Draft Outline

ALTERNATIVES ANALYSIS
MANAGEMENT OF KRILL FISHING OFF THE U.S. WEST COAST
Prospective Date: June 2005

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COASTAL PELAGIC SPECIES ADVISORY SUBPANEL REPORT ON NATIONAL MARINE FISHERIES SERVICE REPORT

The Coastal Pelagic Species Advisory Subpanel (CPSAS) initially heard a summary of the options for controlling krill fishing by Mr. Svein Fougner, NMFS, in late 2004. Yesterday the CPSAS heard a brief update from Mr. Mark Helvey, NMFS, regarding this issue. The CPSAS chose to reiterate their thoughts regarding krill presented to the Council in late 2004:

The CPSAS agrees that krill is critically important to the ecosystem as forage fish for many species. In order to protect krill from the possibility of overharvest, the CPSAS agrees that the Council should explore management measures for regulating development of krill fisheries within the West Coast Exclusive Economic Zone.

However, a complete ban on krill fishing may not be appropriate; more information is needed to assess the possibility of fisheries being allowed.

The CPSAS believes there could be some benefit to including krill within the coastal pelagic species fishery management plan (FMP), especially with regard to research opportunities on the complex of species including sardine. However, the CPSAS would recommend that krill be managed under a third category of management rather then as an “active” or “monitored” species. This third category would need to be created.

The CPSAS does not support any delay in the process of the current FMP amendment dealing with sardine allocation.

PFMC
04/06/05

ALLOCATION OF THE PACIFIC SARDINE HARVEST GUIDELINE

AMENDMENT 11 TO THE COASTAL PELAGIC SPECIES FISHERY MANAGEMENT PLAN

PRELIMINARY ALTERNATIVES ANALYSIS

APRIL 2005 Briefing Book Version ERRATA SHEET

- The date on the cover of the document should be April *2005*, not April 2004.

- In Chapter 2, on page 13, the description of Alternative 7 should include:

  Second reallocation: On November 1 the remaining unharvested portion of the harvest guideline is reallocated coastwide.

  This omission was limited to the description of Alternative 7 and did not affect the analysis of the alternative.

- The attached pages replace tables and figures on pages 26-63, with the following notes:

  - The value of PS_{PNW} should be changed from $434/mt to $284/mt.

  - This change is due to a failure to account for the cost of raw sardines in the original calculation of PS_{PNW}.

  - This change scales down all values of PS for the Pacific Northwest fishery sector in the original analysis. It does not affect the values of PS for the southern California and northern California fishery sectors, nor does it affect landings projections, shortfalls, and number of months without an initial allocation for any of the fishery sectors.

  - The only changes from the earlier analysis are lower values in Tables 1-4 and Figures 1-9 for PS in the PNW fishery sector.

Table 4-1. Summary of actual landings projections and cost-benefit analysis results for status quo allocation option, 2005-2009.

Base Case: HG=136,000mt

Area	Projected Landings (MT)	Shortfall in Landings (MT)	Number of Months with Landings Shortfalls	Number of months with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	223,563	0	0	0	$64,217,890	2005	136,000	32,227
Northern CA	108,759	0	0	0	$18,872,232	2006	136,000	24,185
OR/WA	266,299	-34,923	12	6	$67,022,434	2007	136,000	15,724
Southern SA	332,322	0	0	0	$83,090,122	2008	136,000	7,855
Northern SA	266,299	-34,923	12	6	$67,022,434	2009	136,000	1,387
Total	598,621	-34,923	12	6	$150,112,556			81,379

Low HG Case: HG=72,000m t

Area	Projected Landings (MT)	Shortfall in Landings (MT)	Number of Months with Landings Shortfalls	Number of months with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	173,047	-50,516	14	10	$49,904,990	2005	72,000	0
Northern CA	56,030	-52,730	14	10	$9,858,709	2006	72,000	0
OR/WA	130,923	-170,299	25	15	$33,097,086	2007	72,000	0
Southern SA	229,077	-103,245	14	10	$59,763,699	2008	72,000	0
Northern SA	130,923	-170,299	25	15	$33,097,086	2009	72,000	0
Total	360,000	-273,544	39	25	$92,860,785			0

High HG Case: HG=200,000mt

Area	Projected Landings (MT)	Shortfall in Landings (MT)	Number of Months with Landings Shortfalls	Number of months with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	223,563	0	0	0	$64,217,890	2005	200,000	96,227
Northern CA	108,759	0	0	0	$18,872,232	2006	200,000	85,850
OR/WA	301,222	0	0	0	$75,405,891	2007	200,000	74,435
Southern SA	332,322	0	0	0	$83,090,122	2008	200,000	61,878
Northern SA	301,222	0	0	0	$75,405,891	2009	200,000	48,066
Total	633,544	0	0	0	$158,496,013			366,456

Table 4-2. Summary of actual projected landings and cost-benefit analysis results for long-term sardine harvest guidline allocation options, 2005-2009.

Base Case (HG = 136,000 mt)

Status Quo Summary, 2005-2009

Area	Status Quo Projected Landings (MT) 2005-2009	Status Quo Shortfall in Landings (MT) 2005-2009	Status Quo Mo/Yr of Shortfalls	Status Quo Mo/Yr with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	223,563	0			$64,217,890	2005	136,000	32,227
Northern CA	108,759	0			$18,872,232	2006	136,000	24,185
OR/WA	266,299	-34,923	10-11/06;10-11/07;8-11/08;8-11/09	11/06;11/07;10-11/08;10-11/09	$67,022,434	2007	136,000	15,724
Southern SA	332,322	0			$83,090,122	2008	136,000	7,855
Northern SA	266,299	-34,923	10-11/06;10-11/07;8-11/08;8-11/09	11/06;11/07;10-11/08;10-11/09	$67,022,434	2009	136,000	1,387
Total	598,621	-34,923			$150,112,556			81,379

No Action alternative (66% south, 33% north, 1/1; line at Pt. Piedras Blancas; Reallocate 50% south, 50% north 10/1), 2005-2009.

Area	No Action Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	No Action Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	No Action Mo/Yr of Shortfalls	No Action Mo/Yr with No Allocation	No Action NPV Producer Surplus
Southern CA	223,563	0	0	0			$64,217,890
Northern CA	100,162	-8,598	-8,598	8,598	8/05;8-9/06;8-9/07;8-9/08;8-9/09	9/06;9/07;9/08;9/09	$17,419,282
OR/WA	228,426	-43,459	-78,381	43,459	8/05;8-9/06;8-9/07;8-9/08;8-9/09	9/06;9/07;9/08;9/09	$56,163,555
Southern SA[1]	223,563	0	0	0			$64,217,890
Northern SA[2]	328,588	-52,057	-86,979	52,057	8/05;8-9/06;8-9/07;8-9/08;8-9/09	9/06;9/07;9/08;9/09	$73,582,837
Total	552,150	-52,057	-86,979	52,057			$137,800,727

No Action alternative, continued

Area	Change in NPV of PS from SQ	Year	No Action HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$0	2005	136,000	38,268	6,041
Northern CA	-$1,452,950	2006	136,000	33,028	8,843
OR/WA	-$10,858,880	2007	136,000	27,264	11,541
Southern SA[1]	$0	2008	136,000	20,924	13,069
Northern SA[2]	-$12,311,830	2009	136,000	13,950	12,563
Total	-$12,311,830			133,435	52,057

[1]Under the no action alternative the Southern Subarea consists of Southern California.

[2]Under the no action alternative the Northern Subarea consists of Northern California, Oregon and Washington.

Alternative 1 (50% Coastwide 1/1; 50% + Rollover 7/1), 2005-2009.

Area	Alternative 1 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 1 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 1 Mo/Yr of Shortfalls	Alternative 1 Mo/Yr with No Allocation	Alternative 1 NPV Producer Surplus
Southern CA	215,195	-8,367	-8,367	8,367	12/08;11/09;12/09	12/09	$61,970,183
Northern CA	100,696	-8,064	-8,064	8,064	12/08;11/09;12/09	12/09	$17,569,886
OR/WA	299,597	33,298	-1,625	-33,298	12/08;11/09;12/09	12/09	$75,027,235
Southern SA	315,891	-16,431	-16,431	16,431	12/08;11/09;12/09	12/09	$79,540,069
Northern SA	299,597	33,298	-1,625	-33,298	12/08;11/09;12/09	12/09	$75,027,235
Total	615,488	16,867	-18,056	-16,867			$154,567,304

Alternative 1, continued

Area	Change in NPV of PS from SQ	Year	Alternative 1 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$2,247,707	2005	136,000	32,227	0
Northern CA	-$1,302,346	2006	136,000	21,850	-2,335
OR/WA	$8,004,800	2007	136,000	10,435	-5,289
Southern SA	-$3,550,053	2008	136,000	0	-7,855
Northern SA	$8,004,800	2009	136,000	0	-1,387
Total	$4,454,747			64,512	-16,867

Alternative 2 (Season 6/1- 5/31 Coastwide HG), 2005-2009.

Area	Alternative 2 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 2 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 2 Mo/Yr of Shortfalls	Alternative 2 Mo/Yr with No Allocation	Alternative 2 NPV Producer Surplus
Southern CA	206,017	-17,546	-17,546	17,546	4-5/08;1-5/09	5/08;2-5/09	$59,515,724
Northern CA	108,250	-510	-510	510	4-5/08;1-5/09	5/08;2-5/09	$18,790,123
OR/WA	301,222	34,923	0	-34,923		5/08;2-5/09	$75,405,891
Southern SA	314,266	-18,056	-18,056	18,056	4-5/08;1-5/09	5/08;2-5/09	$78,305,847
Northern SA	301,222	34,923	0	-34,923		5/08;2-5/09	$75,405,891
Total	615,488	16,867	-18,056	-16,867			$153,711,738

Alternative 2, continued

Area	Change in NPV of PS from SQ	Year	Alternative 2 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$4,702,166	2005	136,000	32,227	0
Northern CA	-$82,109	2006	136,000	21,850	-2,335
OR/WA	$8,383,457	2007	136,000	10,435	-5,289
Southern SA	-$4,784,275	2008	136,000	0	-7,855
Northern SA	$8,383,457	2009	136,000	0	-1,387
Total	$3,599,182			64,512	-16,867

Alternative 3 (40% Coastwide 1/1; 40% + Rollover 7/1; 20% + Rollover 10/1), 2005-2009.

Area	Alternative 3 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 3 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 3 Mo/Yr of Shortfalls	Alternative 3 Mo/Yr with No Allocation	Alternative 3 NPV Producer Surplus
Southern CA	215,082	-8,481	-8,481	8,481	12/08;9/09;11-12/09	12/09	$61,939,909
Northern CA	104,931	-3,828	-3,828	3,828	12/08;9/09;11-12/09	12/09	$18,252,201
OR/WA	295,475	29,176	-5,747	-29,176	12/08;9/09;11-12/09	12/09	$74,069,276
Southern SA	320,013	-12,309	-12,309	12,309	12/08;9/09;11-12/09	12/09	$80,192,110
Northern SA	295,475	29,176	-5,747	-29,176	12/08;9/09;11-12/09	12/09	$74,069,276
Total	615,488	16,867	-18,056	-16,867			$154,261,386

Alternative 3, continued

Area	Change in NPV of PS from SQ	Year	Alternative 3 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$2,277,981	2005	136,000	32,227	0
Northern CA	-$620,031	2006	136,000	21,850	-2,335
OR/WA	$7,046,843	2007	136,000	10,435	-5,289
Southern SA	-$2,898,012	2008	136,000	0	-7,855
Northern SA	$7,046,843	2009	136,000	0	-1,387
Total	$4,148,831			64,512	-16,867

Alternative 4.a (HG > 100,000 mt; 40% North, 60% South 1/1; Coastwide Rollover 9/1), 2005-2009.

Area	Alternative 4.a Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 4.a Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 4.a Mo/Yr of Shortfalls	Alternative 4.a Mo/Yr with No Allocation	Alternative 4.a NPV Producer Surplus
Southern CA	215,195	-8,367	-8,367	8,367	12/08;11-12/09	12	$61,970,183
Northern CA	100,696	-8,064	-8,064	8,064	12/08;11-12/10	12	$17,569,886
OR/WA	299,597	33,298	-1,625	-33,298	12/08;11-12/11	12	$75,027,235
Southern SA	315,891	-16,431	-16,431	16,431	12/08;11-12/12	12	$79,540,069
Northern SA	299,597	33,298	-1,625	-33,298	12/08;11-12/13	12	$75,027,235
Total	615,488	16,867	-18,056	-16,867			$154,567,304

Alternative 4.a, continued

Area	Change in NPV of PS from SQ	Year	Alternative 4.a HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$2,247,707	2005	136,000	32,227	0
Northern CA	-$1,302,346	2006	136,000	21,850	-2,335
OR/WA	$8,004,800	2007	136,000	10,435	-5,289
Southern SA	-$3,550,053	2008	136,000	0	-7,855
Northern SA	$8,004,800	2009	136,000	0	-1,387
Total	$4,454,747			64,512	-16,867

Alternative 5 (20% Set Aside 1/1; 40% North, 60% South of Remaining 1/1, Coastwide Rollover 10/1), 2005-2009.

Area	Alternative 5 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 5 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 5 Mo/Yr of Shortfalls	Alternative 5 Mo/Yr with No Allocation	Alternative 5 NPV Producer Surplus
Southern CA	223,563	0	0	0			$64,217,890
Northern CA	108,759	0	0	0			$18,872,232
OR/WA	255,929	-11,420	-46,343	11,420	9/05;9/06;9/07;8-9/08;8-9/09		$64,155,083
Southern SA	332,322	0	0	0			$83,090,122
Northern SA	255,929	-11,420	-46,343	11,420	9/05;9/06;9/07;8-9/08;8-9/09		$64,155,083
Total	588,251	-11,420	-46,343	11,420			$147,245,205

Alternative 5, continued.

Area	Change in NPV of PS from SQ	Year	Alternative 5 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$0	2005	136,000	33,277	1,050
Northern CA	$0	2006	136,000	27,357	3,171
OR/WA	-$2,867,352	2007	136,000	18,124	2,401
Southern SA	$0	2008	136,000	10,961	3,105
Northern SA	-$2,867,352	2009	136,000	3,081	1,693
Total	-$2,867,352			92,799	11,420

Alternative 6 (50% North, 50% South 1/1; Coastwide Rollover 9/1; Variable N/S Allocation Based on Prior Year's Use), 2005-2009.

Area	Alternative 6 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 6 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 6 Mo/Yr of Shortfalls	Alternative 6 Mo/Yr with No Allocation	Alternative 6 NPV Producer Surplus
Southern CA	215,195	-8,367	-8,367	8,367	12/08;11-12/09	12/09	$61,970,183
Northern CA	100,696	-8,064	-8,064	8,064	12/08;11-12/09	12/09	$17,569,886
OR/WA	299,597	33,298	-1,625	-33,298	12/08;11-12/09	12/09	$75,027,235
Southern SA	315,891	-16,431	-16,431	16,431	12/08;11-12/09	12/09	$79,540,069
Northern SA	299,597	33,298	-1,625	-33,298	12/08;11-12/09	12/09	$75,027,235
Total	615,488	16,867	-18,056	-16,867			$154,567,304

Alternative 6, continued.

Area	**Change in NPV of PS from SQ**	**Year**	**Alternative 6 HG**	**Surplus HG**	**Change in Surplus HG from SQ**
Southern CA	-$2,247,707	2005	136,000	32,227	0
Northern CA	-$1,302,346	2006	136,000	21,850	-2,335
OR/WA	$8,004,800	2007	136,000	10,435	-5,289
Southern SA	-$3,550,053	2008	136,000	0	-7,855
Northern SA	$8,004,800	2009	136,000	0	-1,387
Total	$4,454,747			64,512	-16,867

Alternative 7 (33% North, 66% South 1/1; 50% North, 50% South of Remaining 9/1, Coastwide Rollover 11/1), 2005-2009.

