1	6	11	49	-	2
Groundfish as a Percent of All Species, by Gear Group													
Limited Entry Trawl	7	10	5	13	28	71	83	28	83	77	48	18	31
Limited Entry Fixed Gear	-	2	3	11	13	4	-	67	8	1	2	1	18
Open Access Other	-	0	-	1	0	1	0	-	-	-	-	-	0
Open Access Trawl & Troll	-	-	-	-	-	-	-	-	-	-	-	-	-
Total All Groundfish	7	12	8	25	41	76	84	95	91	78	50	19	50
Exvessel Revenue ($1,000)													
Limited Entry Trawl	71	89	31	51	127	221	461	463	326	194	92	82	2,209
Limited Entry Fixed Gear		17	16	44	58	12		1,111	33	3	3	4	1,301
Open Access Other		1		4	0	4	2						10
Open Access Trawl & Troll													
Total All Groundfish	71	107	47	99	185	236	463	1,574	359	197	95	86	3,520
Total All Species	968	895	569	389	455	310	553	1,660	395	253	191	446	7,086

TABLE 3.3.1.3-2b. Coastal Washington and Columbia River, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gear Group													
Limited Entry Trawl													
Othr Slope RF	0	0	0	0	0	0	0	0	0	1	0	0	0
POP	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	1	2	2	1	1	1	2	5	5	0	1
Thornyheads	0	0	0	2	0	0	0	0	0	0	1	0	0
Dover Sole	1	1	3	3	3	1	1	0	1	3	6	1	1
Arrowtooth	0	0	0	0	0	0	0	0	0	0	1	0	0
Rex	0	0	0	0	0	0	0	0	0	0	0	0	0
Petrale	1	1	1	4	2	2	4	1	1	2	1	1	1
Other Flatfish	0	0	0	1	1	1	1	0	0	1	2	0	0
Whiting	-	-	-	-	-	13	15	8	4	-	-	-	4
Other Shelf RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	0	1	1	0	1	0	1	0	1	4	18	1	1
Yellowtail RF	0	0	0	2	4	2	4	0	3	6	22	1	2
Nearshore RF	-	-	-	-	0	0	0	-	-	-	-	-	0
GF expt Whiting	-	-	0	0	0	0	0	0	0	0	-	-	0
Limited Entry Fixed Gear													
Slope Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	0	1	1	1	2	16	6	8	14	1	4
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	-	-	0	0	0	0	-	0	0	-	0	0
Other Groundfish	0	0	0	0	0	0	0	0	0	0	-	-	0
Open Access Other													
Slope Rockfish	-	-	-	0	0	0	0	0	0	0	0	0	0
Sablefish	-	0	0	1	0	1	1	2	1	3	6	0	1
Flatfish	-	-	-	-	0	0	0	0	0	0	0	0	0
Shelf Rockfish	-	-	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	-	0	-	0	0	0	0	0	-	0	-	0
Other Groundfish	-	-	-	0	0	0	0	0	0	-	-	-	0
Open Access Trawl & Troll													
Slope Rockfish	-	-	-	-	-	0	0	0	-	0	-	-	0
Sablefish	-	-	-	-	-	0	0	0	0	0	-	-	0
Flatfish	-	-	-	-	0	0	0	0	0	0	-	-	0
Shelf Rockfish	-	-	-	-	0	0	0	0	0	0	-	-	0
Other Groundfish	-	-	-	-	0	0	0	0	0	0	-	-	0
Groundfish as a Percent of All Species, by Gear Group													
Limited Trawl	2	4	8	16	14	21	27	11	11	23	57	4	11
Limited Entry Fixed Gear	0	0	0	1	2	2	2	16	7	9	14	1	4
Open Access Other	-	0	0	1	0	1	1	2	1	3	6	0	1
Open Access Trawl & Troll	-	-	-	-	0	1	0	0	0	1	-	-	0
Total All Groundfish	2	5	8	18	16	25	31	29	20	35	77	5	16
Exvessel Revenue ($1,000)													
Limited Entry Trawl	115	138	140	191	226	366	629	577	350	213	140	144	3,230
Limited Entry Fixed Gear	4	7	6	16	30	34	52	838	208	81	33	32	1,340
Open Access Other		1	1	7	8	17	26	85	36	29	14	8	232
Open Access Trawl & Troll					5	11	10	14	10	6			57
Total All Groundfish	120	146	147	213	269	428	718	1,513	604	329	188	185	4,860
Total All Species	5,090	3,201	1,771	1,199	1,639	1,728	2,297	5,186	3,053	936	244	3,930	30,274

TABLE 3.3.1.3-2c. Oregon north of Yachats, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000. (Page 1 of 2)

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gear Group													
Limited Entry Trawl													
Other Slope RF	0	0	0	1	1	0	0	0	0	1	1	0	0
POP	0	0	0	0	1	0	0	0	0	1	0	0	0
Sablefish	3	4	8	8	13	4	4	7	4	11	18	4	6
Thornyheads	2	3	8	10	4	1	1	1	1	2	9	2	2
Dover Sole	5	7	18	19	8	3	3	1	3	6	14	4	5
Arrowtooth	0	1	1	1	1	1	1	0	1	0	1	0	1
Rex	0	0	0	1	1	0	0	0	0	1	1	0	0
Petrale	5	7	0	2	4	3	2	1	1	1	3	2	2
Other Flatfish	0	0	0	1	1	1	1	0	0	1	0	0	0
Whiting	-	-	-	0	0	13	16	8	15	0	0	0	6
Other Shelf RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	3	3	4	7	6	2	4	1	5	10	19	3	4
Yellowtail RF	0	0	1	2	11	4	4	2	5	9	15	2	4
Nearshore RF	-	0	0	-	0	0	0	0	-	0	-	0	0
GF expt Whiting	0	0	0	0	0	0	0	0	0	0	0	0	0
Limited Entry Fixed Gear													
CPS	-	-	-	0	0	0	0	0	0	0	0	0	0
All Other Species	0	0	0	1	2	1	0	0	0	0	1	0	0
Slope Rockfish	-	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	-	0	0	0	0	0	0	22	2	0	5	0	5
Flatfish	-	0	0	0	0	0	0	0	0	0	0	-	0
Shelf Rockfish	-	0	0	0	0	0	0	0	0	0	-	-	0
Nearshore RF	-	0	0	0	0	0	0	0	-	0	-	-	0
Other Groundfish	-	0	-	0	0	0	0	0	0	0	0	-	0
Open Access Other													
CPS	-	-	-	-	-	-	0	-	-	-	-	-	0
All Other Species	-	0	0	0	0	0	0	0	-	0	-	0	0
Slope Rockfish	-	-	-	-	0	-	0	-	-	-	0	0	0
Sablefish	-	-	-	0	-	0	0	0	-	-	2	0	0
Flatfish	-	-	-	0	0	-	0	-	-	-	-	-	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	-	0
Nearshore RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Groundfish	-	-	0	0	0	0	0	0	0	0	-	-	0
Open Access Trawl & Troll													
CPS	-	-	-	-	-	0	4	5	6	2	-	-	2
All Other Species	0	0	0	0	1	0	1	0	0	0	0	0	0
Slope Rockfish	-	-	-	-	0	0	0	0	0	0	-	-	0
Sablefish	-	-	-	0	0	0	0	0	0	0	-	-	0
Flatfish	-	-	-	0	0	0	0	0	0	0	-	-	0
Shelf Rockfish	-	-	-	0	0	0	0	0	0	0	0	-	0
Nearshore RF	-	-	-	0	0	0	0	0	0	0	-	-	0
Other Groundfish	-	-	-	-	0	0	0	0	-	-	-	-	0
Groundfish as a Percent of All Species, by Gear Group													
Limited Entry Trawl	19	25	40	52	52	33	36	22	35	42	82	17	32
Limited Entry Fixed Gear	-	0	0	0	0	0	0	22	2	0	5	0	5
Open Access Other	0	0	0	0	0	0	0	0	0	0	2	0	0
Open Access Trawl & Troll	-	-	-	0	0	1	1	0	1	0	0	-	0
Total All Groundfish	19	25	40	53	53	35	37	45	38	43	88	18	37

TABLE 3.3.1.3-2c. Oregon north of Yachats, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000. (Page 2 of 2)

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Exvessel Revenue ($1,000)													
Limited Entry Trawl	793	743	762	858	1,270	1,202	2,245	2,167	1,947	1,166	1,117	960	15,230
Limited Entry Fixed Gear		2	2	5	9	13	21	2,179	134	11	65	22	2,463
Open Access Other	0	1	1	7	11	13	29	14	11	3	24	26	140
Open Access Trawl & Troll				0	10	33	38	25	28	8	0		142
Total All Groundfish	794	746	764	870	1,300	1,261	2,333	4,384	2,120	1,189	1,206	1,008	17,976
Total All Species	4,232	2,963	1,896	1,635	2,432	3,631	6,308	9,697	5,637	2,772	1,368	5,679	48,250

TABLE 3.3.1.3-2d. Coos Bay to Mendocino, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000. (Page 1 of 2)

Species (or groups)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gear Group													
Limited Entry Trawl													
Other Slope RF	0	0	0	1	1	1	1	0	1	1	1	0	0
POP	0	0	0	0	0	0	0	0	0	0	0	0	0
Sablefish	2	5	10	7	13	8	12	4	11	20	22	2	7
Thornyheads	3	8	13	14	6	3	4	1	4	7	19	2	5
Dover Sole	3	8	14	12	9	5	8	3	8	12	17	2	6
Arrowtooth	0	0	0	0	0	0	0	0	0	0	0	0	0
Rex	0	1	1	1	1	1	1	0	1	1	1	0	1
Petrale	12	8	1	2	3	1	1	1	1	2	3	4	4
Other Flatfish	0	0	1	2	1	1	1	1	1	2	1	0	1
Whiting	0	-	-	1	8	7	0	0	0	0	-	-	1
Other Shelf RF	0	0	0	0	0	0	0	0	0	0	0	0	0
Widow	1	0	3	4	2	2	3	2	5	10	13	1	3
Yellowtail RF	0	0	0	0	0	1	1	1	2	2	2	0	1
Chilipepper	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	-	0	0	0	0	0	0	0	0	0	0
GF expt Whiting	0	0	0	0	1	1	1	0	1	1	0	0	0
Limited Entry Fixed Gear													
Slope Rockfish	0	0	0	0	0	-	0	0	0	0	0	0	0
Sablefish	0	0	0	0	0	0	0	32	5	3	3	0	4
Flatfish	-	-	0	0	0	0	0	0	0	0	0	-	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	0	1	1	1	0	0	1	1	1	0	0
Other Groundfish	0	0	0	0	1	0	0	0	0	0	0	0	0
Open Access Other													
Slope Rockfish	-	-	-	0	0	0	0	0	0	0	0	0	0
Sablefish	-	0	0	0	0	0	1	1	1	3	4	0	1
Flatfish	-	-	-	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	0	1	2	1	2	1	2	2	1	0	1
Other Groundfish	0	0	0	1	2	1	2	1	1	1	0	0	1
Open Access Trawl & Troll													
Slope Rockfish	-	0	-	0	0	0	0	0	0	0	-	-	0
Sablefish	-	0	-	-	-	0	0	0	0	0	-	-	0
Flatfish	-	0	-	0	0	0	0	0	0	0	-	-	0
Shelf Rockfish	-	-	-	0	0	0	0	0	0	0	0	-	0
Nearshore RF	-	-	-	0	0	0	0	0	0	0	0	0	0
Other Groundfish	-	-	-	0	0	0	0	0	0	-	0	-	0
Groundfish as a Percent of All Species, by Gear Group													
Limited Entry Trawl	21	30	44	46	46	31	32	13	34	58	79	11	29
Limited Entry Fixed Gear	0	1	1	2	3	2	2	33	6	4	4	0	5
Open Access Other	0	0	0	1	1	1	1	1	2	5	4	0	1
Open Access Trawl & Troll	1	2	1	3	4	3	4	1	3	1	4	1	2
Total All Groundfish	22	32	46	51	54	36	39	49	46	69	91	13	38
Exvessel Revenue ($1,000)													
Limited Entry Trawl	1,161	841	746	1,321	1,269	699	1,012	633	973	1,088	1,086	941	11,770
Limited Entry Fixed Gear	18	16	13	50	71	45	58	1,569	181	83	55	21	2,179
Open Access Other	1	4	4	16	18	14	37	72	64	98	54	25	405
Open Access Trawl & Troll	40	45	24	81	106	63	123	71	97	26	56	113	844
Total All Groundfish	1,221	905	787	1,468	1,463	821	1,230	2,344	1,314	1,295	1,251	1,100	15,198
Total All Species	5,513	2,813	1,703	2,859	2,734	2,250	3,124	4,812	2,883	1,873	1,379	8,282	40,226

TABLE 3.3.1.3-2e. Point Mendocino to Point Conception, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or group)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gear Group													
Limited Entry Trawl													
Other Slope RF	0	0	0	1	0	0	0	0	0	0	1	1	0
Sablefish	1	2	3	3	1	3	3	2	2	2	3	3	2
Thornyheads	6	6	9	7	1	1	2	1	2	1	3	4	3
Dover Sole	3	5	8	9	1	2	3	2	3	2	3	4	3
Arrowtooth	0	0	0	0	-	0	-	0	0	0	0	-	0
Rex	0	1	1	0	0	0	0	0	0	0	0	0	0
Petrale	2	1	1	3	0	1	1	1	1	1	2	4	1
Other Flatfish	1	1	2	2	1	1	4	3	2	4	1	1	2
Whiting	-	-	-	0	-	-	0	-	0	0	0	0	0
Other Shelf RF	0	0	0	0	0	0	0	0	0	1	1	1	0
Widow	1	1	3	0	0	1	1	0	1	0	1	1	1
Yellowtail RF	-	0	0	0	0	0	0	0	0	0	-	0	0
Chilipepper	0	1	3	1	0	1	1	1	1	1	1	1	1
Nearshore RF	0	0	0	0	0	0	0	0	-	0	0	0	0
GF expt Whiting	0	0	0	0	0	0	0	0	0	0	0	0	0
Limited Entry Fixed Gear													
Slope Rockfish	1	0	1	1	0	0	1	1	0	0	0	1	1
Sablefish	0	0	1	0	0	0	0	20	2	3	2	2	3
Flatfish	-	-	-	0	0	0	0	0	0	0	-	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	0	0	0	0	0	0	0	1	0	1	0	1	0
Other Groundfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Open Access Other													
Slope Rockfish	0	-	0	0	0	0	0	0	0	0	0	0	0
Sablefish	0	0	1	1	0	1	2	1	1	3	5	6	2
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	1	0	0	0	0	0	0	1	1	1	1	1	1
Nearshore RF	1	1	2	2	1	2	5	5	3	3	3	5	3
Other Groundfish	1	1	1	2	2	3	6	4	3	2	2	3	3
Open Access Trawl & Troll													
Slope Rockfish	0	0	0	0	0	0	0	0	-	-	-	0	0
Sablefish	0	0	0	0	0	0	0	0	0	-	-	-	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	0	-	-	0	0	0	0	0	0	-	0	0
Other Groundfish	0	0	0	0	0	0	0	0	0	-	-	0	0
Groundfish as a Percent of All Species, by Gear Group													
Limited Entry Trawl	16	19	31	28	5	11	15	13	13	12	16	20	15
Limited Entry Fixed Gear	2	1	3	1	1	1	2	22	3	5	3	5	4
Open Access Other	3	2	5	5	3	7	13	11	7	10	10	15	7
Open Access Trawl & Troll	0	0	0	0	0	0	0	0	0	0	0	0	0
Total All Groundfish	21	22	38	34	9	19	31	47	23	26	28	39	26
Exvessel Revenue ($1,000)													
Limited Entry Trawl	616	301	509	771	260	579	428	509	607	388	598	518	6,084
Limited Entry Fixed Gear	71	10	43	28	39	59	59	851	150	146	105	118	1,679
Open Access Other	121	32	76	142	170	341	372	427	356	308	365	375	3,086
Open Access Trawl & Troll	18	8	6	4	8	13	8	5	6	2	1	1	78
Total All Groundfish	827	351	635	945	477	992	867	1,791	1,119	844	1,067	1,011	10,927
Total All Species	3,866	1,620	1,652	2,802	5,248	5,111	2,789	3,837	4,854	3,201	3,750	2,583	41,313

TABLE 3.3.1.3-2f. South of Point Conception, exvessel revenue for groundfish as a percent of total exvessel revenue for all West Coast vessels, 2000.