Area	Alternative 7 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 7 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 7 Mo/Yr of Shortfalls	Alternative 7 Mo/Yr with No Allocation	Alternative 7 NPV Producer Surplus
Southern CA	218,490	-5,073	-5,073	5,073	11-12/09	12/09	$62,865,198
Northern CA	105,540	-3,219	-3,219	3,219	11-12/09	12/09	$18,353,673
OR/WA	291,327	25,028	-9,895	-25,028	8/08;8/09;11-12/09	12/09	$73,084,917
Southern SA	324,030	-8,292	-8,292	8,292	11-12/09	12/09	$81,218,871
Northern SA	291,327	25,028	-9,895	-25,028	8/08;8/09;11-12/09	12/09	$73,084,917
Total	615,358	16,736	-18,186	-16,736			$154,303,788

Alternative 7, continued.

Area	Change in NPV of PS from SQ	Year	Alternative 7 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$1,352,691	2005	136,000	32,227	0
Northern CA	-$518,559	2006	136,000	21,850	-2,335
OR/WA	$6,062,482	2007	136,000	10,435	-5,289
Southern SA	-$1,871,250	2008	136,000	131	-7,725
Northern SA	$6,062,482	2009	136,000	0	-1,387
Total	$4,191,232			64,642	-16,736

Table 4-3. Summary of actual landings projections and cost-benefit analysis results for long-term sardine harvest guidline allocation options, 2005-2009

High Harvest Guideline Case, HG = 200,000 mt

Status Quo Summary, 2005-2009

Area	Status Quo Projected Landings 2005-2009	Status Quo Shortfall in Landings 2005-2009	Status Quo Mo/Yr of Shortfalls	Status Quo Mo/Yr with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	223,563	0			$64,217,890	2005	200,000	96,227
Northern CA	108,759	0			$18,872,232	2006	200,000	85,850
OR/WA	301,222	0			$75,405,891	2007	200,000	74,435
Southern SA	332,322	0			$83,090,122	2008	200,000	61,878
Northern SA	301,222	0			$75,405,891	2009	200,000	48,066
Total	633,544	0			$158,496,013			366,456

No Action alternative (66% south, 33% north, 1/1; line at Pt. Piedras Blancas; Reallocate 50% south, 50% north 10/1), 2005-2009

Area	No Action Projected Landings 2005-2009	Change in Landings from SQ	No Action Shortfall in Landings 2005-2009	Change in Shortfall from SQ	No Action Mo/Yr of Shortfalls	No Action Mo/Yr with No Allocation	No Action NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	107,985	-774	-774	774	9/08;9/09		$18,746,714	-$125,518
OR/WA	291,733	-9,489	-9,489	9,489	9/08;9/09		$73,185,475	-$2,220,417
Southern SA[1]	223,563	0	0	0			$64,217,890	$0
Northern SA[2]	399,718	-10,263	-10,263	10,263	9/08;9/09		$91,932,189	-$2,345,935
Total	623,281	-10,263	-10,263	10,263			$156,150,079	-$2,345,935

Area	Year	No Action HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA[1]	2008	200,000	63,591	1,713
Northern SA[2]	2009	200,000	56,617	8,551
Total			376,719	10,263

[1]Under the no action alternative the Southern Subarea consists of Southern California

[2]Under the no action alternative the Northern Subarea consists of Northern California, Oregon and Washington.

Alternative 1 (50% Coastwide 1/1; 50% + Rollover 7/1), 2005-2009.

Area	Alternative 1 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 1 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 1 Mo/Yr of Shortfalls	Alternative 1 Mo/Yr with No Allocation	Alternative 1 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$75,405,891	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$75,405,891	$0
Total	633,544	0	0	0			$158,496,013	$0

Alternative 1, continued

Area	Year	Alternative 1 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 2 (Season 6/1- 5/31 Coastwide HG), 2005-2009.

Area	Alternative 2 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 2 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 2 Mo/Yr of Shortfalls	Alternative 2 Mo/Yr with No Allocation	Alternative 2 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$75,405,891	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$75,405,891	$0
Total	633,544	0	0	0			$158,496,013	$0

Alternative 2, continued

Area	Year	Alternative 2 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 3 (40% Coastwide 1/1; 40% + Rollover 7/1; 20% + Rollover 10/1), 2005-2009.

Area	Alternative 3 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 3 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 3 Mo/Yr of Shortfalls	Alternative 3 Mo/Yr with No Allocation	Alternative 3 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$75,405,891	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$75,405,891	$0
Total	633,544	0	0	0			$158,496,013	$0

Alternative 3, continued

Area	Year	Alternative 3 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 4.a (HG > 100,000 mt; 40% North, 60% South 1/1; Coastwide Rollover 9/1), 2005-2009.

Area	Alternative 4.a Projected Landings 2005-2009	Change in Landings from SQ	Alternative 4.a Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 4.a Mo/Yr of Shortfalls	Alternative 4.a Mo/Yr with No Allocation	Alternative 4.a NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$75,405,891	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$75,405,891	$0
Total	633,544	0	0	0			$158,496,013	$0

Alternative 4a, continued

Area	Year	Alternative 4.a HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 5 (20% Set Aside 1/1; 40% North, 60% South of Remaining 1/1, Coastwide Rollover 10/1), 2005-2009

Area	Alternative 5 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 5 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 5 Mo/Yr of Shortfalls	Alternative 5 Mo/Yr with No Allocation	Alternative 5 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	299,967	-1,255	-1,255	1,255	9/09		$75,114,312	-$291,579
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	299,967	-1,255	-1,255	1,255	9/09		$75,114,312	-$291,579
Total	632,289	-1,255	-1,255	1,255			$158,204,434	-$291,579

Alternative 5, continued

Area	Year	Alternative 5 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	49,321	1,255
Total			367,711	1,255

Alternative 6 (50% North, 50% South 1/1; Coastwide Rollover 9/1; Variable N/S Allocation Based on Prior Year's Use), 2005-2009.

Area	Alternative 6 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 6 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 6 Mo/Yr of Shortfalls	Alternative 6 Mo/Yr with No Allocation	Alternative 6 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$75,405,891	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$75,405,891	$0
Total	633,544	0	0	0			$158,496,013	$0

Alternative 6, continued.

Area	Year	Alternative 6 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 7 (33% North, 66% South 1/1; 50% North, 50% South of Remaining 9/1, Coastwide Rollover 11/1), 2005-2009.

Area	Alternative 7 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 7 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 7 Mo/Yr of Shortfalls	Alternative 7 Mo/Yr with No Allocation	Alternative 7 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$75,405,891	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$75,405,891	$0
Total	633,544	0	0	0			$158,496,013	$0

Alternative 7, continued

Area	Year	Alternative 7 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Table 4-4. Summary of actual landings projections and cost-benefit analysis results for long-term sardine harvest guidline allocation options, 2005-2009.

Low Harvest Guideline Case, HG = 72,000 mt

Status Quo Summary, 2005-2009.

Area	Status Quo Projected Landings 2005-2009	Status Quo Shortfall in Landings 2005-2009	Status Quo Mo/Yr of Shortfalls	Status Quo Mo/Yr with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	173,047	-50,516	11-12/05;10-12/06;10-12/07;10-12/08;10-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09	$49,904,990	2005	72,000	0
Northern CA	56,030	-52,730	11-12/05;10-12/06;10-12/07;10-12/08;10-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09	$9,858,709	2006	72,000	0
OR/WA	130,923	-170,299	8-12/05;8-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;10-12/08;8,10-12/09	$33,097,086	2007	72,000	0
Southern SA	229,077	-103,245		12/05;11-12/06;11-12/07;11-12/08;10-12/09	$59,763,699	2008	72,000	0
Northern SA	130,923	-170,299		10-12/05;10-12/06;10-12/07;10-12/08;8,10-12/09	$33,097,086	2009	72,000	0
Total	360,000	-273,544			$92,860,785			0

No Action alternative (66% south, 33% north, 1/1; line at Pt. Piedras Blancas; Reallocate 50% south, 50% north 10/1), 2005-2009.

Area	No Action Projected Landings 2005-2009	Change in Landings from SQ	No Action Shortfall in Landings 2005-2009	Change in Shortfall from SQ	No Action Mo/Yr of Shortfalls	No Action Mo/Yr with No Allocation
Southern CA	204,165	31,118	-19,398	-31,118	12/06;12/07;11,12/08;10 -12/09	12/08;11,12/09
Northern CA	39,700	-16,330	-69,059	16,330	8,9,11,12/05;8-12/06;7-12/07;7-12/08;7-12/09	9,12/05;9,11,12/06;8,9,11,12/07;8,9,11,12/08;8,9,11,12/09
OR/WA	139,842	-16,183	-186,482	16,183	8,9,11,12/05;8-12/06;7-12/07;7-12/08;7-12/09	9,12/05;9,11,12/06;8,9,11,12/07;8,9,11,12/08;8,9,11,12/09
Southern SA[1]	204,165	31,118	-19,398	-31,118	12/06;12/07;11,12/08;10 -12/09	12/08;11,12/09
Northern SA[2]	179,542	-32,513	-255,542	32,513	8,9,11,12/05;8-12/06;7-12/07;7-12/08;7-12/09	9,12/05;9,11,12/06;8,9,11,12/07;8,9,11,12/08;8,9,11,12/09
Total	383,707	-1,396	-274,939	1,396		

No Action alternative, continued.

Area	No Action NPV Producer Surplus	Change in NPV of PS from SQ	Year	No Action HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$58,874,155	$8,969,165	2005	72,000	1,396	1,396
Northern CA	$7,002,685	-$2,856,024	2006	72,000	0	0
OR/WA	$29,019,932	-$4,077,154	2007	72,000	0	0
Southern SA[1]	$58,874,155	$8,969,165	2008	72,000	0	0
Northern SA[2]	$36,022,617	-$6,933,178	2009	72,000	0	0
Total	$94,896,772	$2,035,987			1,396	1,396

[1]Under the no action alternative the Southern Subarea consists of Southern California.

[2]Under the no action alternative the Northern Subarea consists of Northern California, Oregon and Washington.

Alternative 1 (50% Coastwide 1/1; 50% + Rollover 7/1), 2005-2009.

Area	Alternative 1 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 1 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 1 Mo/Yr of Shortfalls	Alternative 1 Mo/Yr with No Allocation
Southern CA	141,434	-31,613	-82,129	31,613	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
Northern CA	31,746	-24,284	-77,013	24,284	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
OR/WA	196,565	55,897	-114,402	-55,897	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
Southern SA	173,180	-55,897	-159,142	55,897	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
Northern SA	196,565	55,897	-114,402	-55,897	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
Total	369,746	0	-273,544	0		

Alternative 1, continued.

Area	Alternative 1 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 1 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$40,785,313	-$9,119,677	2005	72,000	0	0
Northern CA	$5,558,556	-$4,300,153	2006	72,000	0	0
OR/WA	$47,248,410	$14,151,324	2007	72,000	0	0
Southern SA	$46,343,869	-$13,419,830	2008	72,000	0	0
Northern SA	$47,248,410	$14,151,324	2009	72,000	0	0
Total	$93,592,279	$731,494			0	0

Alternative 2 (Season 6/1- 5/31 Coastwide HG), 2005-2009.

Area	Alternative 2 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 2 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 2 Mo/Yr of Shortfalls	Alternative 2 Mo/Yr with No Allocation
Southern CA	75,397	-97,650	-148,166	97,650	10/05-5/06;10/06-5/07;9/07-5/08;9/08-5-09;9/09-5/10	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
Northern CA	31,039	-24,991	-77,721	24,991	10/05-3/06;10/06-3/07;9/07-3-08;9/08-3/09;9/09-3/10	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
OR/WA	255,578	122,641	-47,658	-122,641	10-12/05;10-12/06;9-12/07;9-12/08;9-12/09	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
Southern SA	106,436	-122,641	-225,886	122,641	10/05-5/06;10/06-5/07;9/07-5/08;9/08-5-09;9/09-5/10	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
Northern SA	255,578	122,641	-47,658	-122,641	10-12/05;10-12/06;9-12/07;9-12/08;9-12/09	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
Total	362,014	0	-273,544	0		

Alternative 2, continued.

Area	Alternative 2 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 2 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$21,879,411	-$28,025,579	2005	72,000	0	0
Northern CA	$5,480,381	-$4,378,328	2006	72,000	0	0
OR/WA	$63,837,473	$30,740,387	2007	72,000	0	0
Southern SA	$27,359,792	-$32,403,907	2008	72,000	0	0
Northern SA	$63,837,473	$30,740,387	2009	72,000	0	0
Total	$91,197,265	-$1,663,520			0	0

Alternative 3 (40% Coastwide 1/1; 40% + Rollover 7/1; 20% + Rollover 10/1), 2005-2009.

Area	Alternative 3 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 3 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 3 Mo/Yr of Shortfalls	Alternative 3 Mo/Yr with No Allocation
Southern CA	147,854	-25,193	-75,709	25,193	8-9,11-12/05;8-12/06;8-12/07;6,8-12/08;6,8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/09
Northern CA	55,212	-817	-53,547	817	8-9,11-12/05;8-12/06;8-12/07;8-12/08;8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/10
OR/WA	172,752	26,010	-144,288	-26,010	8-9,11-12/05;8-12/06;8-12/07;6,8-12/08;6,8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/11
Southern SA	203,067	-26,010	-129,255	26,010	8-9,11-12/05;8-12/06;8-12/07;6,8-12/08;6,8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/12
Northern SA	172,752	26,010	-144,288	-26,010	8-9,11-12/05;8-12/06;8-12/07;6,8-12/08;6,8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/13
Total	375,819	0	-273,544	0		

Alternative 3, continued.

Area	Alternative 3 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 3 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$42,646,432	-$7,258,558	2005	72,000	0	0
Northern CA	$9,665,651	-$193,058	2006	72,000	0	0
OR/WA	$39,701,354	$6,604,269	2007	72,000	0	0
Southern SA	$52,312,083	-$7,451,616	2008	72,000	0	0
Northern SA	$39,701,354	$6,604,269	2009	72,000	0	0
Total	$92,013,437	-$847,347			0	0

Alternative 4.b (HG < 100,000 mt; 33% North, 66% South 1/1; 20% North, 80% South of Remaining 9/1, Coastwide Rollover 11/1), 2005-2009.

Area	Alternative 4.b Projected Landings 2005-2009	Change in Landings from SQ	Alternative 4.b Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 4.b Mo/Yr of Shortfalls	Alternative 4.b Mo/Yr with No Allocation
Southern CA	176,564	3,517	-46,998	-3,517	11-12/05;10-12/06;10-12/07;10-12/08;9-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09
Northern CA	53,425	-2,605	-55,334	2,605	11-12/05;10-12/06;10-12/07;10-12/08;9-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09
OR/WA	151,968	-913	-171,211	913	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	10,12/05;10-12/06;10-12/07;10-12/08;8,10-12/09
Southern SA	229,989	913	-102,332	-913	11-12/05;10-12/06;10-12/07;10-12/08;9-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09
Northern SA	151,968	-913	-171,211	913	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	10,12/05;10-12/06;10-12/07;10-12/08;8,10-12/09
Total	381,957	0	-273,544	0		

Alternative 4.b, continued.

Area	Alternative 4.b NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 4.b HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$50,918,940	$1,013,950	2005	72,000	0	0
Northern CA	$9,405,087	-$453,622	2006	72,000	0	0
OR/WA	$32,867,858	-$229,227	2007	72,000	0	0
Southern SA	$60,324,027	$560,328	2008	72,000	0	0
Northern SA	$32,867,858	-$229,227	2009	72,000	0	0
Total	$93,191,885	$331,101			0	0

Alternative 5 (20% Set Aside 1/1; 40% North, 60% South of Remaining 1/1, Coastwide Rollover 10/1), 2005-2009.

Area	Alternative 5 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 5 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 5 Mo/Yr of Shortfalls	Alternative 5 Mo/Yr with No Allocation
Southern CA	163,484	-9,564	-60,079	9,564	9-12/05;9-12/06;8-12/07;8-12/08;8-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
Northern CA	55,826	-204	-52,933	204	9-12/05;9-12/06;8-12/07;8-12/08;8-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
OR/WA	161,900	9,767	-160,532	-9,767	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
Southern SA	219,310	-9,767	-113,012	9,767	9-12/05;9-12/06;8-12/07;8-12/08;8-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
Northern SA	161,900	9,767	-160,532	-9,767	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
Total	381,210	0	-273,544	0		

Alternative 5, continued.