Species (or groups)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Gear Group													
Limited Entry Trawl													
Other Slope RF	-	0	-	-	-	-	-	-	-	-	-	-	0
Sablefish	-	-	0	-	-	-	-	-	-	-	-	-	0
Petrale	0	0	0	0	0	-	-	0	-	-	-	-	0
Other Flatfish	0	0	0	0	0	-	-	0	-	-	0	0	0
Other Shelf RF	-	-	-	0	-	-	-	-	-	-	0	-	0
Chilipepper	-	0	-	-	-	-	-	0	-	-	-	-	0
GF expt Whiting	-	-	0	0	0	0	-	-	-	-	-	0	0
Limited Entry Fixed Gear													
Slope Rockfish	0	0	0	1	1	1	1	1	1	0	0	0	0
Sablefish	0	0	0	0	1	1	1	1	0	0	0	0	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	-	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	-	0	-	0	0	0	0	0	0	0	0	0
Other Groundfish	-	0	0	0	0	0	0	0	0	0	0	0	0
Open Access Other													
Slope Rockfish	0	0	1	1	1	1	1	0	0	0	0	0	0
Sablefish	0	0	0	0	0	0	0	0	0	0	0	0	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Nearshore RF	-	0	0	1	1	1	1	1	1	0	0	0	0
Other Groundfish	0	0	1	1	1	2	1	1	1	0	0	0	1
Open Access Trawl & Troll													
Slope Rockfish	0	-	-	-	0	-	-	-	-	0	-	0	0
Sablefish	0	0	0	0	-	-	0	0	-	-	0	0	0
Flatfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Shelf Rockfish	-	-	0	0	0	0	0	0	-	0	0	0	0
Nearshore RF	-	-	-	-	0	0	-	-	-	0	0	0	0
Other Groundfish	0	0	0	0	0	0	0	0	0	0	0	0	0
Groundfish as a Percent of All Species, by Gear Group													
Limited Entry Trawl	0	0	0	0	0	0	-	0	-	-	0	0	0
Limited Entry Fixed Gear	0	0	1	1	1	1	2	1	1	0	1	1	1
Open Access Other	1	1	2	2	4	4	3	3	2	1	1	1	2
Open Access Trawl & Troll	0	0	0	0	0	0	0	0	0	0	0	0	0
Total All Groundfish	1	1	3	4	6	5	5	5	4	1	2	2	2
Exvessel Revenue ($1,000)													
Limited Entry Trawl	0	0	1	1	0	0		7			0	0	10
Limited Entry Fixed Gear	32	18	34	37	35	41	51	43	49	40	53	52	483
Open Access Other	40	32	82	82	114	128	98	100	108	81	68	100	1,032
Open Access Trawl & Troll	6	1	3	4	3	2	1	1	1	2	3	3	30
Total All Groundfish	78	52	119	123	153	171	149	150	158	123	124	155	1,555
Total All Species	7,382	5,603	4,218	3,316	2,782	3,129	3,223	2,959	4,326	8,706	7,753	8,831	62,229

COUNCIL GUIDANCE ON DISCARD MORTALITY DEDUCTIONS AND BYCATCH RATES TO BE CONSIDERED WHEN FRAMING MANAGEMENT MEASURES FOR 2002

received 11-2-01

Species	Bycatch/Discard Adjustment	Adjustment Data Source or Rationale
Overfished species analyzed in "Evaluation of Bycatch and Discard in West Coast Groundfish Fishery", Exhibit C.3, Supplemental Attachment 3, November 2001		
Canary rockfish	"Low" bycatch range, discard mortality deduction to be derived from season structuring to lower coincident catch rates.	Canary coincident catch rate in WA Arrowtooth EFPs significantly lower than coincident catch rates shown in "low" bycatch range.
Pacific ocean perch	"Mid" bycatch range, discard mortality deduction to be derived from season structuring to lower coincident catch rates.	"High" range is not plausible because accepting it would assume that vessels discard significant quantities of POP before they reach their trip limits. "Low" range is less plausible than "mid" that scenario implies a projected catch that is lower than actual recorded catch.
Bocaccio	"High" bycatch range, discard mortality deduction (~16%) to be derived from season structuring to lower coincident catch rates.	"High" is only plausible range, as "mid" and "low" scenarios imply projected catch levels that are lower than actual recorded catch.
Darkblotched rockfish	"Mid" bycatch range, discard mortality deduction (~20%) to be derived from season structuring to lower coincident catch rates.	Darkblotched historically not separated from minor slope rockfish, making discard pinpointing difficult. "High" range is unlikely because darkblotched are larger sized and tend to not be discarded for size/market reasons.
Lingcod	"Mid" bycatch range for discard mortality (~20-13%,) following the 2001 practice of decreasing bycatch level by 50% to derive the OY discard mortality deduction.	"High" bycatch range implausible due to effect of small footrope restriction not represented in input data. "Low" range not likely because implicit retained catch is smaller than actual landings in 2000 and 2001. Discard mortality deduction assumes a discard mortality of 50% of estimated discard (1997 Rickey, WDFW, analysis.)

DTS Species		
Dover sole	5% discard mortality deduction from OY	For DTS species, discard mortality deductions are based on 2000 analysis of EDCP data. These rates were first implemented for the 2001 annual specifications and management measures. Council recommended renewing for 2002.
Shortspine thornyhead	20% discard mortality deduction from OY	
Longspine thornyhead	17% discard mortality deduction from OY	
Sablefish	21% discard mortality deduction from LE trawl allocation 8% discard mortality deduction from LE fixed gear and open access allocations 3% discard mortality deduction from tribal fisheries	
Rockfish species not analyzed in "Evaluation of Bycatch and Discard in West Coast Groundfish Fishery", Exhibit C.3, Supplemental Attachment 3, November 2001		
Minor nearshore rockfish	5% discard mortality deduction from OY	Nearshore rockfish are caught in shallow waters and have best chances of post-release survival.
Minor shelf rockfish	16% discard mortality deduction from OY	Placeholder deduction consistent with historical deduction levels.
Minor slope rockfish	20% discard mortality deduction from OY	Based on EDCP data, which showed 16% discard mortality deduction appropriate for minor slope taken in DTS fisheries, yet higher rates for minor slope rockfish taken in major slope rockfish fisheries. Major slope rockfish fisheries largely eliminated, yet some conservation adjustment to 16% from DTS fisheries is warranted.
Widow rockfish	16% discard mortality deduction from OY	Placeholder deduction consistent with historical deduction levels.
Yellowtail rockfish	16% - 20% discard mortality deduction from OY	Consistent with analysis of coincident catch rates in DTS fishery found in EDCP at 16%. Possible new information before end of Council week may warrant more conservative 20%.
Chilipepper rockfish	16% discard mortality deduction from OY	Placeholder deduction consistent with historical deduction levels.
Yelloweye rockfish	No retention in commercial fisheries, interception reduced through management measures for hook-and-line fisheries. Infrequent trawl interceptions.	

Exhibit C.4
Supplemental CDFG Report
November 2001

DATA, METHODS AND ASSUMPTIONS USED IN DEVELOPING 2002 CALIFORNIA RECREATIONAL OPTIONS FOR NEARSHORE ROCKFISH, BOCACCIO, CANARY ROCKFISH, AND LINGCOD

Recreational constraints:

- Two Waves (four months) closure to provide for commercial fishery.
- Bocaccio impact less than 70mt.
- Canary rockfish impact less than 22mt.

For all calculations:

- 2002 impacts based on recent MRFSS data for total catch (A+B1; landed and dead discards).
- Impacts calculated separately for North (Oregon-Cape Mendocino; 40^0 10'), Central (Cape Mendocino-Point Conception), and South (Point Conception-US/Mexico boundary).

For rockfish calculations:

- Base year was 2000, expanded to account for closures during Wave 2 (Mar-Apr).
- Seasonal distribution calculated by averaging 4 years, 1996-1999.
- Rockfish bag limit = 10 fish.
- One of three fishing options were possible for each 2002 Wave/area:
    1) All waters (shelf+nearshore) allowed;
    2) nearshore (inside 25 fathoms) only allowed;
    3) closed.
- Bocaccio base increased by 50% in southern area to account for growth of 1999 year class, minus 13% for Cowcod Closure Areas.
- Northern rockfish catch = 16% of north + central estimate.
- Southern base during nearshore only Waves was reduced by 30% to account for lower CA scorpionfish catches due to foregone shelf opportunity.
- Effort shift calculated from shelf to nearshore (by Wave/area) when shelf closed was estimated to be 25% of base shelf effort.

For lingcod calculations:

- Base year was the average of 2000 and 2001.
- Wave 5 of 2001 was set equal to Wave 5 during 2000.
- Lingcod bag limit = 2 fish with 24 inch minimum size.
- Effect of lower lingcod minimum size based on size distribution during 1999, when a 24 inch minimum and 2-fish bag limit were in effect.
- Lingcod projections likely high because no adjustment was made for lower catch rates that would be expected when only nearshore fishing is allowed.

TABLE. California recreational groundfish related trips and related income impacts, estimate for 2000,

		Trips ('000)			Local Income Impacts ($ '000)			from
		Charter	Private	Total	Charter	Private	Total	2000
Northern								
	2000	79	101	180	9,667	4,153	13,820	
Projected	2001	65	71	136	7,913	2,936	10,849	-21
Projected	2002	54	64	118	6,608	2,633	9,241	-33
Southern								
	2000	74	55	128	9,006	2,413	11,419	
Projected	2001	65	35	100	7,941	1,532	9,473	-17
Projected	2002	55	30	85	6,711	1,325	8,036	-30

TABLE M2t-Com-IO. Metric tons and associated West Coast regional income impacts projected for 2002 (commercial non-tribal) (Thurs PM 11/01/01).

	Mendocino		Mendocino		Coastwide Total	
	Metric Tons	Income Impacts	Metric Tons	Income Impacts	Metric Tons	Income Impacts
DTS Complex	8,221	30,523	2,385	8,848	10,606	39,371
Sablefish	1,319	10,381	307	2,040	1,626	12,421
Longspines	961	4,874	407	2,341	1,368	7,215
Shortspines	550	3,254	172	1,329	722	4,583
Dover Sole	5,391	12,014	1,499	3,137	6,890	15,151
Arrowtooth	2,644	3,566	12	26	2,656	3,592
Petrale Sole	1,449	7,060	226	1,273	1,675	8,333
Other Flatfish	1,437	3,415	960	2,701	2,397	6,115
Total Flatfish	10,921	26,055	2,697	7,137	13,618	33,192
Widow	434	893	49	121	483	1,014
Chilipepper	18	28	390	1,011	408	1,039
Yellowtail	1,207	3,032	0	0	1,207	3,032
Minor Slope	282	572	142	362	424	935
POP	312	795	2	9	314	804
Total for Above	16,004	49,884	4,166	14,351	20,170	64,235

California Recreational Rockfish and Lingcod Management Recommendations for 2002

All 2001 regulations remain in effect for 2002 unless modified by recommended changes.

I. Northern Area (40° 10' to Oregon border)

All Waters: Rockfish and Lingcod

Open: January - December

10 rockfish bag limit with a 2 bocaccio, 1 canary, 1 yelloweye (2 fish per vessel), sublimit.
2 lingcod with a 24 inch minimum length.

II. Central Area (Point Conception to 40° 10')

All Waters: Rockfish (including sculpin, a.k.a. California scorpionfish) and Lingcod

Open: January - February, July - August

10 rockfish bag limit with a 2 bocaccio, 1 canary, 1 yelloweye (2 fish per vessel), sublimit.
10 fish sculpin bag limit separate from 10 fish rockfish limit. 2 lingcod with a 24 inch minimum length.

Inside 25 fathoms: Rockfish (including sculpin) and Lingcod

Open: May - June, September - October

10 rockfish bag limit of which no more than 2 may be shelf rockfish other than bocaccio, canary, cowcod, or yelloweye. Bocaccio, canary, cowcod and yelloweye retention prohibited.
10 fish sculpin bag limit separate from 10 fish rockfish limit. 2 lingcod with a 24 inch minimum length.

III. Southern Area (Mexico border to Point Conception except Cowcod Conservation Areas)

All Waters: Rockfish (including sculpin) and Lingcod

Open: March - October

10 rockfish bag limit with a 2 bocaccio, 1 canary, 1 yelloweye (2 fish per vessel), sublimit.
10 fish sculpin bag limit separate from 10 fish rockfish limit. 2 lingcod with a 24 inch minimum length.

IV. Cowcod Conservation Areas (CCA's): Same as Southern Area except open only inside 25 fathoms.

Tribal Proposal Regarding
2002 Groundfish Harvests
November 1, 2001

Black Rockfish - The 2002 tribal harvest guidelines will be set at 20,000 pounds for the management area between the US/Canada border and Cape Alava, and 10,000 pounds for the management area located between Destruction Island and Leadbetter Point. No tribal harvest restrictions are proposed for the management area between Cape Alava and Destruction Island.

Sablefish - The 2002 tribal set aside for sablefish will be set at 10 percent of the Monterey through Vancouver area OY. Allocations among tribes and among gear types, if any, will be determined by the tribes.

Pacific Whiting - For the 2002 pacific whiting fishery, the tribal set aside is 27,500 mt (based on the ABC of 238,000 mt) as provided in the Makah tribes' proposed allocation framework. However, that tribal set aside could change if a different OY is finally adopted in March.

Lingcod - Tribal fisheries will be restricted to 300 lbs. per day and 900 lbs. per week limits for all fisheries.

Rockfish Taken During Competitive Halibut Fisheries - To provide for full retention and utilization during directed, fully competitive treaty longline fisheries for halibut, there will be no limit on the retention of incidental harvests of rockfish. However, appropriate management actions will be taken in season, if necessary, to restrict incidental harvests of rockfish, so that tribal fisheries do not exceed the estimated tribal impact levels.

For all other tribal groundfish fisheries the following trip limits will apply:

Thornyhead rockfish - Tribal fisheries will be restricted to a 300 pound per trip limit. This trip limit will be for short and longspine thornyheads combined.

Canary rockfish - Tribal fisheries will be restricted to a 300 pound per trip limit.

Other Minor Nearshore, Shelf and Slope Rockfish - Tribal fisheries will be restricted to a 300 lbs. per trip limit for each species group, or the limited entry trip limits if they are less restrictive than the 300 lbs. per trip limit.

Yelloweye Rockfish – Tribal fisheries will be restricted to a 100 lbs. per trip limit.

Mid-water Trawl Fishery- Treaty mid-water trawl fishermen will be restricted to a cumulative limit for yellowtail rockfish of 30,000 lbs. per vessel per two month period. Their landings of widow rockfish must not exceed 10% of the poundage of yellowtail rockfish landed in any given period. Fishermen will not be permitted to carry-over portions of the cumulative limit that are not used in any previous two month period. A tribe may adjust the cumulative limit for any two month period to minimize the incidental catch of canary and widow rockfish, provided the average cumulative limit does not exceed 30,000 lbs. (e.g. – 45,000 lbs. in one period, and 15,000 lbs. in a following period). Trip limits may also be adjusted downward by the trawl fishing tribes if there is greater participation than expected in the fishery.

Bottom Trawl Fishery - Treaty fishermen using bottom trawl gear will be subject to the trip limits applicable to the limited entry fishery for pacific cod, petrale sole, english sole, rex sole, arrowtooth flounder, and other flatfish. Because of the relatively small expected harvest, the trip limits for the tribal fishery will be those in place at the beginning of the season in the limited entry fishery and will not be adjusted downward, nor will time restrictions or closures be imposed, unless in-season catch statistics demonstrate that the tribes have taken ½ of the harvest in the tribal area. Fishermen will be restricted to PFMC approved trawl gear.

Observer Program - The tribes will develop and implement an observer program to monitor and enforce the limits proposed above.

Yelloweye Worksheet

With Comm'l Allocation Targets in Spreadsheet

Coastwide	
Tribes (Landed)	1.50
OR Rec (Landed)	3.80
No CA Rec (Landed)	0.60
So CA Rec	1.50
WA Rec (Landed)	3.00
Rec Discard*	0.41
Commercial LE	3.60
Commercial OA	0.80
Total of above	15.21
GOAL	13.50
Difference	-1.71

Without Commercial Targets

Coastwide	
Tribes (Landed)	1.50
OR Rec (Landed)	3.80
No CA Rec (Landed)	0.60
So CA Rec	1.50
WA Rec (Landed)	3.00
Rec Discard*	0.41
Total of above	10.81
GOAL	13.50
Left for Commercial	2.69

Groundfish Fleet Reduction Information and Analysis Project

A joint project of Ecotrust and the Pacific Marine Conservation Council (PMCC)

Principal Investigator: Astrid J. Scholz, Ph.D.

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Background Document for the October 29 - November 2, 2001 meeting of the Pacific Fishery Management Council

This document is intended as background and basis for discussion about the recently instituted Groundfish Fleet Reduction Information and Analysis (GFR) project. Together with presentations to the Groundfish Advisory Panel (GAP) and Science and Statistic Committee (SSC), it is intended to solicit comments and feedback on the scope, design and methodology of the GFR project. The principal investigator and other members of the Ecotrust/PMCC project team will be available for questions, comments and discussions at the November meeting.

Project Background

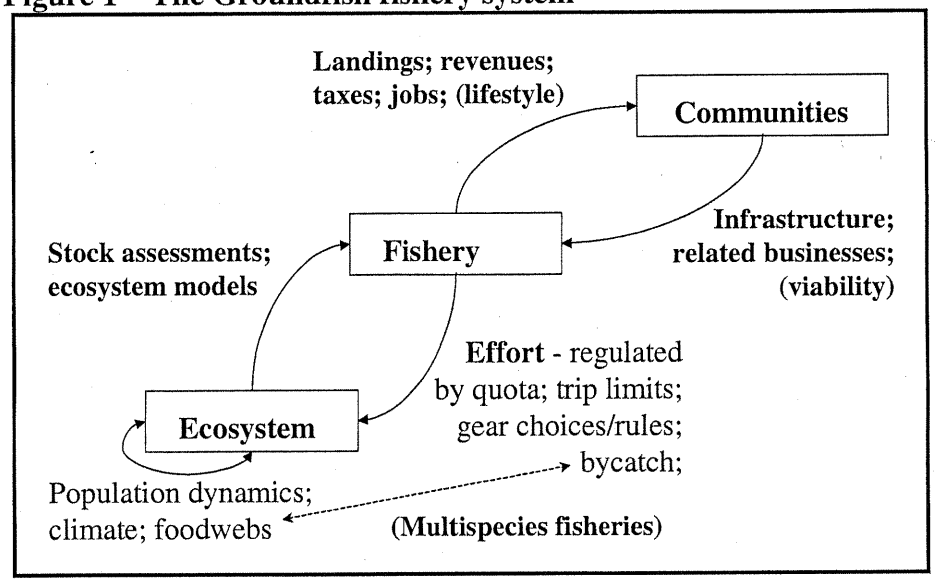
In October 2000, the Pacific Fishery Management Council (PFMC) adopted a strategic plan for the groundfish fishery entitled "Transition to Sustainability" (www.pcouncil.org/Groundfish/finalsp.html). This is a multi-faceted, comprehensive plan for the orderly transition of the presently overcapitalized fleet into a smaller, more ecologically and economically viable one. The PFMC plan calls for a coast-wide fleet reduction of at least 50%, and identifies the need to do so with sensitivity toward existing fleet composition by port and gear type. The core objective of the strategic plan is to facilitate the transition of the fishery such that harvest capacity is brought in line with resource productivity. Invariably, this transition will be costly and not without painful adjustments. However, as the council points out, the price of inaction, and of continuing the overcapitalization of the fleet and erosion of the natural resource base, is potentially even higher.

A key concern in transitioning to sustainability is assessing the effects on various participants and sectors of the fishery, and minimizing or mitigating transitional effects on individuals, businesses and communities. Such an assessment is at present made difficult by the lack of systematic analysis that links and integrates ecological and socioeconomic information about the coast-wide fishery system. To fill this gap, Ecotrust and the Pacific Marine Conservation Council (PMCC) have entered into a collaborative project to assess the impacts on communities. The GFR project will compile and structure existing information, as well as provide a spatially explicit analysis of the re-structuring of the groundfish fleet in Oregon, Washington, and California. Products include a framework and set of tools for conceptualizing the future sustainability of the fishery.

Analytical Approach

For the purpose of the GFR project, the groundfish fishery can be understood as a complexly linked system comprising the ecosystem, fishery activities and management, and coastal communities (see Figure 1). In somewhat stylized terms, the ecosystem, for example, enters into fishery considerations via stock assessments and other models that bound the allowable catch considerations. The fishery in turn expends effort to harvest the resource, bringing landings, revenues and associated effects to communities. The purpose of the GFR project is to investigate the multiple linkages between these three subsystems in spatially explicit terms. Using existing quantitative data on the relationships between the fishery, the ecosystem and coastal communities (bolded terms indicate categories of available data in Figure 1), and analytical characterizations of some qualitative issues or complexities arising from these relationships (the bracketed terms in Figure 1), there are two directions the spatial analysis will take. This spatial analysis will be done for historical responses to policy changes and other variables, both to test our system model and in order to illustrate the system dynamics over time and identify some drivers of change. It will also extend forward, building scenarios of responses to proposed management changes, notably – but not necessarily restricted to – different fleet reduction options.

Figure 1 – The Groundfish fishery system

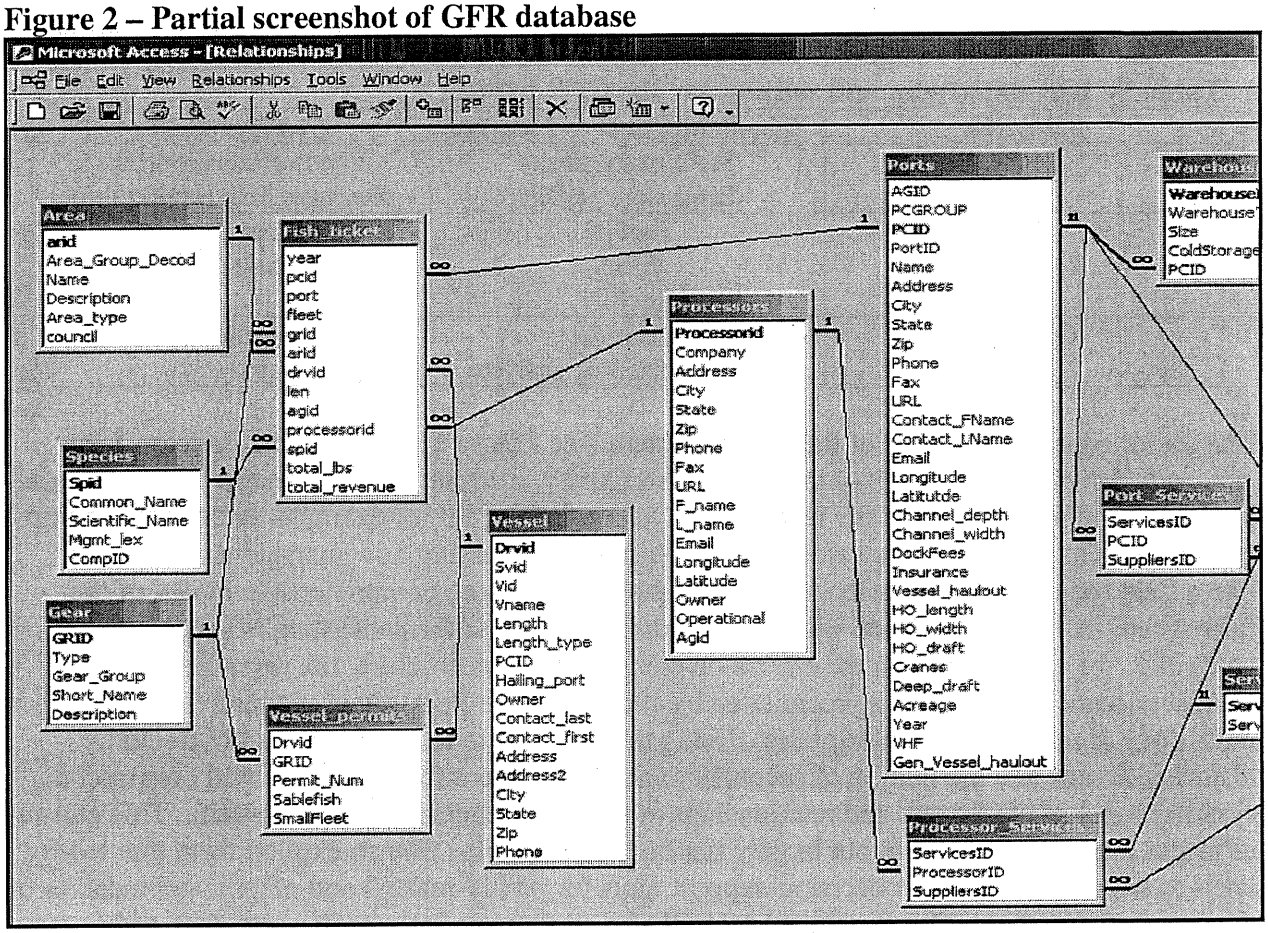


Methodology

The analysis for the GFR project proceeds along an iterative trajectory, using three key methodological elements: a relational database, a comprehensive systems model, and spatial analysis. During the first phase of the project, between now and the end of the year, we are compiling quantitative and qualitative data about the fishery into a *database*. To date, mainly fisheries dependent data (Fishtickets, logbooks, etc.) have been gathered and used to structure a relational SQL database (see Figure 2). The database continues to grow as additional data is

integrated, including economic and census data, community, port, and business profiles, and ecological and biological information on groundfish and the habitats that support them.

Figure 2 – Partial screenshot of GFR database



In addition to the quantitative data available, we expect to make use of secondary sources and qualitative information pertaining to fleet stratification, vessels likely to be most at risk and/or most willing to leave the fishery, and lessons from other parts of the country (notably the Alaska IFQ experience and the New England fleet reduction program). We are developing a protocol for interpreting secondary sources as well as for conducting and coding semi-structured interviews with scientists, managers, fishermen, and other people familiar with or involved in the fishery. These qualitative data will guide our exploration and querying of the database, and will be used to formulate hypotheses about the effects of particular fleet reduction options or other measures.

Some of this qualitative data contains proprietary business or other sensitive information. In addition to the confidential data handling protocols we are using for PacFIN and other semi-public databases, we are therefore developing a protocol for handling and reporting information conveyed in interviews and collected from other sources in a manner that is consistent with the confidentiality requirements of our informants. We are particularly sensitive to the need to protect identifying information that would allow audiences of the GFR project reports and products to link particular information uniquely to one vessel, business, or community. This data-handling protocol allows us access to key data such as operating costs of fishing and

fishing-related businesses, thus adding an important piece to the comprehensive analysis of socioeconomic effects at the community level of fishery-wide management measures. Table 1 contains a summary of the kinds and sources of quantitative and qualitative data we are drawing on, and that describe the ecological, fishery, and community/socioeconomic subsystems.

Table 1 - Key data types and sources for the GFR project

Subsystem	*Quantitative data and sources*	*Qualitative data*
Ecosystem	Stock assessments Ecosystem models	Foodweb relationships Essential Fish Habitat info
Fishery	PacFIN EFIN RecFIN	Business profiles Gear/vessel stratifications
Communities	Census data Regional planning analyses	business profiles and market analyses

The initial conceptual sketch of the fishery system (see Figure 1) serves as the skeleton for a *comprehensive systems model* of the groundfish fishery. Current fishery management implies a particular and partial view of the underlying system, embodied, for example, in the relationship between stocks and allowable catch. For the purpose of assessing how management measures like a fleet reduction would affect the fishery, however, a more comprehensive model of the fishery and its interdependence with coastal communities and the ecosystem is needed. In particular, we are focusing on the effects on community infrastructure, tax revenues and other socioeconomic characteristics precipitated by changes in the fleet, either planned (fleet reduction) or unplanned (bankruptcies). Using the database to test hypotheses generated by historical trends and the mining of secondary and qualitative information, we will construct a system model of the drivers and relationships of the comprehensive fishery system. This allows us to put many of the known, but largely implied, relationships into an explicit form that lends itself to simulations or other decision-support tools for policy-makers and other constituencies of the groundfish fishery. The system model will also serve as an intermediary product, to be reviewed by an informal group of GFR project advisors (currently being solicited) as well as in public forums and venues, including – but not limited to – the trade show FishExpo, PMCC's fish forum next spring, and a variety of newspapers and newsletters. These review mechanisms and opportunities for receiving feedback are intended to give the GFR project transparency and accessibility. This transparency, together with our widely publicized contact information, is intended to engage participants, researchers and observers of the fishery that are not usually represented in policy arenas for fishery management.

The bulk of the analysis for the GFR project will center on the *spatial analysis* of the data assembled in the database. Despite the obvious applications to fishery management, spatial analysis has not been widely used to put data that are customarily collected for fishery management and science on the West Coast into spatial relations. Putting data and information that people do not usually consider in geographic terms into spatial relations to each other, then, forms a central element of the GFR spatial analysis. Another aspect of the GFR spatial analysis is that it combines data from different sources and formats together on an integrated GIS platform, using ArcInfo and ArcView software. This allows us to display historical effects and future scenarios in geographically explicit ways, and consider management measures across a number of different spatial and informational scales. For example, it may be interesting to

consider the spatial shift in effort in response to past regulatory measures (e.g. the regulations mandating the diameter of trawl foot ropes) in the context of other changes, such as the market structure of the processing sector or seasonal shifts in target species or fishing locations. An iterative analysis of the data in this spatial context will guide the formulation and characterization of a set of policy options. By way of illustration, a first focus of the spatial analysis might be the fleet reduction scenario entailed in the analysis by Pete Leipzig and Richard Young of the Fishermen's Marketing Association's survey of the trawl fleet. Using their and others' stratification schemes of the fleet by vessel size, gear type, license types and target species, we can detail the effects of policy options and measures not only specific to these size etc. classes, but also specific to their area of operation, home ports, or area where most of their landings end up being processed. The goal is to connect the geography of fishing effort to the geography of the fish resource, as well as to the geography of down-stream factors, especially in coastal communities.