Area	Alternative 5 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 5 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$47,252,856	-$2,652,134	2005	72,000	0	0
Northern CA	$9,812,602	-$46,107	2006	72,000	0	0
OR/WA	$35,474,907	$2,377,822	2007	72,000	0	0
Southern SA	$57,065,458	-$2,698,241	2008	72,000	0	0
Northern SA	$35,474,907	$2,377,822	2009	72,000	0	0
Total	$92,540,365	-$320,419			0	0

Alternative 6 (50% North, 50% South 1/1; Coastwide Rollover 9/1; Variable N/S Allocation Based on Prior Year's Use), 2005-2009.

Area	Alternative 6 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 6 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 6 Mo/Yr of Shortfalls	Alternative 6 Mo/Yr with No Allocation
Southern CA	149,824	-23,223	-73,739	23,223	9-12/05;9-12/06;9-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
Northern CA	34,985	-21,045	-73,775	21,045	9-12/05;9-12/06;9-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
OR/WA	187,104	44,268	-126,031	-44,268	8-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
Southern SA	184,809	-44,268	-147,513	44,268	9-12/05;9-12/06;9-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
Northern SA	187,104	44,268	-126,031	-44,268	8-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
Total	371,913	0	-273,544	0		

Alternative 6, continued.

Area	Alternative 6 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 6 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$43,255,904	-$6,649,085	2005	72,000	0	0
Northern CA	$6,121,691	-$3,737,018	2006	72,000	0	0
OR/WA	$44,282,909	$11,185,823	2007	72,000	0	0
Southern SA	$49,377,595	-$10,386,103	2008	72,000	0	0
Northern SA	$44,282,909	$11,185,823	2009	72,000	0	0
Total	$93,660,504	$799,720			0	0

Alternative 7 (33% North, 66% South 1/1; 50% North, 50% South of Remaining 9/1, Coastwide Rollover 11/1), 2005-2009.

Area	Alternative 7 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 7 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 7 Mo/Yr of Shortfalls	Alternative 7 Mo/Yr with No Allocation
Southern CA	168,504	-4,543	-55,059	4,543	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09	11-12/05;11-12/06;11-12/07;10-12/08;10-12/09
Northern CA	44,788	-11,242	-63,971	11,242	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09	11-12/05;11-12/06;11-12/07;10-12/08;10-12/09
OR/WA	163,350	15,785	-154,514	-15,785	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	10-12/05;10-12/06;10-12/07;10-12/08;8,10-12/09
Southern SA	213,292	-15,785	-119,030	15,785	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09	11-12/05;11-12/06;11-12/07;10-12/08;10-12/09
Northern SA	163,350	15,785	-154,514	-15,785	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	10-12/05;10-12/06;10-12/07;10-12/08;8,10-12/09
Total	376,642	0	-273,544	0		

Alternative 7, continued.

Area	Alternative 7 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 7 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$48,559,190	-$1,345,800	2005	72,000	0	0
Northern CA	$7,837,630	-$2,021,079	2006	72,000	0	0
OR/WA	$37,185,650	$4,088,564	2007	72,000	0	0
Southern SA	$56,396,820	-$3,366,879	2008	72,000	0	0
Northern SA	$37,185,650	$4,088,564	2009	72,000	0	0
Total	$93,582,470	$721,685			0	0

Table 4-5. Quota shortages by year and month under different HG sceanarios, 2005-2009.

Low HG Case: HG = 72,000 mt

Alt: Status Quo

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	11-12	10-12	10-12	10-12	10-12	12	11-12	11-12	11-12	10-12
NC	11-12	10-12	10-12	10-12	10-12	12	11-12	11-12	11-12	10-12
OW	8-12	8-12	8-12	8-12	8-12	10-12	10-12	10-12	10-12	10-12

Alt: No Action

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC		12	12	11-12	10-12				12	10-12
NC	8,9,11,12	8-12	7-12	7-12	7-12	9,12	9,11,12	8,9,11,12	8,9,11,12	8,9,11,12
OW	8,9,11,13	8-13	7-12	7-12	7-12	9,13	9,11,13	8,9,11,12	8,9,11,12	8,9,11,12

Alt: 1

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	9-12	8-12	8-12	8-12	8-12	10-12	9-12	9-12	9-12	9-12
NC	9-12	8-12	8-12	8-12	8-12	10-12	9-12	9-12	9-12	9-12
OW	9-12	8-12	8-12	8-12	8-12	10-12	9-12	9-12	9-12	9-12

Alt: 2

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	10-12	1-5, 10-12	1-5, 9-12	1-5,9-12	1-5,9-12	11-12	1-5,11-12	1-5, 10-12	1-5, 10-12	1-5, 10-12
NC	10-12	1-3, 10-12	1-3, 9-12	1-3, 9-12	1-3, 9-12	11-12	1-5, 11-12	1-5, 10-12	1-5, 10-12	1-5, 10-12
OW	10-12	10-12	9-12	9-12	9-12	11-12	1-5, 11-12	1-5, 10-12	1-5, 10-12	1-5, 10-12

Alt: 3

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	8,9,11,12	8-12	8-12	6,8-12	6, 8-12	9,12	9,11,12	9,11,12	9,11,12	9,11,12
NC	8,9,11,12	8-12	8-12	8-12	8-12	9,12	9,11,12	9,11,12	9,11,12	9,11,12
OW	8,9,11,12	8-12	8-12	6, 8-12	6, 8-12	9,12	9,11,12	9,11,12	9,11,12	9,11,12

Alt: 4.b

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	11-12	10-12	10-12	10-12	9-12	12	11-12	11-12	11-12	10-12
NC	11-12	10-12	10-12	10-12	9-12	12	11-12	11-12	11-12	10-12
OW	8-12	8-12	8-12	8-12	7-12	10,12	10-12	10-12	10-12	8, 10-12

Alt: 5

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	9-12	9-12	8-12	8-12	8-12	11-12	11-12	11-12	11-12	11-12
NC	9-12	9-12	8-12	8-12	8-12	11-12	11-12	11-12	11-12	11-12
OW	8-12	8-12	8-12	8-12	7-12	11-12	11-12	11-12	11-12	11-12

Alt: 6

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	9-12	9-12	9-12	8-12	8-12	10-12	10-12	10-12	9-12	9-12
NC	9-12	9-12	9-12	8-12	8-12	10-12	10-12	10-12	9-12	9-12
OW	8-12	8-12	8-12	8-12	8-12	10-12	10-12	10-12	9-12	9-12

Alt: 7

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	10-12	10-12	10-12	9-12	9-12	11-12	11-12	11-12	10-12	10-12
NC	10-12	10-12	10-12	9-12	9-12	11-12	11-12	11-12	10-12	10-12
OW	8-12	8-12	8-12	8-12	7-12	10-12	10-12	10-12	10-12	8, 10-12

Base Case: HG = 136,000 mt
Alt: Status Quo

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW		10-11	10-11	8-11	8-11		11	11	10-11	10-11

Alt: No Action

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC	8	8-9	8-9	8-9	8-9		9	9	9	9
OW	8	8-9	8-9	8-9	8-9		9	9	9	9

Alt: 1

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				12	11-12					12
NC				12	11-12					12
OW				12	11-12					12

Alt: 2

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				4-5	1-5				5	2-5
NC				4-5	1-5				5	2-5
OW									5	2-5

Alt: 3

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				12	9, 11-12					12
NC				12	9, 11-12					12
OW				12	9, 11-12					12

Alt: 4.a

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				12	11-12					12
NC				12	11-12					12
OW				12	11-12					12

Alt: 5

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW	9	9	9	8-9	8-9					

Alt: 6

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				12	11-12					12
NC				12	11-12					12
OW				12	11-12					12

Alt: 7

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC					11-12					12
NC					11-12					12
OW				8	8, 11-12					12

High HG Case: HG = 200,000 mt
Alt: Status Quo

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: No Action

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC				9	9					
OW				9	9					

Alt: 1

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 2

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 3

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 4.a

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 5

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW					9					

Alt: 6

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 7

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

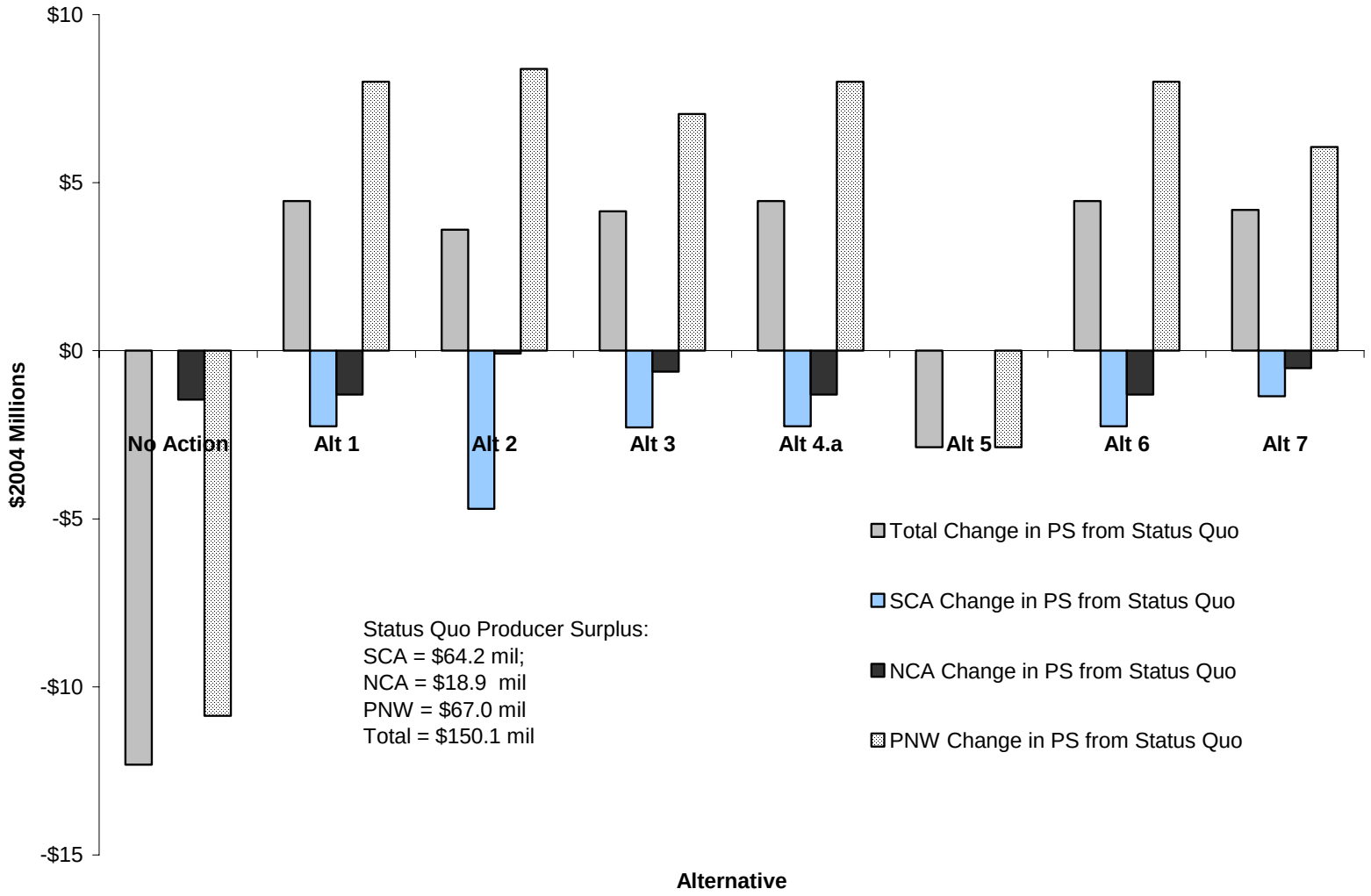


Figure 4-1. Change in producer surplus from the status quo under each alternative, by region, base case, 2005-2009.

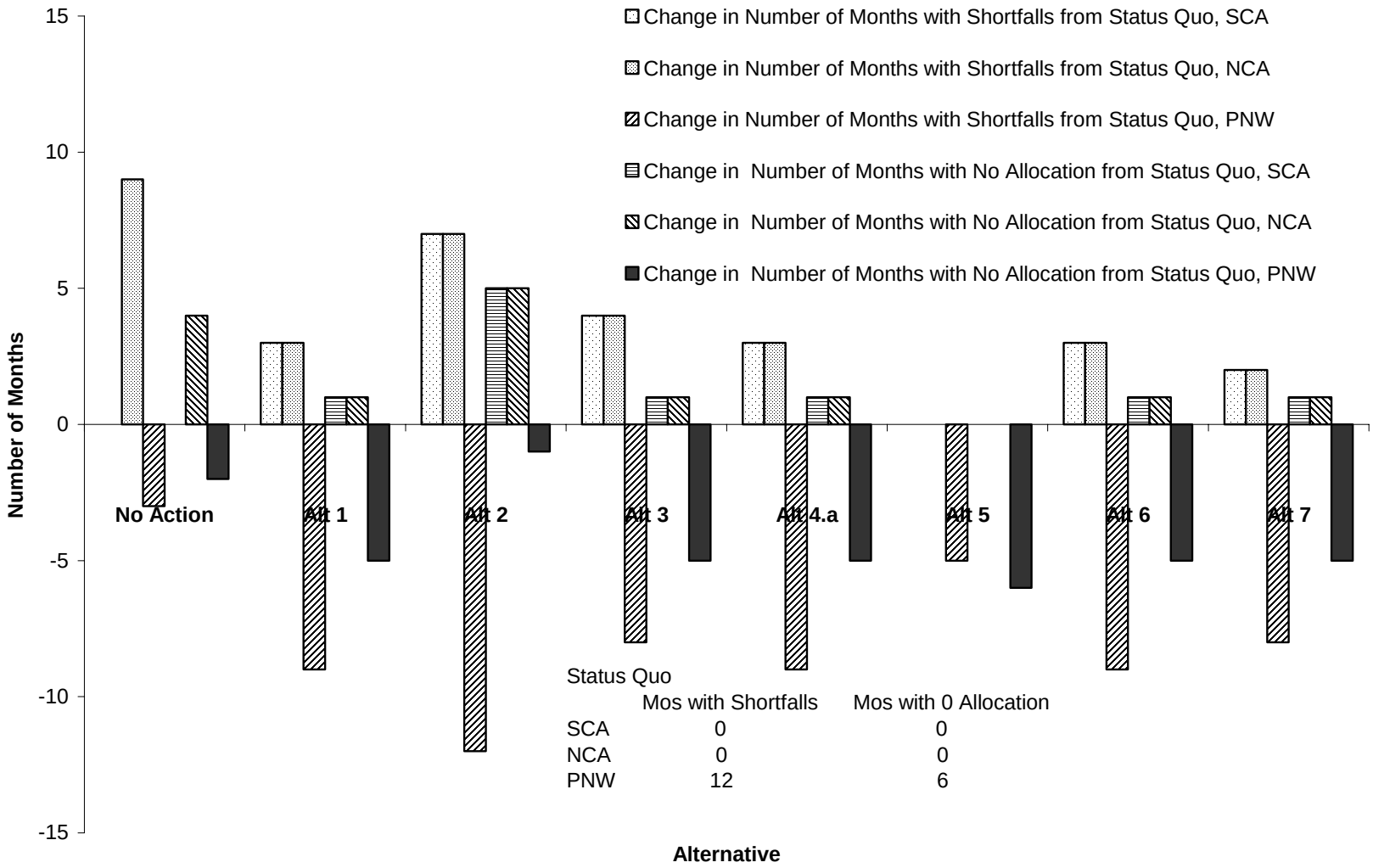


Figure 4-2. Change in the number of months with a landings shortfall and the number of months with a zero allocation for each allocation alternative relative to the status quo, by region, base case, 2005-2009.

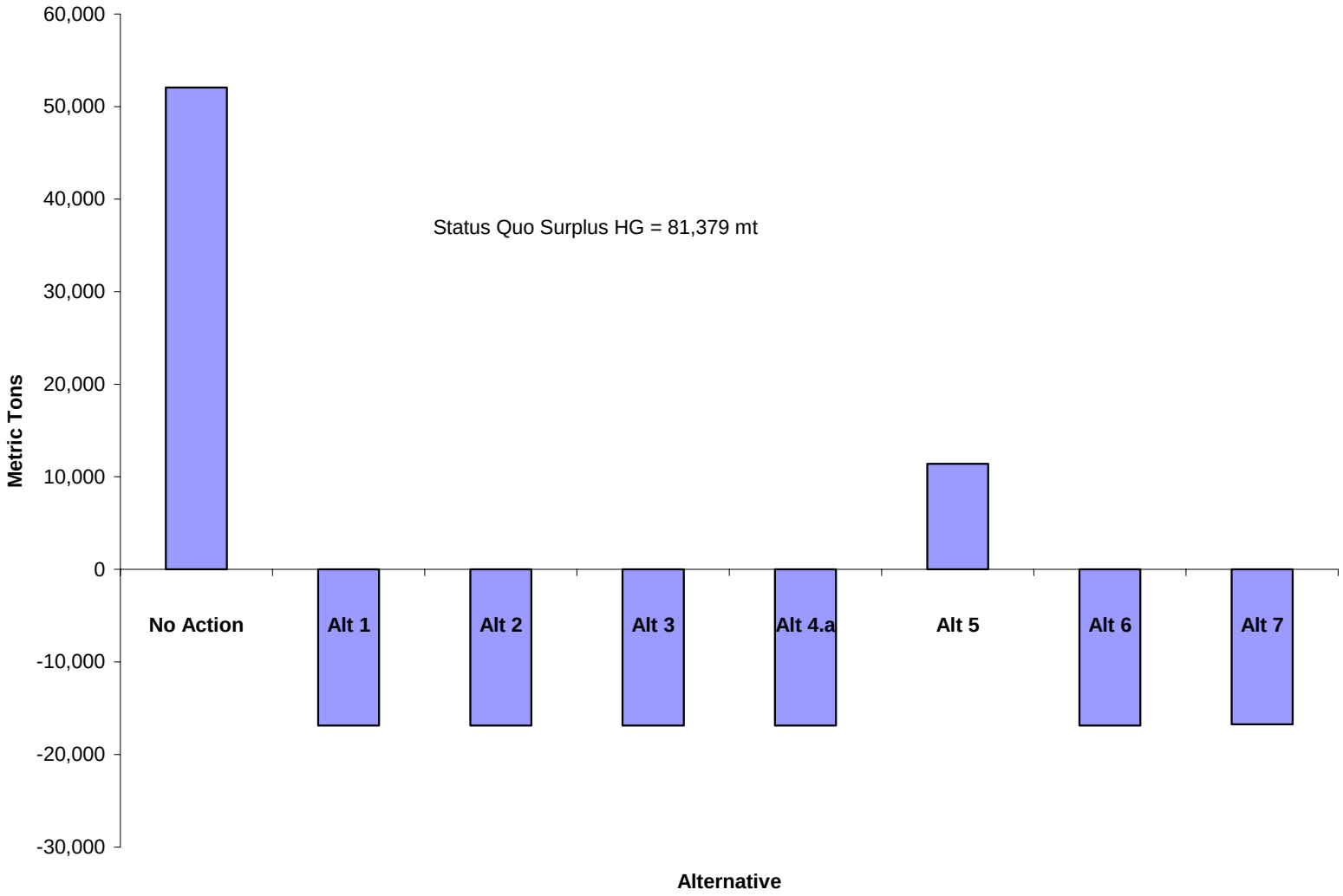


Figure 4-3. Change in surplus harvest guideline (mt) from the status quo for each allocation alternative, base case, 2005-2009.

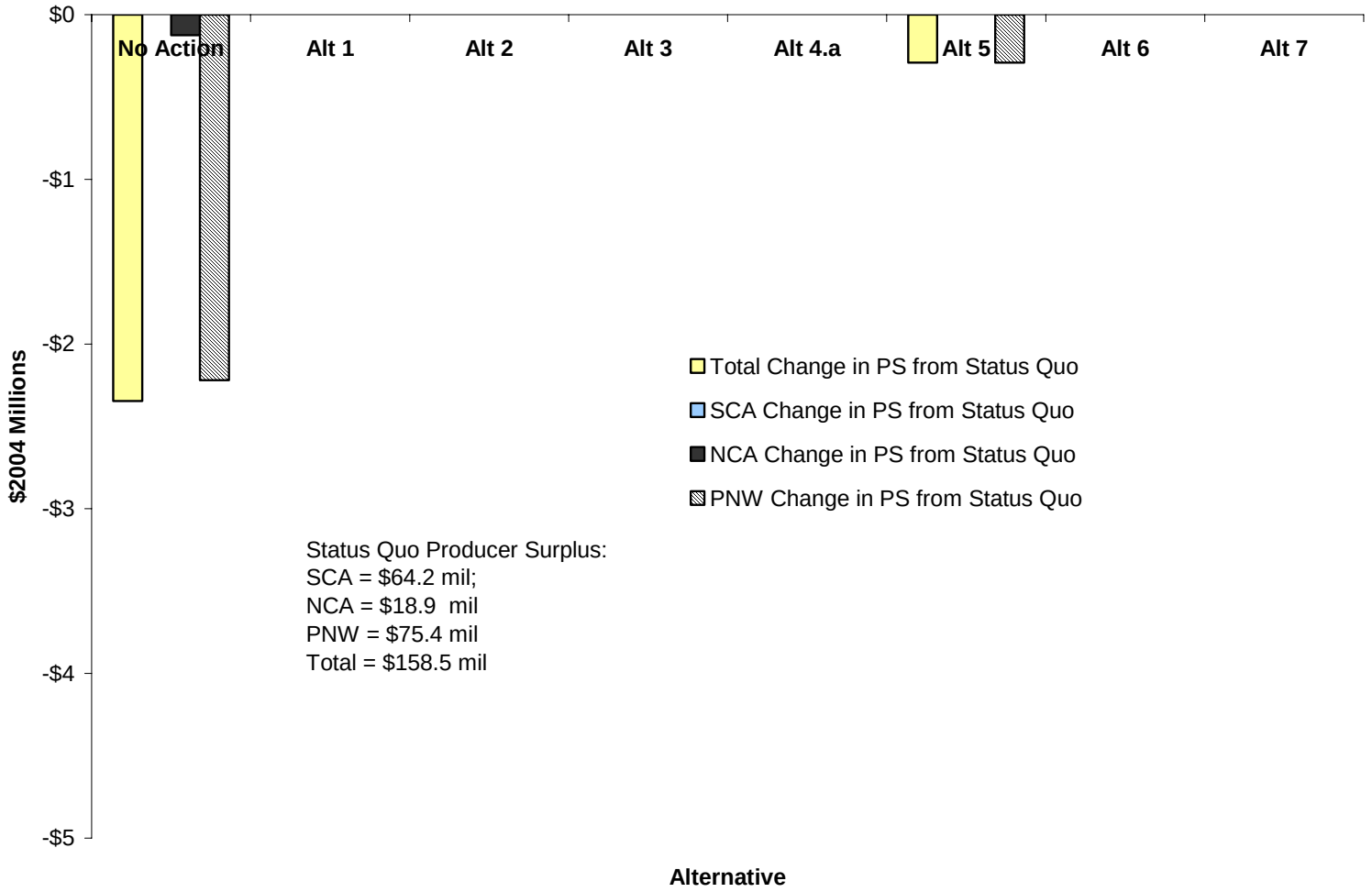


Figure 4-4 Change in producer surplus from the status quo under each alternative, by region, high harvest guideline case, 2005-2009

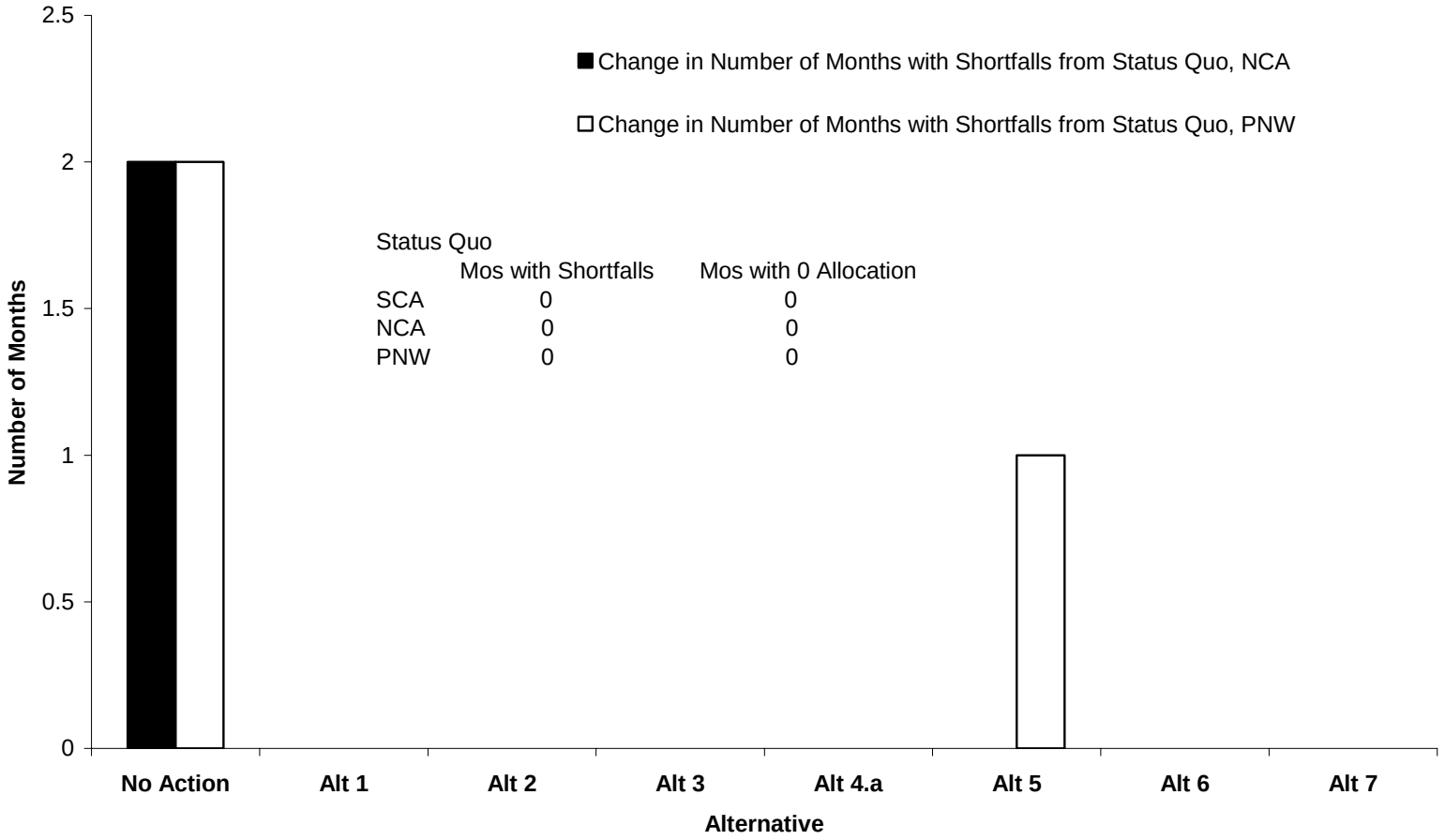


Figure 4-5. Change in the number of months with a landings shortfall and the number of months with a zero allocation, by region, for each allocation alternative relative to the status quo, high harvest guideline case, 2005-2009.

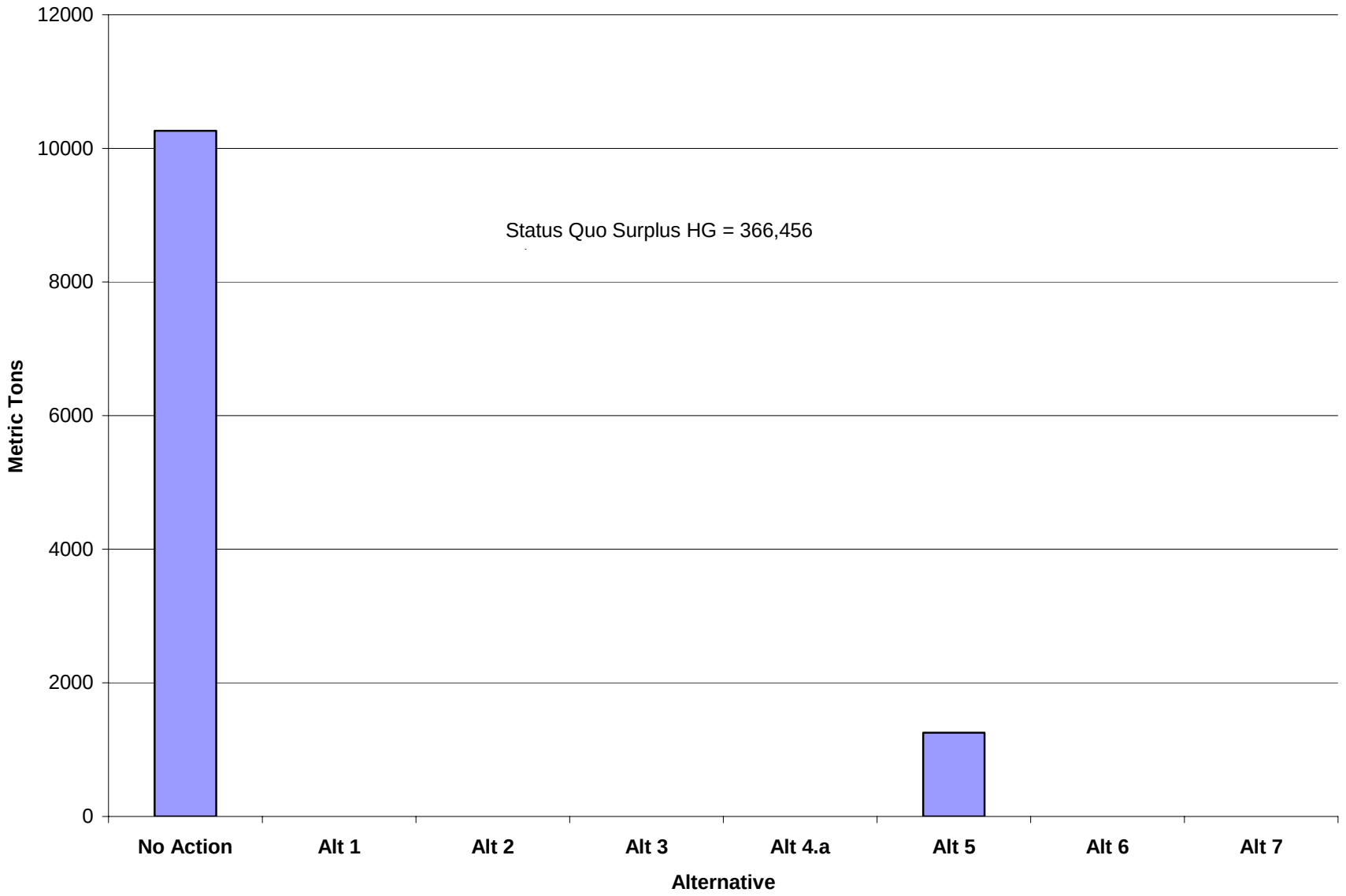


Figure 4-6. Change in surplus harvest guideline (mt) from the status quo for each allocation alternative, high harvest guideline case, 2005-2009.