Timeline and products

The GFR project runs until September 2002. Initial database architecture, data gathering, and testing of the database for stability, coherence and accuracy was completed in the spring of 2001. The project team is currently expanding the database, with a goal of having 90% of primary and secondary data incorporated by the end of December. Starting in October, we are beginning the integration of the relational database with the GIS platform, and mapping out some of the basic relationships between where fish are caught and the distribution of vessels, landings, revenues, and associated variables along the coast. Throughout the winter and spring, we will be iterating between querying the database and conducting spatial analyses, synthesizing our findings in an increasingly more detailed systems model. Intermediary products will be reviewed by the project advisors, as well as in a number of public venues throughout the late spring and summer, with a final report available in time for the September meeting of the PFMC. In addition to the database, products of the GFR project will include analytical decision-support tools such as simulations or scenarios based on the spatial analysis of policy options, a set of policy recommendations and an executive report to the PFMC.

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON GROUNDFISH STRATEGIC PLAN IMPLEMENTATION

The Groundfish Advisory Subpanel (GAP) received a presentation from Ecotrust on their Groundfish Fleet Reduction Information and Analysis Project.

While the project generated interest and several questions, GAP members are alarmed at the fact that Ecotrust - as a private organization - is receiving confidential data from PacFIN. The fishing industry provides data to PacFIN for use in management with the understanding that such data is confidential and will be used only in aggregate form that prevents identification of individual operations. If data is able to be released in raw or unaggregated form to a private organization, many of those present believe they will not provide such data in the future. The GAP strongly recommends no unaggregated or confidential data be released by PacFIN to any private organization, and the Council should instruct PacFIN not to release confidential data to private organizations unless the Council approves the release. The GAP also requests a copy of PacFIN's protocol on release of data to private organizations.

The GAP also discussed a Council proposal to establish a scoping committee to examine multi-year management. The GAP supports the proposal and the list of members proposed in Exhibit C.5 - Situation Summary.

PFMC
10/31/01

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON GROUNDFISH STRATEGIC PLAN IMPLEMENTATION

Dr. Astrid Scholz briefed the Scientific and Statistical Committee (SSC) on the Groundfish Fleet Reduction and Analysis (GFR) Project. The GFR project is a joint effort of Ecotrust and the Pacific Marine Conservation Council (PMCC). The goal of the project is to provide databases and policy tools that will facilitate Council deliberations regarding groundfish capacity reduction. The project expects to receive $150,000 in funding, largely from foundations, and has a stated completion date of September 2002.

The SSC has the following comments regarding the GFR project:

- The project will involve creating databases of existing fishery and community information from a variety of sources, providing spatial depictions and analyses of such data, and developing policy tools that allow the Council to evaluate capacity reduction options in a way that considers fishery, ecosystem and community effects. The analyses will range from descriptive summaries to models that predict industry response to regulatory changes. The project description is not specific enough to allow the SSC to comment on its technical merit. Even given this non-specificity, it is clear the scope of the project is much too ambitious to be accomplished with the available funding or within the stated time frame. The SSC recommends that Ecotrust focus on one or more aspects of the project that will allow them to provide a tangible and useful product by the stated deadline.

- The SSC commends Ecotrust/PMCC for attempting to develop their project in concert with the Council and the fishing industry. Continuing consultation with the Council family will be important for determining how their databases and analyses should be customized to ensure the results are meaningful and useful for management. Continuing consultations with Council entities, particularly the Groundfish Advisory Subpanel, as well as other members of the fishing community, will also be important for encouraging trust. Without such trust, it will be very difficult for Ecotrust to obtain cooperation or to instill confidence in the results of their project.

- It is important for Ecotrust to recognize that the willingness of individual members of the Council family to provide input to their project should not necessarily be construed as endorsement of the project. If Ecotrust is seeking endorsement, they should be careful to obtain permission from individuals before using their names or their organizations in that manner.

PFMC
10/31/01

GROUNDFISH STRATEGIC PLAN IMPLEMENTATION

Situation: There are two matters for Council consideration under this agendum.

First, the Council is considering an ad hoc committee, under the Ad Hoc Groundfish Strategic Plan Implementation Oversight Committee (SPOC), for scoping multi-year management of the groundfish fishery. In September, the Council tasked the Executive Director with developing a proposal for committee membership and schedule of meetings over the winter. It is anticipated the ad hoc committee would report their recommendations to the Council at the March 2002 Council meeting; if the Council wished to pursue these recommendations further, the Council would solicit advice from Council advisory bodies by the April meeting. Formal Council action could occur at the April 2002 Council meeting.

The Executive Director has recommended the following prospective committee members, meeting schedule, and an objective statement for the ad hoc committee.

Prospective Committee Representatives

Mr. Phil Anderson	Dr. Jim Hastie
Mr. Burnie Bohn	Mr. Jim Lone
Mr. LB Boydstun	Dr. Rick Methot
Mr. Ralph Brown	Mr. Rod Moore
Ms. Eileen Cooney	Dr. Steve Ralston
Mr. Bob Eaton	Mr. Bill Robinson

Proposed Schedule

One to three-day meetings during:

- December 5 - 14, 2001
- The week of January 21, 2001
- The week of February 11, 2002

Proposed objective statement: scope multi-year management approaches, synchronized with a multi-year stock assessment schedule and with full accommodation of federal notice and comment requirements.

The second item under this agendum is a proposal from Ecotrust/Pacific Marine Conservation Council for an analysis of capacity reduction in the groundfish fleet, entitled *The Groundfish Fleet Reduction Information and Analysis Project*. The proposal involves the collection and analysis of information for Council use. The methods for this project are scheduled for review by the Scientific and Statistical Committee (SSC) at this Council meeting, and they are expected to provide a statement to the Council.

Council Action:

1. **Consider Executive Director recommendations to establish ad hoc committee and schedule for scoping a multi-year management cycle for the groundfish fishery.**
2. **Discuss applicability of *The Groundfish Fleet Reduction Information and Analysis Project*.**

Reference Materials:

1. Exhibit C.5.c, Ecotrust/PMCC Capacity Reduction Analysis Proposal.
2. Exhibit C.5.d, Supplemental SSC Report.

Groundfish Strategic Plan (GFSP) Consistency Analysis

This agenda item is consistent with the implementation process detailed in the GFSP. Issues covered under this item conform to the implementation priorities adopted by the Council in April 2001.

PFMC
10/15/01

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Senior Scientist
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October 4, 2001

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7700 NE Ambassador Place
Portland, OR 97220-1384

Dear Dr. Seger,

We are writing to invite you to participate in a meeting to finalize plans for an integrated assessment related to the network of MPAs on the West Coast. The meeting is scheduled for 9:00-5:00 October 25, 2001 at the San Francisco Airport Marriott in Burlingame, CA.

The goals of the meeting are to outline the assessment's time and space scales, issue content, and approach to integrating and synthesizing the best current natural and social science information needed to address critical coast-wide MPA-related questions. As many of you may recall from Don Scavia's presentation at the Pacific Coast MPA Science and Coordination Workshop, the proposed overarching question for this assessment is "How would a network of west coast MPAs affect our goals of sustaining fisheries, maintaining biodiversity, and conserving submerged cultural artifacts?"

In this one-day workshop we will develop a plan for conducting the integrated assessment. Specifically, we hope to identify the following:

- Processes/decisions that the assessment is intends to inform;
- Specific questions and sub-questions that the assessment should address;
- How to best organize the assessment to answer these questions;
- Support necessary to complete the assessment;
- Timelines, milestones, and target audiences; and
- Resulting products suite.

The attached pages outline a proposed approach and will be the starting point for our discussion.

We hope you can participate in this meeting. Please RSVP to Ruth Kelty (ruth.kelty@noaa.gov, 301-713-3020 x133) by October 15. A block of rooms has been reserved at the San Francisco Airport Marriott (650-692-9100) for $110/night; reservations must be made by Oct. 10. Please also call Ruth if you notice that we've omitted a key player and we will do our best to include them.

Sincerely,

Donald Scavia
Chief Scientist
National Ocean Service

Charlie Wahle
Acting Director
Institute for MPA Science

Invited participants:

Bob Bailey, Brian Baird, Loo Botsford, Ed Bowlby, David Gutierrez Carbonell, Mark Carr, Liz Clarke, Gary Davis, Paul Dayton, Andrew DeVogelaere, Sarah Fangman, Bob Fletcher, Dave Fluharty, Rod Fujita, Steve Gaines, Jim Glock, David Gutierrez Carbonell, Susan Hanna, Will Hildesley, Mark Hixon, Ruth Kelty, George Leonard, Jane Lubchencho, Gary Matlock, Mark Miller, Melissa Miller-Henson, Mary Lou Mills, Mel Moon, Rod Moore, Lance Morgan, Mike Orbach, Fred Piltz, Carrie Pomeroy, Steve Rumrill, Eva Rupp, Don Scavia, Jim Seger, Cindy Thompson, Jodie Wilson, John Ugoretz, Joe Uravitch, Charlie Wahle, and Mary Yoklavich.

October 4, 2001

Proposed Organizational Structure for the Integrated Assessment of West Coast MPAs

Executive Order #13158 directs Federal agencies to work collaboratively with public and private interests to develop a science-based framework for the national system of marine protected areas (MPAs). To insure compliance with this order, NOAA's National Ocean Services will work with partners to conduct an integrated assessment (IA) that examines how various uses of marine resources in a network of MPAs impact sustainable fisheries, biodiversity, and submerged cultural artifacts.

To effectively carry out an IA that will be a useful tool for decision makers, the assessment must be structured in a manner that is broadly integrated, synthetic, predictive, and relevant. The proposed structure for the West Coast MPA Integrated Assessment outline below will be the starting point for our discussion at this meeting. However, the discussion will not be limited to this approach; alternate ideas and proposals are welcome.

How would a network of West Coast MPA's affect sustainability of fisheries and conservation of biodiversity and submerged cultural artifacts?

The proposed approach follows the steps of an Integrated Assessment:

1. Document status and trends of environmental, social, and economic conditions relevant to the three issues identified in the overarching question.
2. Evaluate environmental, social, and economic causes and consequences of those changes.
3. Forecast potential environmental, social, and economic impacts of a range of alternatives for addressing those changes.
4. Provide guidance as to best practices for implementing those alternatives.

To attack this complex issue in a comprehensive way, we propose to establish and support (fiscally and in-kind) 5 scientific teams.

- Team 1 would document the status and trends of environmental, social, and economic conditions relevant to the three issues of concern. ***The work of this team will be closely coordinated with the others to ensure a common geographic framework, scale, and data set for analysis and interpretation.***

- Teams 2, 3, and 4 would each evaluate the causes and consequences of related ecosystem changes within the context of sustaining fisheries (Team 2), maintaining biodiversity (Team 3), and conserving artifacts (Team 4). These teams will look at how various uses (e.g. fishing, recreational use, extraction, navigation, defense, dilution, no use, and habitat modification) affect each of the three goals.

These three teams would also provide estimates (forecasts) of future conditions related to these three issues for a range of policy options relevant to MPAs. ***These policy options should include the full range of uses and be focused at the regional scale in the context of a network of MPAs, as opposed to focusing on the design of any one particular existing or proposed MPA.***

- Team 5 would use the results of the other teams to examine the potential for identifying a common set of actions (network) that would serve all three sub-goals. ***This team's effort would continue to be a scientific analysis in the context of institutional, political, and societal constraints. It will not recommend specific actions, but rather continue to analyze alternatives.***

Exhibit C.6.b
Supplemental NMFS Report
November 2001

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., BLDG. 1
BIN C15700
Seattle, Washington 98115-0070

OCT 26 2001

Mr. James Lone
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220-1384

Re: Pacific Coast Groundfish - Rebuilding Plans for Overfished Species

Dear Jim:

On August 20, 2001, the federal magistrate ruled in National Resources Defense Council, Inc. v. Evans (N.D. Cal. 2001) that rebuilding plans under the Pacific Coast Groundfish Fishery Management Plan (FMP) must be in the form of plan amendments or proposed regulations, as required by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) at 16 U.S.C. § 1854 (e)(3). Accordingly, the magistrate issued an order setting aside those portions of Amendment 12 to the FMP dealing with rebuilding plans (Amendment 12 provided a framework for rebuilding plans that would have been a part of the annual SAFE document, but were not themselves plan amendments or proposed regulations). In addition, the magistrate found that the Environmental Assessment (EA) prepared for Amendment 12 failed to consider a reasonable range of alternatives and environmental consequences, in violation of the National Environmental Policy Act (NEPA), and set aside the EA.

As a result of the magistrate's decision, the Council must now revise Amendment 12 to be consistent with the Magnuson-Stevens Act. NMFS recommends the development of one or more FMP amendments revising Amendment 12 and containing the rebuilding plans for species that have been declared overfished. The existing rebuilding plans can be used as a starting point for both the amendments and their accompanying EAs. Soon after January 1, 2002, NMFS staff would like to meet with the Council staff to define the format and contents of the FMP amendment(s) on rebuilding plans and their EAs. Draft FMP amendment(s) that address the rebuilding measures for POP, bocaccio, lingcod, canary rockfish, cowcod, darkblotched rockfish and widow rockfish should be presented to the Council at the April 2002 meeting, with the intention of presenting final amendment(s) for adoption at the Council's June 2002 meeting.

I am encouraged by the efforts that the Council has put into the rebuilding process and the commitment to meeting the rebuilding needs of overfished species. I look forward to working with you to complete these rebuilding programs.

Sincerely,

for D. Robert Lohn
Regional Administrator
NMFS Northwest Region

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON REBUILDING PLANS

The Groundfish Advisory Subpanel (GAP) briefly discussed guidance to be given for the completion of rebuilding plans. The GAP believes the following comments, which were provided to the Council in September, need to be considered.

First, rebuilding plans need to contain complete social and economic data, including data on the economic impact of the plan alternatives on coastal communities, along with the environmental and biological data already scheduled to be included.

Second, rebuilding plans must be flexible enough to accommodate new information as it becomes available. The Council should not lock itself into a rebuilding strategy such as a constant catch plan that later analysis demonstrates won't work.

Third, a clear strategy for monitoring the progress of rebuilding and responding to that monitoring must be developed.

PFMC
10/31/01

REBUILDING PLANS

Situation: This agenda item concerns rebuilding plans for seven groundfish stocks that have been declared overfished and one groundfish stock (yelloweye rockfish) expected to be declared overfished by the National Marine Fisheries Service (NMFS) based on provisions in the Magnuson-Stevens Fishery Conservation and Management Act. In September, the Council decided to postpone development and completion of rebuilding plans to allow staff to focus on development of the Environmental Assessment/Regulatory Impact Review of 2002 Management Measures (agenda item C.4). There was also an expectation that NMFS would provide further guidance to rebuilding plan authors relative to compliance to the National Environmental Policy Act and interpretations of other legal considerations. The Council should provide such guidance as well as additional elements, analyses, or other necessities deemed lacking in previously-reviewed rebuilding plan drafts. Planning for the schedule for completion and final Council approval of rebuilding plans should also be considered at this time, with the anticipation of a final decision on schedule during agendum I.4, Council Staff Work Load Priorities.

Council Task:

1. Provide guidance on development and schedule for completion of rebuilding plans.

Reference Materials: None.

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

Rebuilding overfished species, as mandated by the Magnuson-Stevens Fishery Conservation and Management Act, was a primary motive for developing and implementing the GFSP. Many sections of the GFSP describe how rebuilding plans factor into short- and long-term Council priorities for conducting groundfish conservation and management. GFSP objectives such as developing sustainable and effective harvest policies (Sec. II.A.2), achieving fleet capacity reduction (Sec. II.A.3.(b)), allocating groundfish resources (Sec. II.A.4), developing an effective Observer Program (Sec. II.A.5), and development of marine reserves as a groundfish management tool (Sec. II.A.6) are grounded by the need to accomplish the goal of rebuilding overfished groundfish stocks.

PFMC
10/16/01

GROUNDFISH FISHERY MANAGEMENT PLAN ENVIRONMENTAL IMPACT STATEMENT

Situation: The National Marine Fisheries Service (NMFS) is preparing an environmental impact statement (EIS) on federal management of the Pacific Coast groundfish fishery. This is a comprehensive EIS that will review the current status of the federal groundfish management program, condition of the groundfish resource, and the socioeconomic conditions of the fishery. The EIS will discuss a range of future policy alternatives and implementation options, including provisions in the Council's Groundfish Fishery Strategic Plan (GFSP). Status updates on progress of the EIS have been provided status updates at the June and September Council meetings. At the September meeting, the Council has established an ad hoc oversight committee with technical support from the Scientific and Statistical Committee, Groundfish Management Team, and Habitat Steering Group to provide focused participation in the EIS process.

Mr. Jim Glock, the NMFS Groundfish EIS project manager, will discuss the relationship of the EIS process to the existing Groundfish fishery management plan (FMP) and summarize progress to date in EIS development. The update will inform the Council of any recent decisions made relative to structure, content, and schedule of the EIS.

NMFS has requested Council involvement in developing and analyzing the alternatives analyzed in the EIS. The Council needs to plan a process and schedule for doing this.

Council Task:

1. **Provide guidance to the Ad Hoc Groundfish FMP EIS Committee as appropriate on involvement in the EIS process between the November and March Council meetings.**

Reference Materials:

None.

GFSP Consistency Analysis

The GFSP broadly supports effective public involvement during and beyond the transition to sustainable groundfish fishery management. The GFSP also specifically seeks to update the goals and objectives in the current groundfish FMP to incorporate GFSP visions and goals (Sec. II.C.(d)3). The EIS will provide a public forum vehicle for assessing and incorporating GFSP visions and goals into the Groundfish FMP.

PFMC
10/12/01

WDFW Preliminary Summary of the 2001 Arrowtooth Flounder EFP

EFP Summary

- 7 trawl vessels operating out of Bellingham and Blaine
- August and September 2001
- 100% Observer Coverage
- Unlimited Amounts of Arrowtooth Flounder and Petrale Sole in Directed Arrowtooth Tows Until a Canary Bycatch Limit of 200 lbs. Was Reached
- Mandatory Rockfish Retention

WDFW Observer Program

Preliminary Results

- 38 Total Trips
- 542 Total Tows
  - 285 Directed Arrowtooth Tows
  - 257 Non-Directed Tows
- Total Arrowtooth = 1,787,375 lbs
- Total Petrale = 105,440 lbs
- Total Canary Rockfish = 5,064 lbs

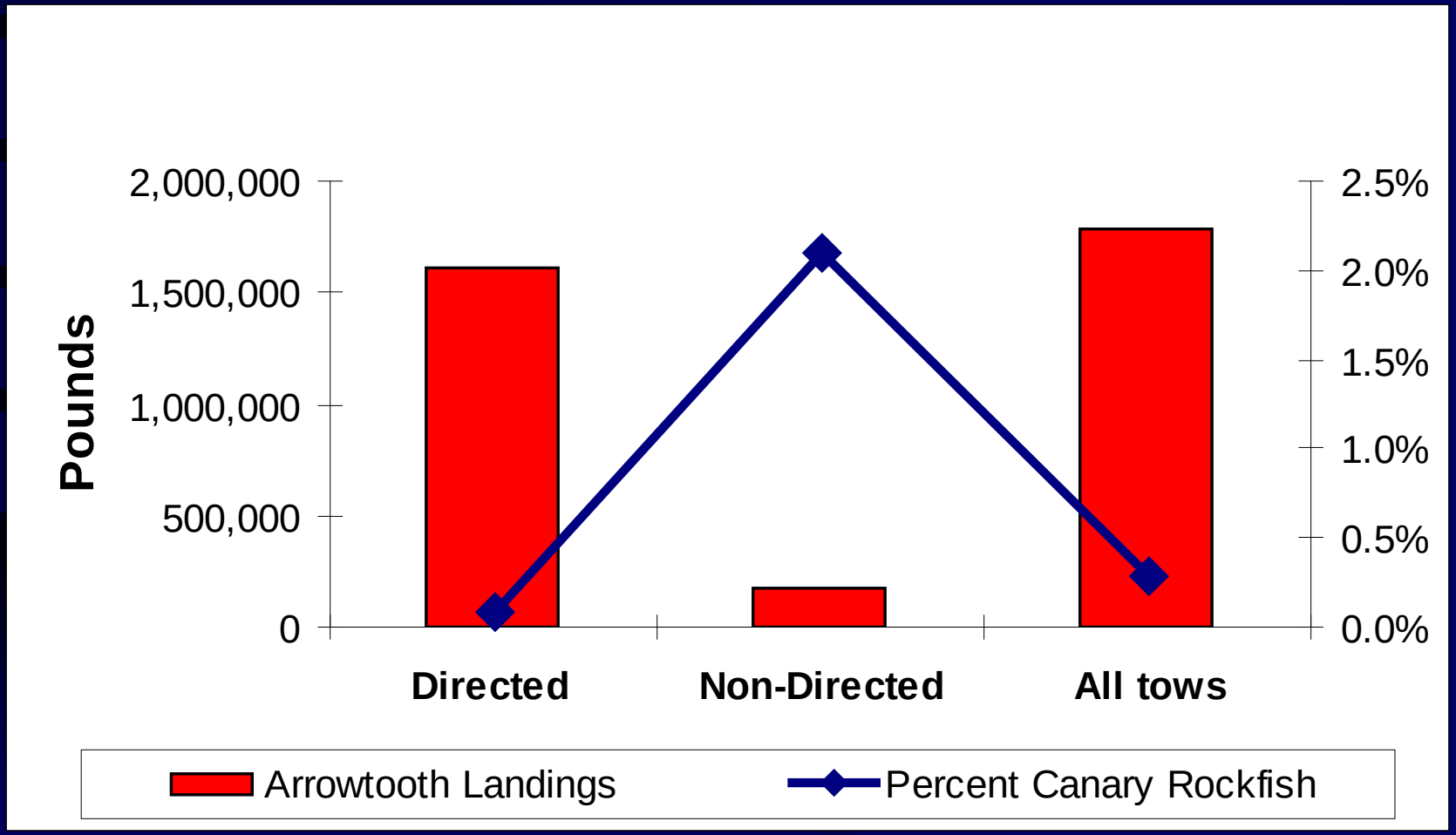
Cost and Benefits

	Arrowtooth	Petrale
Amt Over Trip Limits	1,366,754	13,234
Value	$164,011	$14,557

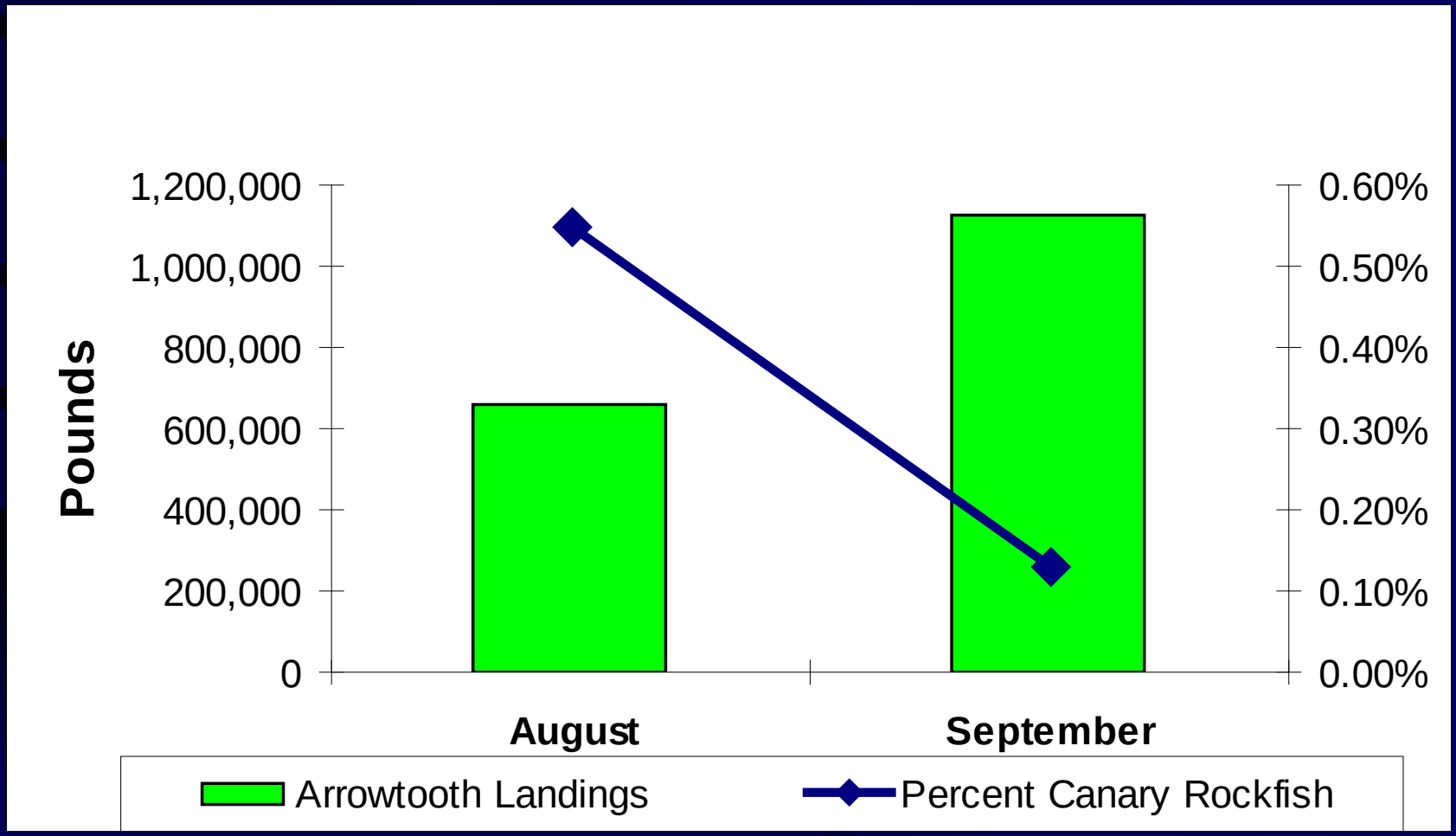
Total Value: $178,568

WA Disaster Relief Funds Spent: $75,000

Arrowtooth EFP Landings and Canary Bycatch by Tow Type



Arrowtooth EFP Landings and Canary Bycatch by Month



Summary

- WDFW is pleased with the preliminary results of the Arrowtooth Flounder EFP
- WDFW plans to apply for a similar Arrowtooth Flounder EFP for 2002
- WDFW will work with NMFS to integrate information with the West Coast observer program
- WDFW will present a more in-depth bycatch analysis at the April 2002 Council meeting

Exhibit C.8.c
Supplemental ODFW Proposal
November 2001

Oregon
John A. Kitzhaber, M.D., Governor

Department of Fish and Wildlife
Marine Resources Program
2040 SE Marine Science Drive
Newport, OR 97365
(541) 867-4741
FAX (541) 867-0311

October 25, 2001

Mr. D. Robert Lohn
Regional Administrator, Northwest Region
National Marine Fisheries Service
7600 Sand Point Way NE
Bin C15700
Seattle, WA 98115

Dear Robert:

Enclosed is a joint ODFW, WDFW and CDFG application for an exempted fishing permit (EFP) for your review and approval. The EFP is requested to allow legal retention, delivery and temporary possession of incidentally caught Pacific salmon and Pacific halibut in the 2002 shoreside Pacific whiting fishery, and potentially to allow for overages of other groundfish species caught while target fishing for whiting. It is our opinion that enumeration of the incidental catch in this fishery continues to be needed. During 2001 the minimum observation rate of 10% (of all trips) was achieved with such observations being conducted shoreside only. We also included collection of biological data for bycatch of key groundfish species during the 2001 program. We achieved a 23% sampling rate for groundfish bycatch and met our biological sampling goals. Participating processors allowed us to achieve a 100% observation rate for salmon and halibut bycatch by setting aside all salmon and halibut encountered during offloads, regardless of whether the trip was observed or not. An EFP for the "shoreside" processing sector of the Pacific whiting fishery continues to be the only means available to estimate the bycatch of prohibited species and groundfish.

As occurred last year, permitted vessels would be required not to sort their catch at-sea so that the entire catch can be sampled. Shoreside observers enumerate prohibited species and groundfish bycatch for 10 - 15 percent of all shoreside deliveries, and will also collect biological information on whiting. An allowance for overages of groundfish catch continues to be needed for calculating the groundfish bycatch rate and to facilitate collection of valuable biological data (age, sex, weight and length) for bycatch groundfish species (e.g. sablefish, yellowtail rockfish and widow rockfish). These biological samples will be used to support stock assessment work. We are aware that in recent years, the bycatch rate for some species has been quite high. The shoreside whiting industry has been working diligently to develop a serious proposal for reducing bycatch. Prohibited species and proceeds from groundfish overages will be forfeited to the State.

We have not yet determined how many vessels will participate in the fishery next year, but expect 30-35 vessels. We will generate a participating vessels list as soon as possible and forward it to you.

Sincerely,

Rod Kaiser

Rod Kaiser
Acting Director
Marine Resources Program
attachment

EXEMPTED FISHING PERMIT APPLICATION

1. Date of Application

   October 25th, 2001

2. Applicant Name(s)

   Washington Department of Fish and Wildlife
   48A Devonshire Road
   Montesano, WA 98563-9618
   Attention: Brian Culver (360)249-1205

   Oregon Department of Fish and Wildlife
   2040 SE Marine Science Drive
   Newport, OR 97365-5294
   Attention: Mark Saelens (541)867-4741
   Lara Hutton (541)867-4741

   California Department of Fish and Game
   411 Burgess Drive
   Menlo Park, CA 94025-3488
   Attention: Dave Thomas (415)688-6361

3. Purposes and Goals of the Proposed Experiment

   The goal of the exempted fishery is to implement an observation program, at the request of the Pacific Fishery Management Council, to enumerate the bycatch in whiting harvests delivered to shoreside processing plants for 10 -15 percent of all EFP deliveries. Whiting must be handled quickly to ensure quality, and as a result many vessels dump tows directly, or nearly directly, into the hold and are unable to sort their catch. The purpose of the EFP is to allow delayed sorting from mid-water trawl catches of Pacific whiting until the catch is unloaded at a shoreside processing plant. In addition, in order to sample unsorted total catch shoreside, the EFP may need to include provisions to allow for potential overages in groundfish trip limits as well as the retention of prohibited species (e.g. salmon and halibut) until offloading. The amounts of groundfish which exceed the trip limits set for 2002 will be forfeited to the state in which the delivery is made and port price paid. Current groundfish regulations at 50 CFR 663.7(b) stipulates that prohibited species must be returned to the sea as soon as practicable with a minimum of injury when caught and brought aboard. The EFP is necessary to authorize retention of prohibited species until delivery shoreside by vessels participating in the observation program. The EFP would be valid only for landings by permitted vessels at processing plants that have been designated by the States of Washington, Oregon or California as participants in the observation program. Designated processing plants will

have signed agreements with their state and would have to agree to set aside prohibited species for biological sampling and disposition, and allow sampling of whiting landings and groundfish bycatch.