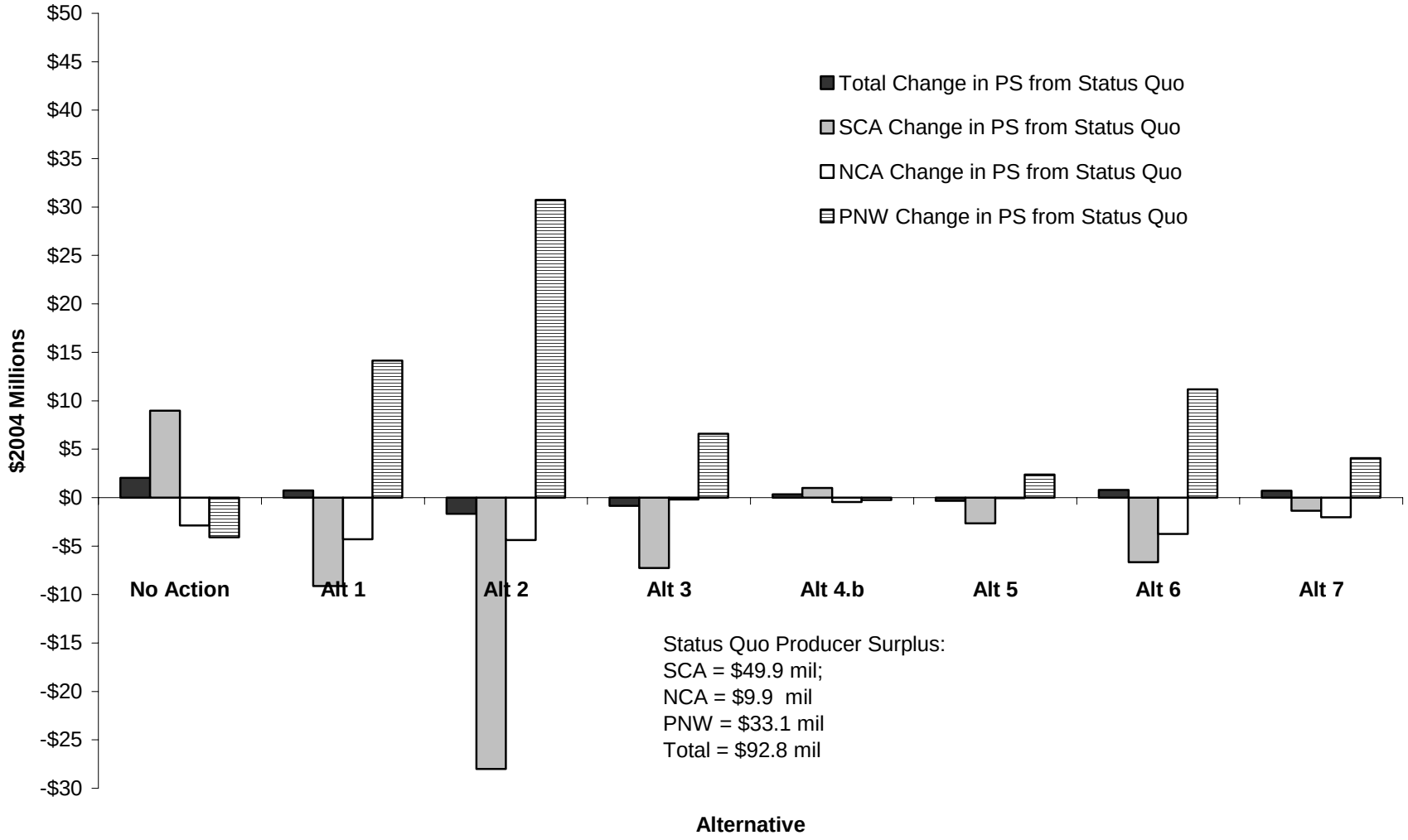


Figure 4-7. Change in producer surplus from the status quo under each alternative, by region, low harvest guideline case, 2005-2009.

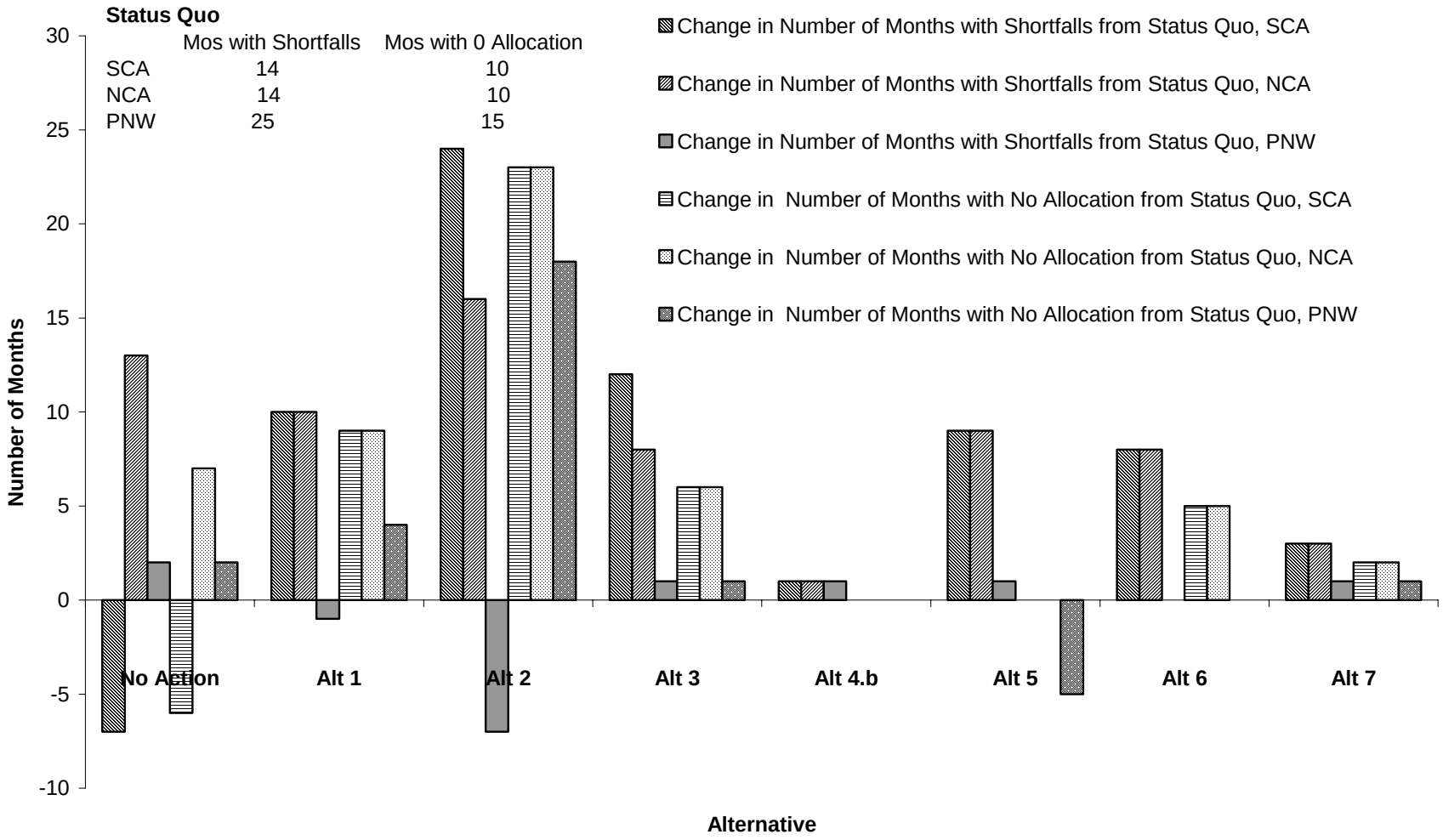


Figure 4-8. Change in the number of months with a landings shortfall and the number of months with a zero allocation, by region, for each allocation alternative relative to the status quo, low harvest guideline case, 2005-2009.

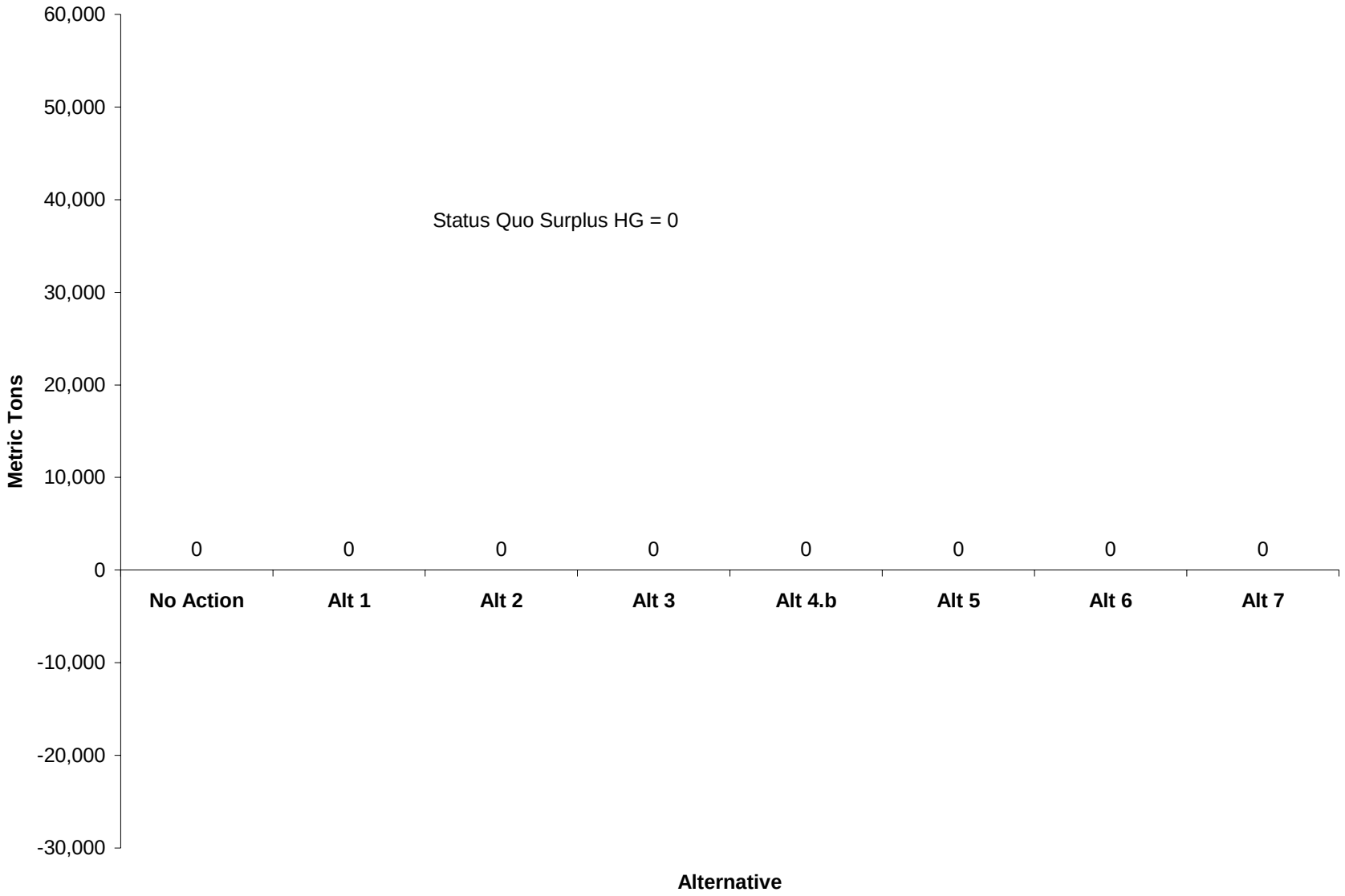


Figure 4-9. Change in surplus harvest guideline (mt) from the status quo for each allocation alternative, low harvest guideline case, 2005-2009.

COASTAL PELAGIC SPECIES ADVISORY SUBPANEL REPORT ON FISHERY MANAGEMENT PLAN AMENDMENT 11—SARDINE ALLOCATION

The Coastal Pelagic Species Advisory Subpanel (CPSAS) met jointly with the Coastal Pelagic Species Management Team (CPSMT) to review the preliminary analysis for the long-term sardine allocation. We have comments on four aspects of the process:

1. Economic Analysis:

The CPSAS heard a presentation from Dr. Sam Herrick reviewing the process utilized to obtain producer surplus in order to aid in the economic analysis of the suite of options. The CPSAS supports the process identified for completing the analysis. Following a session of peer review where representatives from each sector of the commercial fishery were present, the CPSAS supports the economic data used in the economic analysis.

2. Landings Data and Growth Rates:

There is not agreement that a 10% growth rate across all sectors of the fishery is appropriate. The preliminary results being shown to the Council include potential shortfalls that occur only after the 10% increase in growth rates has been realized. The CPSAS recommends that a sensitivity analysis reviewing different growth scenarios for each sector is considered.

3. Time:

The CPSAS believes that this allocation is a long-term process that should incorporate a review at some time in the future, the CPSAS has not identified a consensus opinion on what number of years should pass prior to the review.

4. Suite of Alternatives:

Lastly the CPSAS agrees that two alternatives could be removed from the suite of alternatives being sent out for public review. The CPSAS does not believe that Alternatives 2 and 5 are feasible alternatives to achieve the goals and objectives of the allocation process.

PFMC
04/06/05

COASTAL PELAGIC SPECIES MANAGEMENT TEAM REPORT ON FISHERY MANAGEMENT PLAN AMENDMENT 11—SARDINE ALLOCATION

The Coastal Pelagic Species Management Team (CPSMT) reviewed the analytical model developed to explore the impacts of the various alternatives being proposed to address long-term allocation of Pacific sardine. The CPSMT supports the analysis as being a well developed and sound tool to evaluate the economic and operational impacts of the allocation alternatives under review. There was initial doubt concerning some of the economic data inputs into the model. However, after an industry peer review during a joint session with the CPS Advisory Subpanel (CPSAS), these questions were resolved, resulting in revised economic data (see attached) that will enhance the economic evaluation of the allocation alternatives.

The CPSMT agrees with the CPSAS's recommendation that allocation alternatives 2 and 5 be removed from further consideration.

Dr. Roger Hewitt from the Southwest Fisheries Science Center presented to the team some preliminary results from the Pacific Northwest sardine midwater trawl survey conducted during March. The team continues its strong support of Pacific sardine research throughout its entire range to improve the coastwide stock assessment.

The CPSMT received, with some concern, a report from Washington Department of Fish and Wildlife that restructuring of PacFIN priorities has resulted in the loss of funding that supports the aging of all sardine from the Pacific Northwest (approximately 3,000 to 5,000 structures per year). The loss of funding could be extremely counter productive to conducting coastwide sardine stock assessments.

PFMC
04/07/05

Itemized weighted average costs and revenues per metric ton of sardine product for each fishery sector.

	SCA Weighted Average	NCA Weighted Average	PNW Weighted Average
Rev	$557.80	$514.27	$694.80
Raw Fish	$82.02	$77.82	$135.75
Processing Labor	$36.63	$23.74	$61.53
Supervisory	$3.17	$2.50	$11.51
Energy	$0.65	$0.00	$23.99
Packaging	$23.73	$19.53	$53.02
Waste	$0.23	$0.00	$9.70
Shipping Trucking	$97.50	$59.46	$28.11
Storage/Freezing	$45.77	$68.27	$13.03
Salt	$0.00	$0.00	$3.35
Unloading	$16.27	$19.88	$17.64
Ice	$14.71	$16.13	$16.29
Total Variable Cost	$320.67	$287.32	$373.91
Producer Surplus	$237.13	$226.94	$320.89

Sardine product mixes by fishery sector 2003-2004.

Sardine Product Form	SCA Percent Total Production	NCA Percent Total Production	PNW Percent Total Production
Fresh	3.20%	1.00%	
H&G	11.40%		
IQF	6.30%	2.60%	
Frozen 2 Kilo		0.50%	
Frozen 10 Kilo	40.20%	32.00%	96.00%
Frozen 15 Kilo	10.20%	11.40%	
Frozen 50 lb block	27.70%	52.70%	

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON FISHERY MANAGEMENT PLAN AMENDMENT 11—SARDINE ALLOCATION

Dr. Sam Herrick presented results from an economic analysis of the preliminary alternatives in "Allocation of the Pacific Sardine Harvest Guideline." The economic analysis projects differences among alternatives in processor revenues net of variable costs. The five-year projections are based on monthly landings in 2004 for each area in the analysis: Southern California, Northern California, and the Pacific Northwest.

The economic analysis assumes that monthly landings increase by 10% per year for each area. Dr. Herrick reported that 10% per year was the "expected" value of participants at a meeting of the Coastal Pelagic Species Management Team in February 2005, but this value appears not to have an empirical basis. Discussion by the Scientific and Statistical Committee (SSC) identified several factors that could affect the 10% value, including changes in market conditions, changes in climate, changes in stock abundance, and the overall harvest guideline or availability of quota. Therefore, the SSC recommends sensitivity analysis for this value, both by area and season. The SSC also noted the implications of projected landings for salmon bycatch, but this topic was not part of the presentation, and not formally discussed. Monthly landings were projected under low, medium, and high harvest guidelines, summarized annually by sector, and were used to identify each area:

- Shortfalls in landings in metric tons.
- Months with shortfalls.
- Months with zero allocation following months with shortfalls.