There are two basic options for disposal of incidentally caught prohibited species brought ashore: (1) donate to a local food share or other appropriate charitable organization, or (2) reduction in the fish meal plant. Option 1 is preferred, but salmon caught by trawls are often in poor condition, and they are also very perishable.

In addition to enumerating each prohibited species, other data to be collected include length, sex, weight and in the case of salmon, scales for age. Salmon snouts will be collected for coded wire tags from appropriately marked fish.

Another goal is to document the bycatch rate of other groundfish species encountered while target fishing for Pacific whiting. Biological data (age, weight, length and sex) will be collected for Pacific whiting, sablefish, yellowtail rockfish, widow rockfish, Pacific mackerel, and jack mackerel.

4. Justification

The EFP is requested so that an accurate count of incidentally caught salmon can be generated, and estimates of groundfish bycatch rates can be obtained from shoreside deliveries of Pacific whiting. An EFP will also offer legal protection for trawlers and processors that have possession of incidentally caught prohibited species, and may offer legal protection from overages of groundfish, which resulted from targeted fishing trips for whiting, made under the EFP.

5. Statement of Project Significance

Enumeration of incidentally caught species is the primary purpose for this EFP. Monitoring the bycatch of salmon in the whiting fishery also is a requirement of an ESA Section 7 consultation. Estimation of groundfish bycatch rates and collection of biological information to support stock assessment work is a secondary purpose. Results from this project, and those conducted during 1992 through 2001 will help clarify if regulation changes should occur (e.g. modification of prohibited species) to allow this fishery to operate without the need for an EFP each year.

6. Vessels to be covered by the EFP

List to be provided at a later date.

7. Species and Amounts to be Harvested

The target species to be harvested is Pacific whiting (*Merluccius productus*). The preliminary U.S. Pacific whiting harvest guideline in 2002 is 190,400 mt. The corresponding shore-based allocation would be 68,418 mt. PFMC does not intend to make an ABC change for whiting until 2002. Based on bycatch information from our EFP program during 1992 - 2001, the following catches of salmon, sablefish, widow rockfish, yellowtail rockfish, and other species would be expected if the bycatch rates were the same as in 2001 (bycatch reduction proposals are under development and should reduce this amount substantially):

Species/Species Group	Bycatch Rate (no/mt.)	Expected Bycatch (number)
Salmon	0.035	2587

Species/Species Group	Bycatch Rate (kg/mt.)	Expected Bycatch (kilograms)
Sablefish	0.637	46,726
Widow Rockfish	0.577	42,268
Yellowtail Rockfish	1.308	95,861
Misc. Rockfish	0.159	11,660
Mackerel	8.384	614,590
Other Misc. Fish	5.993	439,272

8. Conduct of Fishing Experiment

Fishing will occur in the EEZ in the INPFC Eureka, Columbia and Vancouver areas. Ports of interest are Ilwaco and Westport, WA; Astoria, Newport and Charleston, OR; and Crescent City and Eureka, CA. Trawls, which conform to current legal requirements for midwater trawls, will be used to capture the target species. The season will open June 15, 2002 (April 1 off northern California), and will probably run through August 2002. The EFP should be valid for through the end of December 2002, to allow for any delay in shore-based allocation attainment.

The program will continue to rely on industry funding to pay for: observers, part of the salary for a coordinator and data analysis assistant, supplies, and travel to processing plants and meetings.

D R A F T

APPLICATION FOR ISSUANCE OF AN EXEMPTED (EXPERIMENTAL) FISHING PERMIT

A. Date of application: October 30, 2001

B. Applicant's names, mailing addresses, and telephone numbers:

Washington Department of Fish and Wildlife
600 Capitol Way North, Olympia, WA 98501-1091
Contacts: Philip Anderson (360) 902-2720
Brian Culver (360) 249-1205
Michele Robinson (360) 249-1211

C. A statement of the purpose and goals of the experiment for which an EFP is needed, including a general description of the arrangements for the disposition of all species harvested under the EFP.

Pacific Coast groundfish are managed by the Pacific Fishery Management Council under a federal fishery management plan (FMP). The management goals of the FMP are to:

1. Prevent overfishing by managing for appropriate harvest levels and prevent any net loss of the habitat of living marine resources.
2. Maximize the value of the groundfish resource as a whole.
3. Achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.

The purpose of the experiment is to assist the Pacific Fishery Management Council in achieving the goals of the FMP by collecting bycatch data on overfished stocks to allow for informed management decisions in setting appropriate trip limits to maximize safe harvest levels of healthy stocks.

Specifically, the goals of the experiment are to:

- Measure bycatch rates for canary and other rockfish associated with the arrowtooth flounder fishery through an at-sea observer program,
- Measure bycatch rates for widow and other rockfish associated with the midwater yellowtail fishery through an at-sea observer program, and
- Augment the National Marine Fisheries Service groundfish observer program.

With regard to the disposition of the species harvested under the EFP:

- Species caught within current trip limits may be retained by the vessel.
- Species caught in excess of current trip limits, but permitted within the EFP (i.e., arrowtooth flounder, petrale sole, and yellowtail rockfish), will be retained by the vessel.

- Rockfish species caught in excess of current trip limits, but required to be retained under the EFP, will be forfeited to the state consistent with the current forfeiture of overages in the shoreside whiting fishery.

D. Valid justification explaining why issuance of an EFP is warranted:

Since 1998, the Pacific Council has initiated rebuilding plans for several species, including canary rockfish and widow rockfish. Critical to these rebuilding plans and to the overall improvement of groundfish management is the need for more and better scientific data. There are 82 species

covered under the Pacific coast groundfish FMP, and at present, there is little or no data on a large number of these species. There is a need for comprehensive, timely and credible data for priority species to aid in the conservation and rebuilding efforts for these stocks.

Arrowtooth flounder are an extremely important species in Washington groundfish fisheries. The stock is healthy and Washington fishers and processors have worked aggressively to develop strong markets for this species. A large component of the Washington trawl fleet, and at least two major processors, are heavily dependent upon arrowtooth flounder. Fishers targeting arrowtooth are currently constrained by their limit of canary rockfish. The current flatfish trip limit is based upon the assumed bycatch rate of canary rockfish. Fishers who have historically targeted arrowtooth have indicated that under this monthly trip limit, targeting arrowtooth will not be economically feasible. Further, these fishers believe that they can prosecute an arrowtooth fishery with a much lower canary bycatch rate, thereby allowing a higher arrowtooth catch.

Similarly, yellowtail rockfish are an extremely important species to Washington groundfish fisheries. The latest stock assessment indicates that the stock is healthy and, like arrowtooth flounder, a large component of the Washington trawl fleet is dependent upon a midwater trawl opportunity for yellowtail. However, because widow rockfish are overfished and commonly occur in the yellowtail midwater fishery, fishers are constrained by their limit of widow rockfish.

E. A statement of whether the proposed experimental fishing has broader significance than the applicant's individual goals.

The applicant of this EFP believes that the information collected during this experiment will have broader significance than the applicant's individual goals by:

- Producing data on the amount and location of canary rockfish bycatch in the arrowtooth flounder fishery,
- Producing data on the amount and location of widow rockfish bycatch in the midwater yellowtail rockfish fishery,
- Providing valuable and accurate data on the species composition of the trawl flatfish fishery off the Washington coast, and
- Providing a pilot program for the retention of rockfish overages.

These data could allow the Council to establish trip limits in the future that maximize fishing opportunities on healthy stocks while meeting conservation goals for depleted

stocks.

F. Vessels covered under the EFP:

Fishers covered under the EFP will include those who have historically participated in the targeted arrowtooth fishery off Washington. These fishers must have:

- 3-year cumulative total of at least 400,000 lbs of arrowtooth flounder landed into Washington in the following calendar years: 1998, 1999, and 2000,
- Landings of arrowtooth flounder into Washington in all three consecutive years (1998, 1999, and 2000),
- Participated in the 2001 Arrowtooth Flounder Exempted Fishery, and
- A valid Washington delivery permit

A list of the fishers (and their designated vessels) that meet these criteria are attached.

G. A description of the species (target and incidental) to be harvested under the EFP and the amount(s) of such harvest necessary to conduct the experiment:

The targeted species is arrowtooth flounder which would not be subject to a monthly trip limit, but which would be constrained by the measured bycatch allowance of canary rockfish for the flatfish

fishery. Fishers are currently allowed 300 lbs per month of canary rockfish with an assumed 16% discard rate (when applied, this equals 348 lbs total). Under the EFP, the bycatch allowance for canary rockfish would be divided as follows:

- 200 lbs of canary rockfish would be allocated to tows that are identified as directed arrowtooth tows by the skipper of the vessel (in advance). Once the 200 lbs of canary rockfish are caught, and if the vessel has already reached the current monthly trip limits for arrowtooth and petrale sole published in the Federal Register, then the vessel cannot have any directed arrowtooth tows for the rest of the month and cannot retain any more arrowtooth or petrale.

- Once 200 lbs of canary rockfish are caught, and if the vessel has **not** reached the current monthly trip limits for arrowtooth and petrale sole published in the Federal Register, then the vessel can continue to conduct directed arrowtooth tows until the current monthly trip limits for arrowtooth and petrale have been reached. Once those trip limits have been reached, the vessel cannot have any directed arrowtooth tows for the rest of the month and cannot retain any more arrowtooth or petrale.

- The balance of the canary rockfish would be used to accommodate the bycatch of canary while targeting other groundfish species.

- Petrale sole caught in a directed arrowtooth tow would not be subject to a monthly trip limit.

- Other species could be landed under current trip limit levels and fishers could land up to the current limit of other flatfish in addition to their arrowtooth flounder landings.

- Yellowtail rockfish caught in midwater tows would be subject to a monthly trip limit of _____ lbs (which exceeds the current monthly limit), and would be constrained by the measured bycatch of widow rockfish in the midwater fishery. Under the EFP, the bycatch allowance for widow rockfish would be _____ lbs per month, and the bycatch allowance of canary rockfish would be _____lbs per month. Once the _____ lbs of widow rockfish and/or _____lbs of canary rockfish are caught in midwater tows, and if the vessel has already reached the current monthly trip limits for yellowtail rockfish published in the federal register, then the vessel cannot have any more midwater tows for the rest of the month and cannot sell any more yellowtail or widow (Note: These species would still be retained as part of the full-retention provision).

- Incidental catches of rockfish in excess of the trip limit must be retained.

- A minimum amount of four vessels must participate under the EFP to conduct the experiment.

H. For each vessel covered by the EFP, the approximate time(s) and place(s) fishing will take place, and the type, size, and amount of gear to be used:

The EFP will be valid in Pacific Ocean waters adjacent to Washington, outside three miles. Vessels must fish north of 46°40'00" north latitude for all of their fishing strategies during the months of the EFP.

Approximate time for the experimental fishery is May 1-August 31, 2002.

Vessels covered by the EFP would be allowed to have more than one type of legal gear onboard (e.g., midwater, small footrope, and large footrope).

All vessels fishing under the authority of the EFP must:

- Carry a Washington Department of Fish and Wildlife-provided observer onboard all fishing trips.

- Employ legal trawl gear as defined in current federal regulations. Vessels fishing under the EFP may experiment with flatfish selective gears (including excluders), including large footrope gears.
- Land all fish caught under the authority of the EFP into the State of Washington to a processor designated to participate in this program by the Washington Department of Fish and Wildlife. In order for a processor to be able to participate

in this program, it must hold a contract with the Washington Department of Fish and Wildlife and abide by the conditions listed in the contract. Failure to abide by the conditions in the contract will result in revocation of the contract by the Director of the Washington Department of Fish and Wildlife.

- Hold a contract with the Washington Department of Fish and Wildlife and abide by the conditions listed in the contract. Failure to abide by the conditions in the contract and/or to follow the provisions in the EFP will result in revocation of the contract by the Director of the Department of Fish and Wildlife. The Director of the Department of Fish and Wildlife may modify the terms of the contract based on the status of the stocks which are caught incidentally in the experimental fishery.

I. The signature of the applicant:

_____

Washington Department of Fish and Wildlife

D R A F T

APPLICATION FOR ISSUANCE OF AN EXEMPTED (EXPERIMENTAL) FISHING PERMIT

A. Date of application: October 30, 2001

B. Applicant's names, mailing addresses, and telephone numbers:

Washington Department of Fish and Wildlife
600 Capitol Way North, Olympia, WA 98501-1091
Contacts: Philip Anderson (360) 902-2720
Brian Culver (360) 249-1205
Michele Robinson (360) 249-1211

C. A statement of the purpose and goals of the experiment for which an EFP is needed, including a general description of the arrangements for the disposition of all species harvested under the EFP.

Pacific Coast groundfish are managed by the Pacific Fishery Management Council under a federal fishery management plan (FMP). The management goals of the FMP are to:

1. Prevent overfishing by managing for appropriate harvest levels and prevent any net loss of the habitat of living marine resources.
2. Maximize the value of the groundfish resource as a whole.
3. Achieve the maximum biological yield of the overall groundfish fishery, promote year-round availability of quality seafood to the consumer, and promote recreational fishing opportunities.

The purpose of the experiment is to assist the Pacific Fishery Management Council in achieving the goals of the FMP by collecting bycatch data on overfished stocks to allow for informed management decisions in setting appropriate trip limits to maximize safe harvest levels of healthy stocks.

Specifically, the goals of the experiment are to:

- Measure bycatch rates for widow and other rockfish associated with the midwater yellowtail fishery through an at-sea observer program, and
- Augment the National Marine Fisheries Service groundfish observer program.

With regard to the disposition of the species harvested under the EFP:

- Species caught within current trip limits may be retained by the vessel.
- Species caught in excess of current trip limits, but permitted within the EFP (i.e., yellowtail rockfish), will be retained by the vessel.
- Rockfish species caught in excess of current trip limits, but required to be retained under the EFP, will be forfeited to the state consistent with the current forfeiture of overages in the shoreside whiting fishery.

D. Valid justification explaining why issuance of an EFP is warranted:

Since 1998, the Pacific Council has initiated rebuilding plans for several species, including canary rockfish and widow rockfish. Critical to these rebuilding plans and to the overall improvement of groundfish management is the need for more and better scientific data. There are 82 species covered under the Pacific coast groundfish FMP, and at present, there is little or no data on a large number of these species. There is a need for comprehensive, timely and credible data for priority species to aid in the conservation and rebuilding efforts for these stocks.

Yellowtail rockfish are an extremely important species to Washington groundfish fisheries. The latest stock assessment indicates that the stock is healthy and, like arrowtooth flounder, a large component of the Washington trawl fleet is dependent upon a midwater trawl opportunity for yellowtail. However, because widow rockfish are overfished and commonly occur in the yellowtail midwater fishery, fishers are constrained by their limit of widow rockfish.

E. A statement of whether the proposed experimental fishing has broader significance than the applicant's individual goals.

The applicant of this EFP believes that the information collected during this experiment will have broader significance than the applicant's individual goals by:

- Producing data on the amount and location of widow rockfish bycatch in the midwater yellowtail rockfish fishery, and
- Providing a pilot program for the retention of rockfish overages.

These data could allow the Council to establish trip limits in the future that maximize fishing opportunities on healthy stocks while meeting conservation goals for depleted stocks.