Evaluation was done using comparisons of estimated processor revenues net of variable costs, which was defined in the analysis as producer surplus. These comparisons are based on several restrictive assumptions for processors. As stated above, a sensitivity analysis is recommended to explore the effects of the following assumptions on the outcome of the analyses:

- Constant product prices, product mixes, and unit costs for variable inputs (e.g. energy, ice, ex-vessel prices for sardines) over the five-year projections.
- Perfectly competitive markets.
- Capital costs are not affected by any of the factors in the economic analysis including assumed growth in landings, specifically the emerging Pacific Northwest sector of the sardine fishery.

Data for costs and revenues were taken from a sample of processors in each area. While an attempt was made to survey "large" processors, the representativeness or coverage of the sample in each area is unknown. The SSC notes the survey methodology and data would benefit from additional review by the SSC and coastal pelagic species advisory bodies. In addition, the SSC has concerns about several aspects of the economic analysis including:

- The treatment of capital costs, such as buildings and equipment, as fixed over the five-year projections.
- The assumed independence of variable costs and product prices from the scale of production, for example 10% growth per year.

Capital costs could vary among areas and alternatives. Current processing capacity may be sufficient to accommodate the assumptions of projected growth in each area of the analysis, but the SSC recommends further analysis. Regarding independence from the scale of production, the SSC recommends that various assumptions in the economic analysis be checked for consistency with assumptions of the market equilibrium model that is being used as an analytical framework. The SSC also recommends that extreme cases in the analysis receive further attention, such as those associated with the low harvest guideline, or alternatives that allocate substantially more quota to the northern area.

The SSC encourages further economic analysis to evaluate effects of these alternatives on income and employment in fishing communities. To improve this economic analysis for decision-making, the SSC recommends:

1. The survey methodology and data be documented and reviewed.
2. Sensitivity analysis be conducted for assumptions about growth and capital costs in each area under different alternatives.

If a review of the survey data cannot be done before the June Council meeting, the SSC recommends using only the projected effects on landings and ex-vessel revenues from the economic analysis of alternatives.

PFMC
04/06/05

PACKERS OF: OCEAN ANGEL BRAND

DEL MAR SEAFOODS, INC. 331 FORD ST. WATSONVILLE, CA 95076

Processors and Distributors of Monterey Bay Squid

RECEIVED
MAR 18 2005
PFMC

March 14, 2005

Mr. Donald Hansen, Chair and
Members of the Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

PFMC FAX: (503) 820-2299

Subject: Long Term Pacific sardine allocation

Dear Mr. Hansen and Council Members:

Del Mar Seafood processes sardines in California for human consumption, animal feed and bait. This company employs hundreds of people to pack and distribute sardine products, following a tradition that has gone on since the early 1900s, when Monterey was called the sardine capital of the world. Sardines continue to be vitally important to Monterey's fishing community, as well as the entire California wetfish industry. This industry supports the fishermen who harvest sardines for our company and other wetfish processors, as well as their families. In addition, California's wetfish industry provides seasonal employment for many out-of-state fishermen who come to California nearly every year to harvest squid.

As you know, the wetfish industry in California depends on three major stocks – sardines, mackerel and squid. Each species has cycles of abundance, and each is important to maintain the viability of the industry. Sardines are like one leg of a three-legged stool; our company and California's wetfish industry could not survive without sardines.

When the Pacific Fishery Management Council considers options for long-term sardine allocation, please understand the importance of sardines to California's fishing industry, and the need to protect this historic industry. The Council's decision will have a major impact on our future.

We're asking the Council to adopt a range of options that will not cause early closure of the California fishery when the sardine harvest guideline is reduced. That would have severe negative impacts on our community because in California sardines are the highest quality and best value in fall and winter months. Approving a different allocation formula above and below 100,000 tons would provide a more flexible harvest scheme in times of sardine abundance and still protect California's wetfish industry when the harvest guideline declines.

We support Alternative 7, which modifies the status quo (begin January 1 with 33% to the north and 66% to the south, including Monterey in the southern subarea), by reallocating unharvested fish at a 50:50 rate on September 1, with coast-wide reallocation on November 1. This will provide more fish to the north while protecting California's fall season.

It is also important for the Council or National Marine Fisheries Service to re-examine fishing capacity and determine how much capacity the resource can support. A key reason for creating the CPS FMP was to protect against overcapitalization, yet there has been major expansion in the north without a full assessment of the resource, and we believe both the research and capacity analysis are necessary to assure risk-averse management.

We also ask the Council to signify support for expanded coast-wide research on the sardine spawning biomass, to capture the full extent of spawning as it occurs in spring and early summer. Considering the current lack of

knowledge of sardine stocks and inability to predict the future, we ask the Council to reexamine the allocation framework in two or three years, when more information is available.

In conclusion, please consider the historic and present day importance of Monterey's sardine industry when adopting the new allocation framework and approve a plan that protects California's wetfish industry.

Thank you for this opportunity and your consideration of these comments.

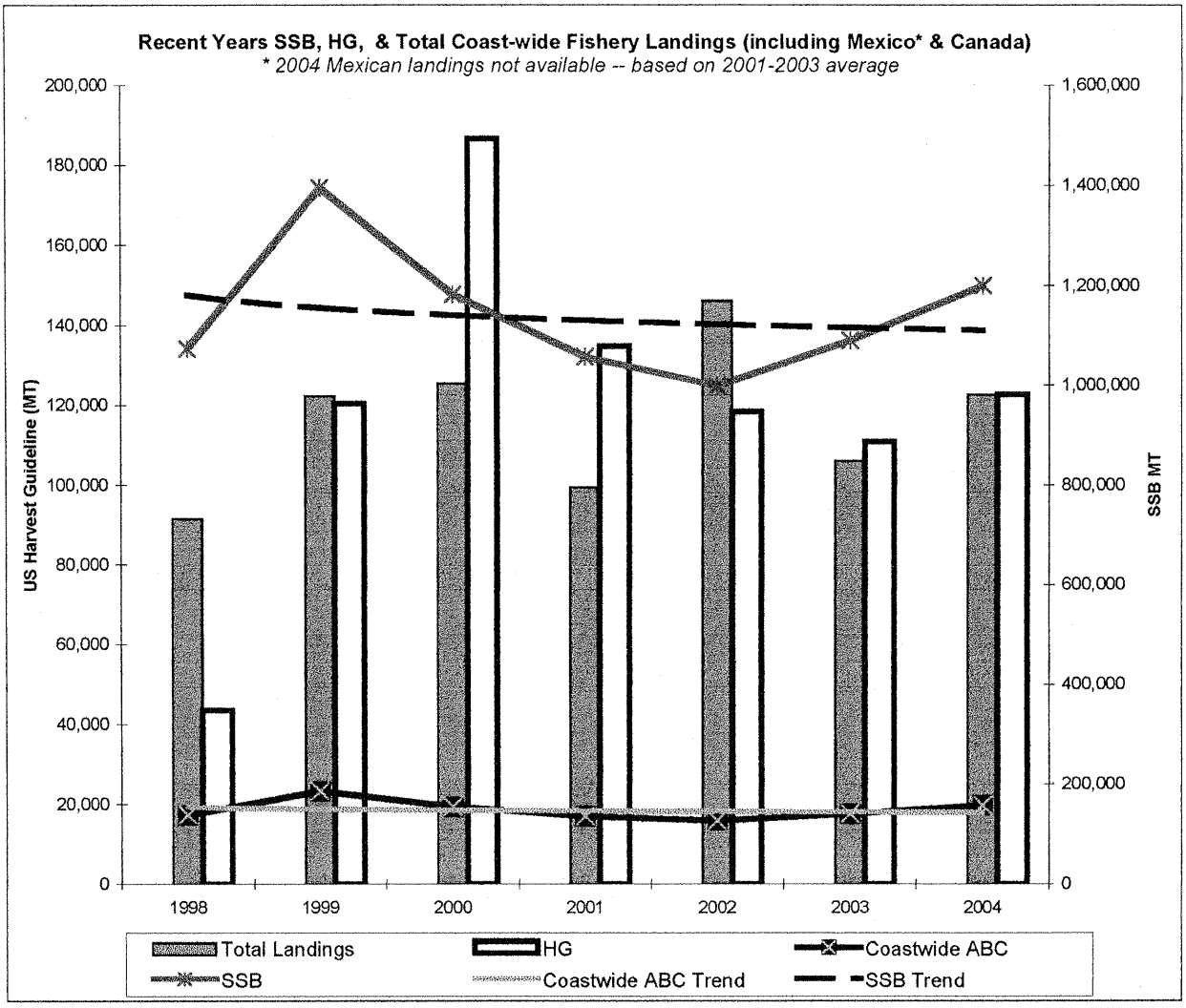
Sincerely,

Joe Cappuccio

Cc: Dr. Bill Hogarth, NMFS
Rod McInnis, NMFS SW Region

received 04/07/05
Public Comment (during her testimony)
Diane Pleschner-Steele

COAST-WIDE SARDINE LANDINGS vs. SPAWNING BIOMASS AND ACCEPTABLE BIOLOGICAL CATCH - 1998 - 2004



PACIFIC SARDINE FISHERY IN RECENT YEARS - 1998-2005

Sources: CDFG, PFMC, (PFMC 2004b) Table 14 - 2005 Sardine Stock Assessment

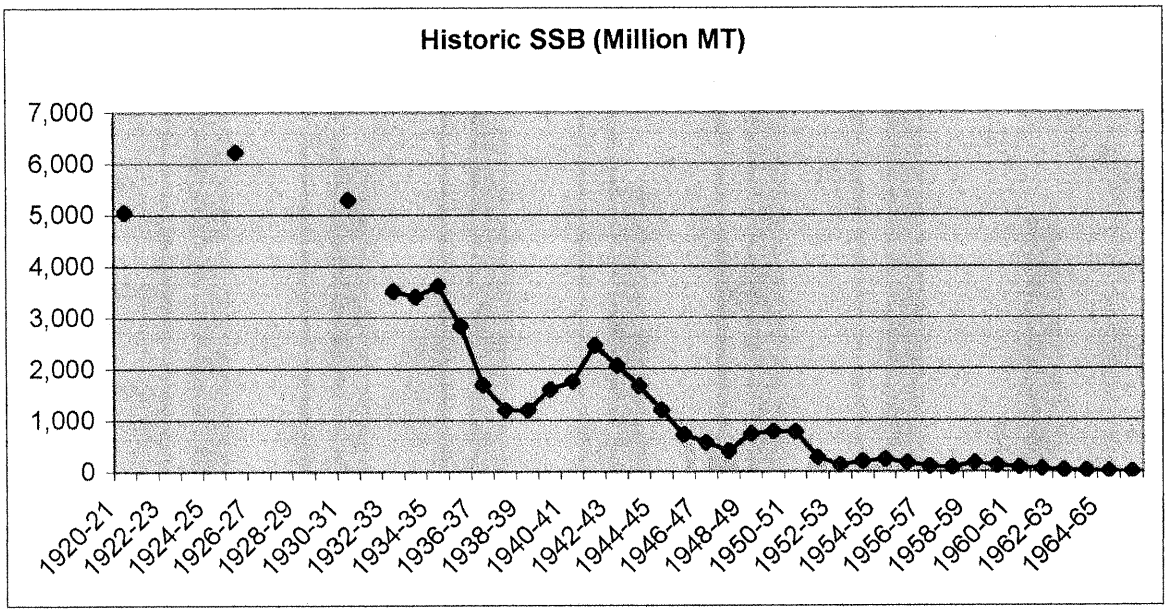
Season	SSB	U.S. HG	COAST ABC	BC	WA	OR	CA	Ensenada* Total (MT)	
(Calendar Yr)	MT	(mt)	(mt)		(mt)	(mt)	(mt)		
1998	1,073,000	43,545		745	0	0	42,956	47,812	91,513
1999	1,395,273	120,474	138,450	1,250	0	855	61,643	58,569	122,317
2000	1,182,000	186,791	186,791	1,718	4,791	9,528	58,203	51,173	125,413
2001	1,057,000	134,737	154,800	1,600	10,837	12,780	51,957	22,246	99,420
2002	999,000	118,442	136,050	1,044	15,212	22,713	63,712	43,436	146,117
2003	1,090,000	110,908	127,350	954	11,604	25,258	37,717	30,537	106,070
2004	1,200,000	122,747	141,000		8,799	36,111	47,702	32,073	122,743
2005		136,179	157,500						

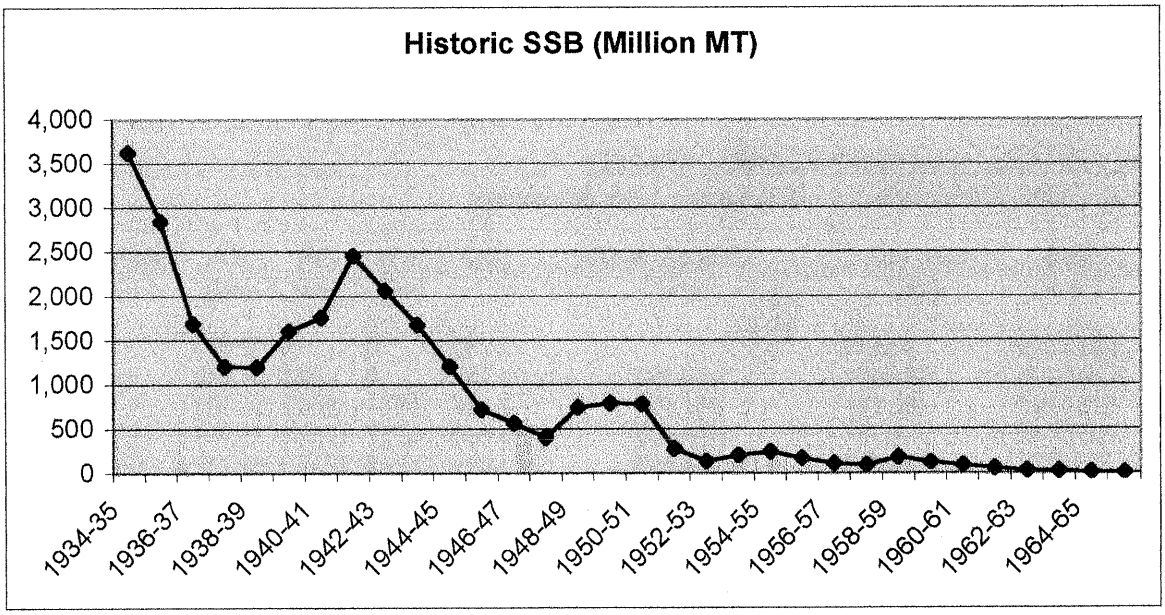
PACIFIC SARDINE LANDINGS 1916-1917 through 1967-1968 vs SSB
From Amendment 8 – Appendix A:

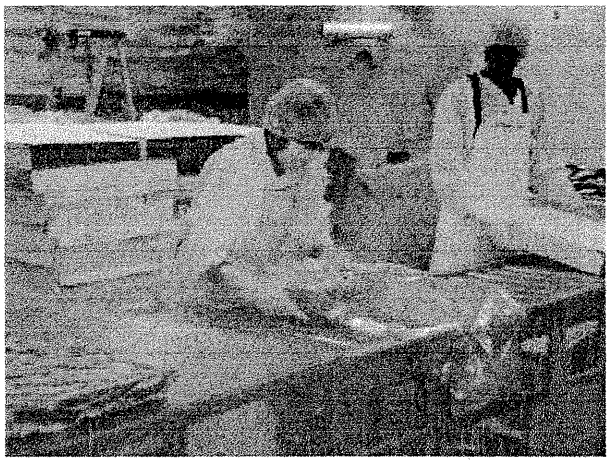
"Extreme natural variability and susceptibility to recruitment overfishing are characteristic of clupeoid stocks like Pacific sardine.... Sardine population declines were characterized as lasting an average of 36 years; recoveries lasted an average of 30 years. Biomass estimates of the sardine population inferred from scale-deposition rates in the 19th and 20th centuries indicate that the biomass peaked in 1925 at about 6 mllion metric tons.

SSB estimated from catch-at-age analysis averaged 3.5 million mt from 1932 through 1934, fluctuated between 1.2 million mt and 2.8 million mt over the next 10 years (1934-1944), then declined steeply during 1945 through 1965, with some short-term reversals..."

Note: 1944 SSB = 1.206 million mt – 1945 SSB = 720 thousand mt – 1946 = 405 thousand mt
The fishery disappeared from PNW after the 1948-49 season.







This year, packaging plants for sardines will have more raw material than in 2004

Tuna farms and exporters boost sardine demand

MEXICO
Thursday, February 03, 2005, 18:50 (GMT + 9)

While in the port of Ensenada, in Baja California, sardine for export and the tuna farms is increasingly demanded, local producers request a review of the sizes and the catch quotas to appropriately satisfy the demand.

According to Andrés Armenta González, leader of the National Fisheries and Aquaculture Industry Chamber (CANAINPESCA) in Baja California, a reduction in sardine size has been detected in the recent months.

Although this resource has never stood up in the region due to its big size, fishermen claim it is smaller than ever before, reported the website *Ensenada.net*.

It has thus been estimated that fishing sector representatives will ask the size and maturity status of catches to be verified, to guarantee that specimens are not caught before able to reproduce, which would jeopardise the fishery sustainability.

Currrently, most of the sardine from the region is destined to the tuna farms, where it is used as feed for tuna. The other part is processed in the packaging plants that trade the frozen product abroad.

A while ago, sardine was mainly destined for human consumption and the remains were used to produce fishmeal.

Armenta González pointed out last year was "exceptionally good" for tuna farms, which demanded large amounts of sardine because biomass was very abundant in farms.

The official estimates that the situation is not likely to be repeated this year, so plants will have more raw material to pack and freeze.

In the middle of 2004, the National Commission for Aquaculture and Fisheries (CONAPESCA) reported some Monterrey-type sardines (*Sardinops caerulea*) had very good size, and fat content (ideal features for packaging), but other specimens were only good for reduction. (See Market Reports, Pelagics, 31 May 2004)

According to CONAPESCA, some sardine specimens were frozen but not exported because size and quality were not up to standard to meet Japanes buyers' requirements.

By Analia Murias
www.fis.com

F2D

John P Heulman
PO Box 1251
Astoria, OR 97103
(503) 741-0460

To whom it may concern:

My name is John Huelman. I have been a fish spotter pilot since 1983. I was flying in 1985 west of Ventura California when we caught sardines for the first time in many years. Within months, sardines were more plentiful then the Pacific Mackerel that we had been targeting for the last two years.

We fished the sardines day and night the following years, along with the other fish available, most of the fish being seasonal.

There were six spotter pilots working for the San Pedro fleet on average during those years (1983-2000). The price of the sardines became so low that eventually the airplanes could no longer afford to fly for the boats. Today no one flies for the San Pedro fleet.

The boats today receive $80 per ton for the sardines in southern California. At that price, there is no money available to pay for spotter pilots. Yet the southern California fleet never catches their quota. They leave a large percentage of their quota on the table every year. If the southern California sardines are worth more (ref- Processor surplus figures) than the northern fish (Oregon & Washington), then there should be more effort to realize the economic potential that exists there. Certainly the processors should offer enough for the fish to allow fish spotters to help realize a larger catch. Yet that does not seem to be the case.

The reality is that the fish caught in southern California are worth far less than the high quality fish caught in Oregon and Washington. The northern fleet hires capable spotter pilots and the processors pay enough for the fishing boats to pay the spotter pilots.

Why the economic figures indicate a higher processor surplus in southern California is a question that I believe needs a more thorough review. I suspect there is a "mistake" somewhere in the data that the economic figures are based on.

The catch in Oregon and Washington increases every year. The market for the fish caught in Oregon seems to be increasing worldwide and every year the ex-vessel price has increased. These facts demonstrate that the economic benefit from the sardine fishery is increasing in the Oregon-Washington fishery.

Sincerely,

John Huelman

F2D

West Bay Marketing, Inc.
1600 Potrero GrandeDr., Suite 7,S. San Gabriel,CA91770
Tel: (626) 572 4600 Fax: (626) 572 4466, jc@fortunasea.com
OregonSardine Plant: 49Pier 2,PortofAstoria,Astoria,OR97103
Tel: (503) 325-6636 Fax: (503) 325-3373, westbaysardine@yahoo.com

April 5, 2005

Dear Council Members:

My name is John Chiang. I am Owner/ Partner of a business group owning West Bay Marketing/Processing, a sardine and seafood processing plant in Astoria, Oregon; California Refrigerated Services, a sardine and California squid processing plant and public cold storage in Long Beach, California; and seafood import/export companies in San Gabriel, California. I have been involving sardine exports from Mexico, California, & Oregon since 1998. I have helped the Oregon sardine industry successfully developed a tuna longline bait market in Taiwan, and a premium sardine can market in Japan. I also helped the Mexican and California sardine industry marketing sardine to the cannery market in Philippines and the tuna bait market in South Pacific. I am the one who has sardine processing plants in both Oregon and California and direct links to the sardine end users whether the mass cannery producers in the Philippines, China, or Malaysia, premium cannery producers in Japan, reprocessing for human consumption in China or Japan, or pelagic and near shore tuna longliners in Asia.

I am here to express my opinion and request the council to consider Alternative 1 option, "Coastwide Allocation in Two Periods". The reasons being simply as follows:

1. **This is the only natural resources responsible option and really makes sense economically and environmentally to all coastwide fishermen, producers, and governing agencies.**

2. **This option promotes sardine of highest possible value to be caught, so highly effective use and no wasting of our valuable ocean resources. For example, 70 – 300 grams fish has significantly higher value than the fish smaller than 70 grams; any excessive harvesting of fish smaller than 70 grams is considering wasting of resources. Fish under 70 grams are naturally too weak while harvesting and handling, and provide very low yield in the cannery market.**

3. **This option promotes sardine of highest abundance to be caught naturally, so highly efficient to fishermen, producers, and local economies. Like any other harvests, abundance means environmental conditions suitable for growing healthier crops.**
4. **This option could avoid derby fishery. In derby fishery, natural resources are often neglectfully wasted as due to time constraints, lower grade products produced, local economies highly fluctuated, market prices highly unstable, and so on.**

5. **This option could avoid locking up the sardine industry geographically, as highest value fish and/or highest abundance could happen in one or more areas at the same or in different times. Any of these variables will not affect the industry coastwide. No geographical assumption has been suggested, but based on historically scientific assumption; the valuable size fish appear in one area at one time could appear in another area at other time. If we lock up one certain harvest guideline within one certain region and if it happens that region does not produce valuable fish or any fish at all while other region produces favorable crops but under tight harvest guideline restriction, it will be unfair to fishermen, processors, local economies and most important of all, it will be irresponsible to our natural resources.**

6. **In any options, California naturally always has climate advantages over Oregon/Washington as California climate permits all year round fishing while Oregon only has about four months of fisherable weather. However, Oregon's cold/warm currents naturally produce better nutrients.**

I hereby request the Honorable Council Members accepting the option that is environmentally responsible to our resources and economically sound to our fishermen, processors, and local communities, Alternative 1: Coast Allocation in Two Periods, as the new sardine allocation.

Sincerely,

John Chiang, Owner/Partner
West Bay Marketing, West Bay Processing, & California Refrigerated Services

Itemized weighted average costs and revenues per metric ton of sardine product for each fishery sector.

	SCA Weighted Average	PNW Weighted Average
Revenue	$264.00	$700.00
Raw fish	$80.00	$154.00
Processing Labor	$40.00	$90.00
Energy	$25.00	$20.00
Packaging	$10.00	$50.00
Shipping Trucking	$15.00	$30.00
Storage/Freezing	$50.00	$20.00
Unloading	$33.00	$22.00
Ice/ Salt	$15.00	$18.00
Producer Surplus	($4.00)	$296.00

SCA based on the most quantity produced product, 15 kgs nude block with poly bag for cannery or tuna feed. PNW based on the most quantity produced product, 10kg carton.

Revenue prices based on FOB shipping ports.

Basically there is no market for fish under 60 grams.

Agenda Item F.1
Situation Summary
April 2005

NATIONAL MARINE FISHERIES SERVICE REPORT ON COASTAL PELAGIC SPECIES MANAGEMENT

National Marine Fisheries Service (NMFS) Southwest Region will briefly report on recent developments relevant to coastal pelagic species (CPS) fisheries and issues of interest to the Council. Specific items anticipated in the report include a discussion of the krill amendment and an update on the 2004-2005 Pacific mackerel fishery. The discussion of the krill amendment will include a progress report on the alternatives analysis including the anticipated role of the CPS Advisory Bodies, the question of a Maximum Sustainable Yield determination, and the selection of a preferred schedule. The Pacific mackerel fishery update will include a review of recent landings and a discussion of releasing the portion of the harvest guideline currently held in reserve for incidental take in other CPS fisheries.

Council Task:

Discussion.

Reference Materials:

1. Agenda Item F.1.a, NMFS Report 1: CPS Regulatory Activities.
2. Agenda Item F.1.a, NMFS Report 2: February 8, 2005 letter from Mr. Rod McInnis to Dr. Donald McIsaac detailing a statement of work, draft alternative analysis outline, and schedule options for the krill amendment.

Agenda Order:

a. Regulatory Activities — Mark Helvey
b. Science Center Activities
c. Reports and Comments of Advisory Bodies
d. Public Comment
e. Council Discussion

PFMC
03/18/05

NMFS Report—CPS Regulatory Activities

2004-2005 Pacific mackerel landings

The 2004-2005 Pacific mackerel harvest guideline was 13,268 metric tons (mt) with a directed fishery of 9,100 mt and a reserve of 4,168 mt. The Pacific mackerel season began on July 1, 2004, and ends on June 30, 2005. A landings update will be given at the April Council meeting.

NMFS will be releasing the unused portion of the Pacific mackerel directed fishery to allow for the incidental take of Pacific mackerel in the Pacific sardine fishery.

Pacific sardine 2005 harvest guideline

Based on a biomass estimate of 1,193,515 mt, the harvest guideline for Pacific sardine for January 1, 2005, through December 31, 2005, is 136,179 mt. The harvest guideline will be allocated one-third for the northern subarea, which is north of 39 00' N. latitude (Pt. Arena, California) to the Canadian border, and two-thirds for southern subarea, which is south of 39° 00' N. latitude to the Mexican border. For 2005, the northern subarea allocation would be 45,393 mt; the southern subarea allocation would be 90,786 mt.

A proposed rule was published on December 8, 2004 (69 FR 70973) that solicited public comment on the Council's harvest guideline recommendations. The public comment period ended on December 23, 2004. The final rule has been slowed by the need for an Endangered Species Act section 7 formal consultation. A final rule should be published by the beginning of May 2005. A 2005 Pacific sardine landings update will be given at the April Council meeting.

Krill Alternative Analysis

An update on the krill alternative analysis and timeline options will be given at the April Council meeting.

CPS observer program

An update on the NMFS-SWR's pilot observer program covering California purse seine fishing vessels landing CPS will be given at the April Council meeting.

Coordination with California Sea Grant

NMFS is assisting California Sea Grant in a project to provide information on current and potential trends of Santa Barbara Channel commercial fisheries. The objectives of the project are threefold: 1) to develop profiles of the current commercial fisheries and associated infrastructure needs of the four harbors in the Santa Barbara Channel region; 2) to identify factors that may alter the current fisheries profiles over the next 5 to 10 years, and describe how these changes may impact infrastructure needs, and 3) to identify potential alternatives for supporting the infrastructure needs of the various commercial fisheries.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

F/SWR2:MH

FEB 8 2005

Dr. Donald O. McIsaac
Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, Oregon 97220-1384

Dear Dr. McIsaac: Don,

Please find enclosed the proposed statement of work (SOW) to analyze and prepare the potential regulatory package for the proposed management and control of fishing for krill in the exclusive economic zone off the West Coast (Attachment 1). The SOW was prepared in response to the Pacific Fishery Management Council's (Council) initial conclusion to amend its Fishery Management Plan for Coastal Pelagic Species Fisheries (CPS FMP) as the preferred approach for controlling krill fishing in the EEZ.

The SOW is divided into two phases. The first phase involves preparing an alternatives analysis for evaluating alternative control rules for krill harvest. The alternatives analysis would provide the substantive information and analysis needed for a CPS FMP amendment consistent with the requirements of the National Environmental Protection Act and other applicable law. An outline of the alternatives analysis is provided in Attachment 2.

Should the Council identify a preferred alternative, the second phase would initiate preparation of the Regulatory Amendment and completions of environmental compliance documents. This would also include preparation of the proposed and final rules. Because of workload concerns with the CPS Team and CPS Advisory Subpanel, three different scheduling options for this phase are offered (Attachment 3). It is my understanding that the Council will have the opportunity to decide at the March meeting what option may be most appropriate.

The Southwest Region intends to assist the Council by undertaking both phases, keeping the CPS Team and CPS Advisory Subpanel apprised of our progress, and covering the costs of the effort. We are working with the National Marine Sanctuaries Program to assist us with the funding.

If you have any questions about the SOW or require additional details, please feel free to contact Mark Helvey at (562) 980-4040

Sincerely,

Rod

Rodney R. McInnis
Regional Administrator

Enclosure

cc: SWFSC, Dr. William Fox
SWFSC, Dr. Gary Sakagawa

Attachment 1

PROPOSED KRILL REGULATORY AMENDMENT
STATEMENT OF WORK

1. PHASE I

DELIVERABLE: Alternatives Analysis for Management and Control of Fishing for Krill in the exclusive economic zone (EEZ) off the West Coast

PURPOSE AND NEED FOR ANALYSIS: The Pacific Fishery Management Council (Council) has agreed to consider a request from the NOAA National Marine Sanctuaries off central California to prohibit krill fishing in the EEZ around the sanctuaries. The Council has initially concluded that amendment of its Fishery Management Plan for Coastal Pelagic Species Fisheries (CPS FMP) would be the preferred approach for controlling krill fishing in the EEZ, but the Council will need an analysis identifying the need for controls and evaluating the impacts and implications of alternatives for achieving those controls before deciding whether to complete and submit an amendment to the CPS FMP or to take some other action. The contractors propose to complete this documentation (the alternatives analysis) for presentation to the Southwest Region and Southwest Fisheries Science Center, NMFS, and to the Council. The alternatives analysis would provide the substantive information and analysis needed for a CPS FMP amendment (or any other alternative) consistent with the requirements of the National Environmental Protection Act and other applicable law. An outline of the document is attached.

SCOPE OF ANALYSIS: The alternatives analysis would address the following aspects of the issue that must be considered by the Council:

Status and role of krill – This would be an expansion of the report provided to the Council in June 2004 and would encompass what is known about krill resources and the impacts of krill fishing and the effectiveness of controls in other areas (e.g., Antarctic, north Pacific). It would address the role and importance of krill in the ecosystem and the potential impacts of lack of control on krill harvest

Alternative approaches by which krill harvest controls can be implemented, including

- Amend the CPS FMP to include krill as a management unit species
- Rely on existing authorities (Federal and State)
- Designate krill as element of essential fish habitat for one or more species of fish (this could possibly include designation of krill in the Sanctuaries as Habitat Areas of Particular Concern, or HAPC)
- Designate krill as "forage" for one or more other species of fish

Alternative control rules for krill harvest including

- Total prohibition of krill harvest throughout the EEZ (indefinite)

Immediate prohibition of krill harvest in EEZ but with a procedure whereby future harvest might be permitted as research and monitoring demonstrates this could be done with acceptable risk to krill and/or associated species

Prohibition of krill harvest in EEZ waters in the sanctuaries and possibly selected other areas of the EEZ but allowance of limited krill harvest in other waters

The analysis would evaluate the alternatives against a common set of criteria including:

Potential risk to krill

Potential risk to other animals (including implications for species of special interest such as marine mammals and species listed under the Endangered Species Act)

Administration (effects and effectiveness)

Finally, the alternatives analysis would identify research and data needs for improving future decisions on the management of krill in the EEZ.