F. Vessels covered under the EFP:

Fishers covered under the EFP will include those who have historically participated in the midwater yellowtail fishery off Washington. These fishers must have:

- Midwater landings of yellowtail and/or widow rockfish into Washington in two of the past three consecutive years (1999, 2000, and 2001) in non-whiting trips, and

- A valid Washington delivery permit

A list of the fishers (and their designated vessels) that meet these criteria are attached.

G. A description of the species (target and incidental) to be harvested under the EFP and the amount(s) of such harvest necessary to conduct the experiment:

- Yellowtail rockfish caught in non-whiting midwater tows would be subject to a monthly trip limit of _____ lbs (which exceeds the current monthly limit), and would be constrained by the measured bycatch of widow rockfish in the midwater fishery. Under the EFP, the bycatch allowance for widow rockfish would be

_____ lbs per month, and the bycatch allowance for canary rockfish would be _____lbs per month. Once the _____ lbs of widow rockfish and/or the _____ lbs of canary rockfish are caught in midwater tows, and if the vessel has already reached the current monthly trip limits for yellowtail rockfish published in the federal register, then the vessel cannot have any more midwater tows for the rest of the month and cannot sell any more yellowtail or widow (Note: These species would still be retained as part of the full-retention provision).

- Incidental catches of rockfish in excess of the trip limit must be retained.

H. For each vessel covered by the EFP, the approximate time(s) and place(s) fishing will take place, and the type, size, and amount of gear to be used:

The EFP will be valid in Pacific Ocean waters adjacent to Washington, outside three miles. Vessels must fish north of 46°40'00" north latitude for all of their midwater fishing trips conducted under the EFP.

Approximate time for the experimental fishery is June 1 - August 31, 2002.

Vessels covered by the EFP would be allowed to have more than one type of legal gear onboard (e.g., midwater and small footrope).
All vessels fishing under the authority of the EFP must:

- Carry a Washington Department of Fish and Wildlife-provided observer onboard all fishing trips under the EFP. (Note: The Department anticipates that there may be more vessels who want to participate in the EFP than available observers. In this case, the Department would randomly select vessels to carry observers for designated trips and the observers would rotate among selected vessels.)

- Employ legal trawl gear as defined in current federal regulations.

- Land all fish caught under the authority of the EFP into the State of Washington to a processor designated to participate in this program by the Washington Department of Fish and Wildlife. In order for a processor to be able to participate in this program, it must hold a contract with the Washington Department of Fish and Wildlife and abide by the conditions listed in the contract. Failure to abide by the conditions in the contract will result in revocation of the contract by the Director of the Washington Department of Fish and Wildlife.

- Hold a contract with the Washington Department of Fish and Wildlife and abide by the conditions listed in the contract. Failure to abide by the conditions in the contract and/or to follow the provisions in the EFP will result in revocation of the contract by the Director of the Department of Fish and Wildlife. The Director of the Department of Fish and Wildlife may modify the terms of the contract based on the status of the stocks which are caught incidentally in the experimental fishery.

I. The signature of the applicant:

_____

Washington Department of Fish and Wildlife

GROUNDFISH ADVISORY SUBPANEL STATEMENT ON EXEMPTED FISHING PERMITS

The Groundfish Advisory Subpanel (GAP) was provided data on the Washington Department of Fish and Wildlife exempted fishing permit fishery that occurred this year and the Oregon Department of Fish and Wildlife exempted fishing permit for the Pacific whiting fishery. Both permits will be submitted to the Council for continuation in 2002.

The GAP agreed that both permits have met their goals and have demonstrated ways in which a successful fishery can be prosecuted in a manner that provides economic benefits while promoting conservation. The GAP recommends the permits be continued in 2002 and other innovative permit requests be considered.

PFMC
10/31/01

EXEMPTED FISHING PERMITS

Situation: Three exempted fishing permits (EFPs) were approved at the June 2001 Council meeting and progress updates were provided at the September Council meeting. The goal of the first EFP, sponsored by Washington Department of Fish and Wildlife (WDFW), is to measure bycatch rates of canary and other rockfish associated with targeted arrowtooth flounder fishing through an at-sea observer program. Preliminary results from the first year of this EFP will be provided by Ms. Michele Robinson and Mr. Brian Culver of WDFW. The second EFP, sponsored by the California Department of Fish and Game (CDFG), seeks to test the ability of trawls to selectively harvest chillipepper rockfish while minimizing the incidental catch of bocaccio rockfish in California waters. The primary purpose of the third EFP, sponsored by CDFG, Pacific Marine Conservation Council, and Mr. Kenyon Hensel, is to quantify the capacity for vertical hook-and-line gear to selectively catch yellowtail rockfish while minimizing the incidental catch of canary rockfish. Sponsors of these approved EFPs reported delays in implementing their respective EFP fisheries, but were still hopeful of partial implementation this year. A progress update of these EFPs is expected from the sponsors.

The annual EFP application for the shoreside Pacific whiting fishery (Exhibit C.8, Supplemental Attachment 1) needs to be considered for Council approval. This EFP is required to authorize the full retention, on-board observer, and bycatch control elements inherent in the management of the shoreside Pacific whiting fishery.

Additional EFP applications may be considered at this time if any are submitted for Council consideration.

Council Task:

1. Consider recommendations on existing EFPs.
2. Consider recommendations for the EFP application for the 2002 shoreside Pacific whiting fishery.
2. Consider newly submitted EFP applications (if any).

Reference Materials:

1. Exempted Fishing Permit Application for the 2002 Shoreside Pacific Whiting Fishery (Exhibit C.8, Supplemental Attachment 1).

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP supports bycatch reduction efforts and development of selective fishing techniques. The three approved EFPs are designed to gather information on methods to selectively harvest abundant species and determine bycatch rates of canary rockfish, bocaccio rockfish, and other groundfish species of concern. Any additional EFP applications will need to be reviewed for consistency with overall GFSP objectives.

PFMC
10/11/01

National Marine Fisheries Service
Northwest Region
7600 Sand Point Way, N.E.
Seattle, Washington 98115

NMFS SUMMARY REPORT OF OCTOBER TRIP LIMIT CHANGES OFF WASHINGTON, OREGON, AND CALIFORNIA

Adjustments to trip limits for groundfish taken off Washington, Oregon, and California are announced by the National Marine Fisheries Service (NMFS). These changes were recommended by the Pacific Fishery Management Council (Council) and are **effective October 1, 2001**, unless otherwise specified. These changes are intended to allow fisheries access to groundfish allocations without exceeding the optimum yields for those species, and without negatively affecting overfished and depleted stocks. Trip limit changes are effective October 1, 2001, for the trawl "A" platoon and October 16, 2001, for the "B" platoon, unless otherwise specified.

CLOSURES:
Taking and retaining, possessing or landing is **prohibited** for all of the following:

- Limited entry trawl DTS complex (Dover sole, shortspine and longspine thornyhead, and sablefish) **coastwide,**
- Limited entry trawl and open access minor slope rockfish **north** of 40°10′ N. lat.,
- Limited entry trawl and fixed gear and open access Pacific ocean perch and canary rockfish **coastwide**,
- Limited entry trawl and fixed gear and open access bocaccio rockfish **south** of 40°10′ N. lat.,
- Limited entry fixed gear and open access shelf rockfish, including minor shelf rockfish, widow rockfish, and yellowtail rockfish, **coastwide**, and
- Limited entry fixed gear and open access chilipepper rockfish **south** of 40°10′ N. lat.

Closures in the open access fisheries apply to all open access gears, including exempted trawl gear fisheries.

TRIP LIMIT ADJUSTMENTS:

- For October, the limited entry small footrope trawl limit for flatfish other than Dover sole, rex sole, and arrowtooth flounder **coastwide** will remain 45,000 lb per month, of which no more than 15,000 lb may be petrale sole. The limited entry large footrope trawl limit for flatfish other than Dover sole, rex sole, and arrowtooth flounder **coastwide** will remain 1,000 lb per trip, of which no more than 100 lb per trip may be petrale sole.

- During the November and December period, the **coastwide** small footrope limit for flatfish other than Dover sole, rex sole, and arrowtooth flounder is 30,000 lb per month, the large footrope limit will remain at 1,000 lb per trip. The petrale sole limit for small and large footrope gear is 30,000 lb per month. No vessel may have more than one cumulative limit per period.

- The limited entry small and large footrope trawl limits for arrowtooth flounder **coastwide** is decreased to 5,000 lb per trip limit and 30,000 lb per month.

- The current limited entry mid-water trawl cumulative limits for yellowtail rockfish, **north** of 40°10′ N. lat., and widow rockfish are extended through the month of October. During the November and December period, the limited entry mid-water trawl limit for yellowtail rockfish **north** of 40°10′ N. lat. is 15,000 lb per two months and 25,000 lb per two months for widow rockfish.

- The current limited entry small footrope trawl limit for yellowtail rockfish taken as bycatch with flatfish **north** of 40°10′ N. lat., is equal to the sum of 33 percent (by weight) of all flatfish except arrowtooth flounder, plus 10 percent (by weight) of arrowtooth flounder, not to exceed 7,500 lb per trip and not to exceed 15,000 lb per two months, is extended through the November and December period.

- The limited entry small footrope trawl limit for chilipepper rockfish taken **south** of 40°10′ N. lat. is decreased to 5,000 lb per two months for the November and December period.

- The limited entry trawl trip limits for minor shelf rockfish will decrease **north** of 40°10′ N. lat. to 300 lb per month and **south** of 40°10′ N. lat. to 500 lb per month.

- The limited entry fixed gear and open access trip limits for minor nearshore rockfish taken **north** of 40°10′ N. lat. will decrease to 2,000 lb per month, no more than 800 lb of which may be species other than black or blue rockfish, and **south** of 40°10′ N. lat. will increase to 3,000 lb per two months.

- The limited entry trawl and fixed gear and open access trip limits for lingcod **coastwide** will increase to 500 lb per month during October. Lingcod retention is prohibited in **any** fishery in November and December.

An updated set of trip limit tables, effective October 1, 2001, are included in this notice.

For more information, contact: NMFS NW Region at 206-526-6140 (http://www.nwr.noaa.gov, click on "Pacific Coast Groundfish")or, NMFS SW Region at 562-980-4000; Washington Department of Fish and Wildlife at 360-249-4628; Oregon Department of Fish and Wildlife at 541-867-4741; or the California Department of Fish and Game at 415-688-6361.

# # #

Table 3. 2001 Trip Limits 1/ and Gear Requirements 2/ for Limited Entry Trawl Gear
Read Section IV.A. NMFS Actions before using this table.

line	Species/groups	JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
1	**Minor slope rockfish**						
2	North	1,500 lb/ 2 months			2,000 lb/ 2 months	Closed Starting October	
3	South	14,000 lb/ 2 months				25,000 lb/ 2 months	
4	**Splitnose - South**	8,500 lb/ 2 months		14,000 lb/ 2 months		25,000 lb/ 2 months	
5	**Pacific ocean perch**[6/]	1,500 lb/ month		2,500 lb/ month	3,500 lb/ month	Closed Starting October	
6	**DTS complex - North**						
7	Sablefish	5,000 lb/ 2 months		14,000 lb/ 2 months		Closed Starting October	
8	Longspine thornyhead	6,000 lb/ 2 months		6,000 lb/ 2 months			
9	Shortspine thornyhead	1,500 lb/ 2 months		1,500 lb/ 2 months			
10	Dover sole	65,000 lb/ 2 months		20,000 lb/ 2 months	15,000 lb/ 2 months / 7,500 lb/ mont		
11	**DTS complex - South**						
12	Sablefish	8,000 lb/ 2 months		11,000 lb/ 2 months		Closed Starting October	
13	Longspine thornyhead	6,000 lb/ 2 months		6,000 lb/ 2 months			
14	Shortspine thornyhead	1,500 lb/ 2 months		1,500 lb/ 2 months			
15	Dover sole	35,000 lb/ 2 months			30,000 lb/ 2 months / 5,000 lb/ mon		
16	**Flatfish - North**						
17	Arrowtooth flounder	20,000 lb/ trip		Small footrope: 50,000 lb/month, of which no more than 15,000 lb may be petrale sole and 10,000 lb may be arrowtooth; Large footrope: arrowtooth, 15,000 lb/trip for May and 5,000 lb/trip for June; petrale sole, prohibited; rex included in all other flatfish; all other flatfish, 1,000 lb/trip.	Small footrope: 45,000 lb/month, of which no more than 15,000 lb may be petrale sole; arrowtooth 7,500 lb/trip not to exceed 30,000 lb/month. Large footrope: arrowtooth, 5,000 lb/trip not to exceed 30,000 lb/month; petrale sole 100 lb/trip; rex included in all other flatfish; all other flatfish, 1,000 lb/trip.	Small and large footrope: 5,000 lb/ trip, not to excede 30,000 lb/ month	
18	Rex Sole	No Limit				No Limit	
19	Petrale Sole	No Restriction				Small footrope: 45,000 lb/month, of which no more than 15,000 lb may be petrale sole Large footrope: all other flatfish 1,000 lb/trip, of which no more than 100 lb/trip may be petrale sole	small and large footrope: 30,000 lb/ month
20	All other flatfish [3/]	Small footrope, no limit; large footrope, 1,000 lb/ trip					small footrope: 30,000 lb/ month; large footrope: 1,000 lb / trip
21	**Flatfish - South**						
22	Arrowtooth flounder	20,000 lb/ trip		small footrope, no limit; large footrope, 5,000 lb/ trip		Small and large footrope: 5,000 lb/trip, not to excede 30,000 lb/ month	
23	Rex Sole	No Limit					
24	Petrale Sole	No Restriction		small footrope, no limit: large footrope, included in "all other flatfish"		Small footrope: 45,000 lb/month, of which no more than 15,000 lb may be petrale sole Large footrope: all other flatfish 1,000 lb/trip, of which no more than 100 lb/trip may be petrale sole	small and large footrope: 30,000 lb/ month
25	All other flatfish [3/]	small footrope, no limit; large footrope, 1,000 lb/ trip					small footrope: 30,000 lb/ month; large footrope: 1,000 lb / trip
26	**Whiting shoreside** [4/]	20,000 lb/ trip		Primary Season			20,000 lb/ trip
27	**Use of small footrope bottom trawl**[5/] **or midwater trawl required for landing all of the following species:**						
28	**Minor shelf rockfish**						
29	North	300 lb/ month		1,000 lb/ month		300 lb/ month	
30	South	500 lb/ month		1,000 lb/ month		500 lb/ month	
31	**Canary rockfish**	100 lb/ month		300 lb/ month		Closed Starting October	
32	**Widow rockfish**						
33	mid-water trawl	20,000 lb/ 2 months		10,000 lb/ 2 months	July thru October, In trips where 10,000 lb or more of whiting are landed, 2,000 lb/ month, with a combined widow/yellowtail limit of 500 lb per trip, otherwise 1,000 lb/month.		25,000 lb/ 2 months
34	small footrope trawl	1,000 lb/ month					
35	**Yellowtail - North**[6/]						
36	mid-water trawl	30,000 lb/ 2 months		15,000 lb/ 2 months	July thru October, In trips where 10,000 lb or more of whiting are landed, 3,000 lb/ month with a combined widow/yellowtail limit of 500 lb/trip, otherwise 1,500 lb/month.		15,000 lb/ 2 months
37	small footrope trawl	Without flatfish, 1,500 lb/ month. As flatfish bycatch, per trip limit is the sum of 33% (by weight) of all flatfish except arrowtooth flounder, plus 10% (by weight) of arrowtooth flounder, not to exceed 2,500 lb/ trip and 30,000 lb/ 2 months.		Without flatfish, 1,500 lb/ month. As flatfish bycatch, per trip limit is the sum of 33% (by weight) of all flatfish except arrowtooth flounder, plus 10% (by weight) of arrowtooth flounder, not to exceed 7,500 lb/ trip and not to exceed 15,000 lb/ 2 months.			
38	**Bocaccio - South**[6/]	300 lb/ month		500 lb/ month		Closed Starting October	
39	**Chilipepper - South**[6/]						
40	mid-water trawl	25,000 lb/ 2 months					
41	small footrope trawl	7,500 lb/ 2 months					5,000 lb/ 2 months
42	**Cowcod**	**Retention is Prohibited**					
43	**Minor nearshore rockfish**						
44	North	200 lb/ month					
45	South	200 lb/ month					
46	**Lingcod**[7/]	No retention		400 lb/ month		500 lb/ month	Closed Starting November

1/ Trip limits apply coastwide unless otherwise specified. "North" means 40°10' N. lat. to the U.S.-Canada border. "South" means 40°10' N. lat. To the U.S.-Mexico border. 40°10' N. lat is about 20 nm south of Cape Mendocino, CA.

2/ Gear requirements and prohibitions are explained at paragraph IV.A.(14)

3/ "Other" flatfish means all flatfish at 50 CFR 660.302 except those in this Table 3 with a trip limit.

4/ The whiting "per trip" limit in the Eureka area inside 100 fm is 10,000 lb/ trip throughout the year. See IV.B.(3)(c). The 20,000 lb/ trip limit applies before and after the primary season.

5/ Small footrope trawl means a bottom trawl net with a footrope no larger than 8 inches (20 cm) in diameter. Midwater gear also may be used; the footrope must be bare. See paragraph IV.A. (14).

6/ Yellowtail rockfish and POP in the south, and bocaccio, and chilipepper rockfishes in the north are included in the trip limits for minor shelf rockfish in the appropriate area (Table 2).

7/ The size limit for lingcod is 24 inches (61 cm) total length.

To convert pounds to kilograms, divide by 2.20462, the number of pounds in one kilogram.

Table 4. 2001 Trip Limits[1/] for Limited Entry Fixed Gear
Read Section IV.A. NMFS Actions before using this table.

line	Species/groups	JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
1	**Minor slope rockfish**						
2	North	1,500 lb/ 2 months			2,000 lb/ 2 months		
3	South	14,000 lb/ 2 months			25,000 lb/ 2 months		
4	**Splitnose - South**	8,500 lb/ 2months		14,000 lb/ 2 months	25,000 lb/ 2 months		
5	**Pacific ocean perch 5/**	1,500 lb/ month		2,500 lb/ month	3,500 lb/ month	Closed Starting October	
6	**Sablefish**						
7	North of 36° N. lat.	300 lb/ day, 2,700 lb/ 2 months			300 lb/ day or 1 landing per week up to 900 lb, not to exceed 3,600 lb/ 2 months	300 lb/ day or 1 landing per week up to 900 lb, not to exceed 1,800 lb / month	
8	South of 36° N. lat.	350 lb/ day, or 1 landing per week of up to 1,050 lb					
9	**Longspine thornyhead**	6,000 lb/ 2 months		6,000 lb/ 2 months			6,000 lb/ 2 months
10	**Shortspine thornyhead**	1,500 lb/ 2 months		1,500 lb/ 2 months			1,500 lb/ 2 months
11	**Dover sole**						
12	North	65,000 lb/ 2 months		20,000 lb/ 2 months	15,000 lb/2 months	7,500 lb/ month	
13	South	35,000 lb/ 2 months		35,000 lb/ 2 months	30,000 lb/2 months	15,000 lb/ month	
14	**Flatfish - North**						
15	Arrowtooth flounder	20,000 lb/ trip		30,000 lb/ month for all flatfish except Dover sole	45,000 lb/month, of which no more than 15,000 lb may be petrale sole; arrowtooth no more than 7,500 lb/trip, not to exceed 30,000 lb/month.		20,000 lb/ trip
16	Petrale sole	No restriction					No restriction
17	Rex sole	No limit					No limit
18	All other flatfish 2/	No limit					No limit
19	**Flatfish - South**						
20	Arrowtooth flounder	20,000 lb/ trip		No limit			20,000 lb/ trip
21	Petrale sole	No limit					
22	Rex sole	No limit					
23	All other flatfish 2/	No limit					
24	**Whiting 3/**	20,000 lb/ trip		Primary Season			20,000 lb/ trip
25	**Minor shelf rockfish**						
26	North	300 lb/ month		1,000 lb/ month		Closed Starting October	
27	South						
28	40o10' - 34o27' N. lat.	500 lb/ month	CLOSED 4/		1,000 lb/ month	Closed Starting October	
29	South of 34o27' N. lat.	CLOSED 4/	500 lb/ month				
30	**Canary rockfish**						
31	North	100 lb/ month		300 lb/ month		Closed Starting October	
32	South						
33	40°10' - 34°27' N. lat.	100 lb/ month	CLOSED 4/		300 lb/ month	Closed Starting October	
34	South of 34°27' N. lat.	CLOSED 4/	100 lb/ month				
35	**Widow rockfish**						
36	North	3,000 lb/ month				Closed Starting October	
37	South						
38	40°10' - 34°27' N. lat.	3,000 lb/ month	CLOSED 4/		3,000 lb/ month	Closed Starting October	
39	South of 34°27' N. lat.	CLOSED 4/	3,000 lb/ month				
40	**Yellowtail - North 5/**	1,500 lb/ month				Closed Starting October	
41	**Bocaccio - South 5/**						
42	40°10' - 34°27' N. lat.	300 lb/ month	CLOSED 4/		500 lb/ month	Closed Starting October	
43	South of 34°27' N. lat.	CLOSED 4/	300 lb/ month				
44	**Chilipepper - South 5/**						
45	40°10' - 34°27' N. lat.	2,500 lb/ month	CLOSED 4/		2,500 lb/ month	Closed Starting October	
46	South of 34°27' N. lat.	CLOSED 4/	2,500 lb/ month				
47	**Cowcod**	**CLOSED 4/ -- All Retention is Prohibited**					
48	**Minor nearshore rockfish**						
49	North	10,000 lb/ 2 months, no more than 4,000 lb of which may be species other than black or blue rockfish 6/		7,000 lb/ 2 months, no more than 4,000 lb of which may be species other than black or blue rockfish 6/		2,000 lb/ month, no more than 800 lb of which may be species other than black or blue rockfish	
50	South						
51	40°10' - 34°27' N. lat.	2,000 lb/ 2 months	CLOSED 4/	Shoreward of 20 ftm depth: 2,000 lb/ 2	2,000 lb/ 2 months	3,000 lb/ 2 months	
52	South of 34°27' N. lat.	Shoreward of 20 ftm depth: 2,000 lb/ 2 months, otherwise CLOSED 4/	2,000 lb/ 2 months				
53	**Lingcod 7/**						
54	North	CLOSED 4/		400 lb/ month		500 lb/ month	CLOSED 4/
55	South						
56	40°10' - 34°27' N. lat.	CLOSED 4/			400 lb/ month	500 lb/ month	CLOSED 4/
57	South of 34°27' N. lat.	CLOSED 4/		400 lb/ month		500 lb/ month	CLOSED 4/

1/ Trip limits apply coastwide unless otherwise specified. "North" means 40°10' N. lat. to the U.S.-Canada border.
"South" means 40°10' N. lat. To the U.S.-Mexico border. 40°10' N. lat is about 20 nm south of Cape Mendocino, CA.

2/ "Other flatfish" means all flatfish at 50 CFR 660.302 except those in this Table 4 with a trip limit.

3/ The whiting "per trip" limit in the Eureka area inside 100 fm is 10,000 lb/ trip throughout the year. See IV.B.(3)(c).

4/ Closed means that it is prohibited to take and retain, possess, or land the designated species in the time or area indicated. See IV.A.(7).
in the time or area indicated. See IV.A.(7).

5/ Yellowtail rockfish and POP in the south, and bocaccio, and chilipepper rockfishes in the north are
included in the trip limits for minor shelf rockfish in the appropriate area (Table 2).

6/ The "per trip" limit for black rockfish off Washington also applies. See paragraph IV.B.(4).

7/ The size limit for lingcod is 24 inches (61 cm) in the north, and 26 inches (66 cm) in the south, total length.

To convert pounds to kilograms, divide by 2.20462, the number of pounds in one kilogram.

Table 5. 2001 Trip Limits[1/] for Open Access Gears

Read Section IV.A. NMFS Actions before using this table. (Exceptions for exempted gears at Section IV.C.)

line	Species/groups	JAN-FEB	MAR-APR	MAY-JUN	JUL-AUG	SEP-OCT	NOV-DEC
1	**Minor slope rockfish**						
2	North	500 lb/ 2 months					Closed Starting in October
3	South	5,000 lb/ 2 months					
4	**Splitnose - South**	200 lb/ month					
5	**Pacific ocean perch 4/**	100 lb/ month					Closed Starting in October
6	**Sablefish**						
7	North of 36° N. lat.	300 lb/ day, 2,700 lb/ 2 months			300 lb/ day or 1 landing per week up to 800 lb, not to exceed 4,800 lb/ 2 months	300 lb/ day or 1 landing per week up to 800 lb, not to exceed 2,400 lb/ month	
8	South of 36° N. lat.	350 lb/ day					
9	**Thornyheads (longspine and shortspine combined)**						
10	North of 34°27' N. lat.	CLOSED 3/ -- No Retention					
11	South of 34°27' N. lat.	50 lb/ day, no more than 2,000 lb/ 2 months					
12	**Arrowtooth**	200 lb/ month					
13	**Dover sole**	(included in "other" flatfish limit)					
14	**Petrale sole**	(included in "other" flatfish limit)					
15	**Nearshore flatfish**	(included in "other" flatfish limit)					
16	**"Other" flatfish 2/**	300 lb/ month					
17	**Whiting**	300 lb/ month					
18	**Minor shelf rockfish**						
19	North	100 lb/ month					Closed Starting October
20	South						
21	40°10' - 34°27' N. lat.	200 lb/ month	CLOSED 3/		200 lb/ month		Closed Starting October
22	South of 34°27' N. lat.	CLOSED 3/	200 lb/ month				
23	**Canary rockfish**						
24	North	50 lb/ month					Closed Starting October
25	South						
26	40°10' - 34°27' N. lat.	50 lb/ month	CLOSED 3/		50 lb/ month		Closed Starting October
27	South of 34°27' N. lat.	CLOSED 3/	50 lb/ month				
28	**Widow rockfish**						
29	North	3,000 lb/ month					Closed Starting October
30	South						
31	40°10' - 34°27' N. lat.	3,000 lb/ month	CLOSED 3/		3,000 lb/month		Closed Starting October
32	South of 34°27' N. lat.	CLOSED 3/	3,000 lb/ month				
33	**Yellowtail - North 4/ 8/**	100 lb/ month					Closed Starting October
34	**Bocaccio - South 4/**						
35	40°10' - 34°27' N. lat.	200 lb/ month	CLOSED 3/		200 lb/ month		Closed Starting October
36	South of 34°27' N. lat.	CLOSED 3/	200 lb/ month				
37	**Chilipepper - South 4/**						
38	40°10' - 34°27' N. lat.	2,500 lb/ month	CLOSED 3/		2,500 lb/ month		Closed Starting October
39	South of 34°27' N. lat.	CLOSED 3/	2,500 lb/ month				
40	**Cowcod**	**Closed 3/ -- No Retention**					
41	**Minor nearshore rockfish**						
42	North 6/	3,000 lb/ 2 months, no more than 900 lb of which may be species other than black or blue rockfish 5/		7,000 lb/ 2 months, no more than 900 lb of which may be species other than black or blue rockfish 5/			2,000 lb/ month, no more than 800 lb of which may be species other than black or blue rockfish 5/
43	South						
44	40°10' - 34°27' N. lat.	1,800 lb/ 2 months	CLOSED 3/	Shoreward of 20 ftm depth: 1,200 lb/ 2 months, otherwise CLOSED 3/	1,200 lb/2 months		3,000 lb/ 2 months
45	South of 34°27' N. lat.	Shoreward of 20 ftm depth: 1,800 lb/ 2 months, otherwise CLOSED 3/	1,800 lb/ 2 months	1,200 lb/ 2 months			
46	**Lingcod 7/**						
47	North	CLOSED 3/		400 lb/ month		500 lb / month	Closed Starting November
48	South						
49	40°10' - 34°27' N. lat.	CLOSED 3/			400 lb/ month	500 lb/ month	Closed Starting November
50	South of 34°27' N. lat.	CLOSED 3/		400 lb/ month			Closed Starting November

1/ Trip limits apply coastwide unless otherwise specified. "North" means 40°10' N lat to the U.S. - Canada border "South" means 40°10' N lat to the U.S.-Mexico border. 40°10' N lat is about 20 nm south of Cape Mendocino, CA.

2/ "Other flatfish" means all flatfish at 50 CFR 660.302 except those in this Table 4 with a trip limit.

3/ Closed means that it is prohibited to take, retain, possess, or land the designated species in the time or area indicated. (See IV.A. (7).)

4/ Yellowtail rockfish and POP in the south, and bocaccio, and chilipepper rockfishes in the north are included in the trip limits for minor shelf rockfish in the appropriate area (Table 2).

5/ The "per trip" limit for black rockfish off Washington also applies. See paragraph IV.B.(4).

6/ See IV.C.(4) for limits specific to Pacific City, Oregon.

7/ The size limit for lingcod is 24 inches (61 cm) in the north, and 26 inches (66 cm) in the south, total length.

8/ See IV.C.(5) for limits specific to the salmon troll fishery.

To convert pounds to kilograms, divide by 2.20462, the number of pounds in one kilogram.

STATUS OF FISHERIES AND INSEASON ADJUSTMENTS

Situation: In the current groundfish management program, the Council sets annual harvest targets (optimum yield [OY] levels) and individual vessel landing limits for specified periods, with the understanding these vessel landing limits will likely need to be adjusted periodically through the year in order to attain, but not exceed, the OYs. The initial vessel landing limits are based on predicted participation rates, estimates of how successful participants will be at attaining their limits for each period, and comparisons with previous years. The Groundfish Management Team (GMT) tracks landings data throughout the year and periodically makes projections based on all the information available. The GMT presents these landings data and projections to the Groundfish Advisory Subpanel (GAP), and they discuss adjustments that may be necessary and beneficial.

The Council considers GMT and GAP recommendations, along with public testimony, before making recommendations to the National Marine Fisheries Service (NMFS) for inseason adjustments. At the September 2001 meeting, several adjustments were recommended, and NMFS implemented the changes effective October 1 (Exhibit C.9, Attachment 1). Given that significant fisheries such as the Dover/thornyhead/sablefish trawl fishery were closed for the year starting October 1 and non-retention regulations were imposed for most of the stocks of concern at the same time, it is unlikely further inseason adjustments will be needed.

Council Action:

1. Adopt inseason adjustments as necessary.

Reference Materials:

1. NMFS Summary Report of October Trip Limit Changes off Washington, Oregon, and California (Exhibit C.9, Attachment 1).

Groundfish Fishery Strategic Plan (GFSP) Consistency Analysis

The GFSP supports establishing an allowable level of catch that prevents overfishing while achieving optimum yield based on best available science (Sec. II.A.2). The GFSP also supports establishing and maintaining a management process that is transparent, participatory, understandable, accessible, consistent, effective, and adaptable (Sec. II.C). The Council process of adopting inseason adjustments to landing limits is consistent with these GFSP principles.

PFMC
10/16/01