The alternatives analysis would generally be in the format of an environmental assessment so that, if the Council decided to proceed with an amendment to the CPS FMP, little additional environmental review and analysis would be needed.

TIMING: A progress report (including a full description of the alternatives for analysis and of the scope of the analysis to be prepared) would be made to the Southwest Region and Center and to the Council in March 2005. The contractors would plan to meet with CPS Management Team and Advisory Subpanel members twice while developing the Alternatives Analysis, anticipating those meetings would be in Long Beach or Los Alamitos (only one contractor would have to travel for those meetings).

The alternatives analysis would be provided in draft to the Southwest Region and Center for review by the end of April 2005 and a final version could be provided to the Southwest Region and Center and to the Council as early as mid-May 2005 for consideration at the Council meeting in June 2005. However, other timing schedules are available for consideration by the Council.

A progress report (including a full description of the alternatives for analysis and of the scope of the analysis to be prepared) would be made to the Southwest Region and Center and to the Council in March 2005. The contractors would plan to meet with CPS Management Team and Advisory Subpanel members twice while developing the Alternatives Analysis, anticipating those meetings would be in Long Beach or Los Alamitos (only one contractor would have to travel for those meetings).

2. PHASE II

This phase includes summarizing formal public review comments with a proposed manner for addressing concerns to Council. The preparation of draft and final versions of the Regulatory Amendment including the required environmental compliance/economic analyses would be completed. Draft regulations would be prepared for Council's final adoption and the complete Council documents would be submitted to NMFS for review and approval.

Attachment 2

ALTERNATIVES ANALYSIS
MANAGEMENT OF KRILL FISHING OFF THE U.S. WEST COAST

Draft Outline - Table of Contents

4.3 Include Krill as Component of EFH
- 4.3.1 Effects on Status of Krill
- 4.3.2 Effects on Other Fish Species
- 4.3.3 Effects on Other Living Marine Resources
- 4.3.4 Effects on Other Fisheries
- 4.3.5 Economic Effects
- 4.3.6 Effects on Data Collection
- 4.3.7 Effects on Bycatch
- 4.3.8 Effects on Habitat
- 4.3.9 Effects on Protected Species

4.4 Designate Krill as Forage Species
- 4.4.1 Effects on Status of Krill
- 4.4.2 Effects on Other Fish Species
- 4.4.3 Effects on Other Living Marine Resources
- 4.4.4 Effects on Other Fisheries
- 4.4.5 Economic Effects
- 4.4.6 Effects on Data Collection
- 4.4.6 Effects on Bycatch
- 4.4.8 Effects on Habitat
- 4.4.9 Effects on Protected Species

4.5 Environmental Justice Concerns
4.6 Coastal Zone Management Act Concerns
4.7 American Indian Religious Freedom Act
4.8 Cumulative Impacts
4.9 Alternatives Considered but not Analyzed Fully

5.0 MITIGATION AND UNAVOIDABLE ADVERSE IMPACTS
5.1 Mitigating Measures
5.2 Unavoidable Adverse Impacts
5.3 Irreversible and Irretrievable Commitment of Resources

6.0 CONSIDERATION OF NOAA AND CEQ SIGNIFICANT IMPACT CRITERIA

7.0 LIST OF PREPARERS

8.0 LIST OF AGENCIES AND PERSONS CONSULTED

9.0 SOURCES

ATTACHMENTS

Draft regulations for alternatives as appropriate

Attachment 3

Krill Regulatory Amendment Schedule

ACTIVITIES	Option 1	Option 2	Option 3
1. NMFS briefs CPS Team (in writing) on planned contents/timing of Alternatives Analysis; discuss role and mechanisms for Team involvement; consider advice and discuss consequences with Council staff and NMFS	February-05	February-05	February-05
2. NMFS briefs Council on Alternatives Analysis (purpose, contents, timing, and points for Team and advisors' advice and Council decisions); seek initial decisions on alternatives for full analysis in prospective public review draft of Regulatory Amendment and associated environmental compliance documents (e.g. NEPA; ESA)	March-05	March-05	March-05
3. NMFS briefs CPS Team on progress of Alternatives Analysis; seek advice/comment from Team	April-05	April-05	April-05
4. Council action (after comment from CPS Team, advisors and others) to clear public review draft of Regulatory Amendment and environmental compliance documents based on AA comments/discussion. Actions include designation of preferred alternative as well as commitment to schedule for final Council action.	June-05	September-05	November-05
5. NMFS presents summary of formal public review comments to Council with proposed manner for addressing concerns; seek Council advice on any likely desired changes from preferred alternative and confirmation of schedule for final action.	September-05	November-05	March-06
6. NMFS presents proposed final Regulatory Amendment with required environmental/ economic analyses and draft regulations to Council for final adoption	November-05	March-06	April-06
7. Complete Council documents for submission to NMFS for review and approval	January-06	May-06	June-06
8. Proposed rule published	February-06	June-06	July-06
9. Final rule published	April-06	August-06	September-06
10. Final rule implemented	June-06	October-06	November-06

Agenda Item F.2
Situation Summary
April 2005

FISHERY MANAGEMENT PLAN AMENDMENT 11--SARDINE ALLOCATION

The Council is working to implement a comprehensive, long-term allocation framework to apportion the annual Pacific sardine harvest guideline among the various sectors of the sardine fishery. The resulting Amendment 11 to the Coastal Pelagic Species (CPS) Fishery Management Plan (FMP) is intended to achieve optimal utilization of the resource and equitable allocation of harvest opportunity. The Pacific sardine resource is healthy and abundant, supporting fisheries in California, Oregon, and Washington.

The original Pacific sardine allocation formula, implemented in the CPS FMP in 1998, was incorporated into Federal management from existing California State law and was designed to balance fishing opportunity between the Southern California-based fishery and the Monterey-based fishery. As the Pacific sardine biomass expanded, fisheries developed in the Pacific Northwest. With this expansion, under the original formula, the northern area allocation was shared by Monterey-, Oregon-, and Washington-based fisheries. Oregon and Washington fishery interests expressed concern to the Council that the original allocation framework did not provide optimal harvest opportunity to the respective fishery sectors. In 2003, the Council recommended and NMFS implemented an interim framework for allocating sardine for the 2003 and 2004 fishing seasons, and also in 2005 if the 2005 harvest guideline was at least 90% of the 2003 harvest guideline. Section 1.2 of the Preliminary Alternatives Analysis (Agenda Item F.2.b) provides additional information on the history of Pacific sardine allocation and the need for the proposed action.

At the November 2004 meeting, the Coastal Pelagic Species Advisory Subpanel (CPSAS) presented several program objectives and a suite of alternative allocation formulae. The Council adopted program objectives and allocation alternatives for analysis, including the recommendations of the CPSAS. Chapter 2 of the Preliminary Alternatives Analysis (Agenda Item F.2.b) presents a description of the program objectives and allocation alternatives adopted for analysis by the Council.

For the analysis, the Council gave specific direction to the Coastal Pelagic Species Management Team (CPSMT), including: (1) analyze each alternative in a consistent manner; (2) review differential impacts on northern and southern sectors for each alternative; (3) review effects of high and low catch years by sector for each alternative; (4) review resulting effects at various harvest guideline levels ranging from 25,000 - 200,000 mt (at appropriate intervals) for each alternative; and (5) at the discretion of the CPSMT, combine aspects of the various alternatives to create new alternatives that meet program objectives.

Preliminary analyses conducted by the CPSMT are presented in the Preliminary Alternatives Analysis (Agenda Item F.2.b). As with the interim allocation framework, this proposed action is not anticipated to have significant adverse biological impacts or create resource conservation concerns (see Agenda Item F.2.b, Chapter 1). Potentially significant effects evaluated in the Alternatives Analysis are confined to economic impacts associated with harvest opportunities

between fishery sectors and attainment of the harvest guideline (see Agenda Item F.2.b, Chapter 3), and impacts to protected resources, namely salmon stocks listed under the Endangered Species Act. (see Agenda Item F.2.b, Chapter 4).

The Council will hear reports from NMFS, as well as receive advice from the Council advisory bodies and the public, and adopt a range of Pacific sardine allocation alternatives for public review. The Council is scheduled to adopt a preferred allocation alternative at the June 12-17, 2005 Council meeting in Foster City, California.

Council Task:

Adopt a Range of Sardine Allocation Alternatives for Public Review

Reference Materials:

1. Agenda Item F.2.b, NMFS Report: Preliminary Alternatives Analysis for the Allocation of Pacific Sardine Harvest Guideline, Amendment 11 to the Coastal Pelagic Species Fishery Management Plan.
2. Agenda Item F.2.d, Public Comment.

Agenda Order:

a.	Agenda Item Overview	Mike Burner
b.	NMFS Report	Sam Herrick
c.	Reports and Comments of Advisory Bodies	
d.	Public Comment	
e.	**Council Action**: Adopt a Range of Sardine Allocation Alternatives for Public Review	

PFMC
03/18/05

ALLOCATION OF THE PACIFIC SARDINE HARVEST GUIDELINE

AMENDMENT 11 TO THE COASTAL PELAGIC SPECIES FISHERY MANAGEMENT PLAN

PRELIMINARY ALTERNATIVES ANALYSIS

PREPARED BY:
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DEPARTMENT OF COMMERCE
NATIONAL MARINE FISHERIES SERVICE
SOUTHWEST REGION

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1.0 INTRODUCTION

1.1. The Proposed Action

The proposed action is to implement a comprehensive, long-term allocation framework to apportion the annual Pacific sardine harvest guideline among the various sectors of the sardine fishery. The Pacific sardine resource is healthy and abundant, supporting fisheries in California (Los Angeles harbor area and Monterey Bay area), in Oregon (Port of Astoria), and Washington (ports of Westport and Ilwaco). When considering the impacts of the proposed action on the human environment, the context is sardine stocks in the West Coast exclusive economic zone (EEZ), harvesters and processors of the sardine resource on the West Coast, and the fishing communities within which they reside.

The purpose of the proposed action is to foster optimal resource utilization and equitably allocate harvest opportunity.

1.2. Why the Proposed Action is Needed

The Council adopted the CPS FMP in 1998. The CPS FMP was implemented by NMFS in December 1999 (64 FR 69888). The original Pacific sardine allocation formula in the FMP partitioned 33% of the annual harvest guideline to the northern subarea ("Subarea A") and 66% to the southern subarea ("Subarea B"). Nine months after the January 1 start of the fishery (i.e., October 1), the remaining harvest guideline was pooled and re-allocated 50%–50% to each subarea. The original boundary between the two subareas was 35° 40' N lat. (approximately Point Piedras Blancas, California, see Figure 1). This formula was incorporated into Federal management from existing California State law. The State law was designed to balance fishing opportunity between the Southern California-based fishery ("South") and the Monterey-based fishery ("North"). At the time of the FMP's implementation, this was considered a status quo action (as the sardine fishery occurred, principally, in California) with no environmental impacts. No alternative allocation formulae were considered.

As the Pacific sardine biomass expanded, fisheries developed in the Pacific Northwest. With this expansion, under the original formula, the northern area allocation was shared by Monterey-, Oregon-, and Washington-based fisheries. Oregon and Washington fishery interests expressed concern to the Council that the original allocation framework did not provide optimal harvest opportunity to the respective fishery sectors. Each of the three sectors operates over a unique schedule. Generally, Southern California starts harvesting sardine January 1 and harvest increases steadily throughout the year; Northern California starts in August (tied to market squid availability) and harvest increases through January or February of the following year; and Oregon and Washington have a much more abbreviated season, which starts in June and ends in October. Because these sectors operate on very different schedules, annual allocations help to ensure that each sector receives a reasonable fishing opportunity. Ex-vessel landings in all sectors are driven by domestic and international market forces for sardines, as well as the availability and markets for other species of economic benefit to sardine vessels and processors (for example, market squid). The Northern California fishery and Pacific Northwest fishery are also affected by adverse weather.

In April 2003, the Council recommended to NMFS an interim framework for allocating sardine. The revised allocation system: (1) changed the definition of Subarea A (northern subarea) and Subarea B (southern subarea) by moving the geographic boundary between the two areas from 35° 40' N. lat. (Point Piedras Blancas, California) to 39° N. lat. (Point Arena, California), (2) moved the date when Pacific sardine that remains unharvested is reallocated to Subarea A and Subarea B from October 1 to September 1, (3) changed the percentage of the unharvested sardine that is reallocated to Subarea A and Subarea B from 50 percent to both subareas to 20 percent to Subarea A and 80% to Subarea B, and (4) reallocates all unharvested sardine

that remains on December 1 coastwide.

The Council requested this allocation framework be in place for the 2003 and 2004 fishing seasons, and also in 2005 (if the 2005 harvest guideline is at least 90% of the 2003 harvest guideline). NMFS implemented the revised allocation framework by a regulation that was published on September 4, 2003 (68 FR 52523).

Using the best available information, the interim allocation framework was rapidly developed to address concerns in the short-term. At the time, it was understood that more information and time would be needed to develop a more comprehensive, longer-term allocation framework, which is why the proposed action is needed.

1.3. Determining the Scope of the Analysis

Regulations promulgated by the Council on Environmental Quality (CEQ) mandate scoping: "an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). The Council process has been the mechanism for involving the public in this process. Amending the FMP to establish a permanent allocation framework was on the Council's agenda at their June, September, and November meetings in 2004. At the June meeting the Council directed staff and advisory bodies to begin work on an FMP amendment to implement the allocation framework.

The CPS Advisory Subpanel (CPSAS) met August 3–4, 2004, to develop a preliminary range of alternatives, which were reported to the Council in September. The CPS Management Team (CPSMT) met August 5 and, among other things, reviewed the advice provided in a May 18, 2004, letter from Rodney McInnis, Acting Regional Administrator, NMFS SWR, to Council Chair Donald Hansen. Mr. McInnis recommended that an FMP amendment prepared in connection with the sardine allocation framework also address several other issues related to CPS management. He concluded by recommending "the Council initiate scoping to determine if a full EIS process is warranted for the next amendment to the CPS FMP," based on an expanded scope for the FMP amendment and the fact that the last EIS prepared in connection with the CPS FMP is more than five years old. On July 19, 2004, the Council and NMFS published a notice of intent (NOI) to prepare an environmental impact statement (EIS) for this action (69 FR 42968).[1] However, in the report of their August 5 meeting, the CPSMT concluded that the additional issues raised by Mr. McInnis should not be addressed in this FMP amendment. Relative to preparing an EIS, the Management Team stated they were "not aware of any evidence that a comprehensive review of the FMP is warranted. If NMFS believes a full programmatic FMP EIS for CPS … is needed, the CPSMT suggests it would take at least two years to develop…"

The Council took up these issues at their September meeting when providing further guidance on the development of the FMP amendment. They reemphasized that the allocation framework was the highest priority and should be the focus of the current proposed action. The other issues raised by Mr. McInnis would be taken up in subsequent FMP amendments.

The CPSAS met again on September 28–29 to further refine the range of alternatives. Their report containing

[1] The NOI established a time period for receiving comments on the intent to prepare an EIS. The Council received one comment letter during this time period, from the California Wetfish Producers Association. The letter presented recommendations for the range and type of alternatives to be considered.

the more developed alternatives was presented at the November Council meeting. The Council approved them as a preliminary range to be analyzed by CPSMT members and agency staff.

Team members and staff began their work by assessing the alternatives in order to identify environmental impacts and narrow the scope of the present analysis to the significant issues that will be analyzed in depth and eliminating from detailed study the issues which are not significant (40 CFR 1501.7). They used nine factors enumerated in NOAA NEPA guidance (NAO 216-6) §6.02, specific guidance on fishery management actions, in order to screen for potentially significant impacts and determine the scope of the analysis. These factors generally focus on components of the human environment[2] potentially affected by a fishery management action. (Regulations at 40 CFR 1508.27 list characteristics related to the intensity—or severity—of the impact, which were considered in the context of the environmental components listed below.) As part of this process NMFS and Council staff reviewed the environmental assessment (EA) for the interim allocation framework for 2003–2005 and the pursuant finding of no significant impact (FONSI) (both hereby incorporated by reference). This review assessed whether the impacts of the current proposed action would differ substantially from those of the interim allocation, increasing the likelihood of significant impacts.

The nine factors from NAO 216-6 §6.02 are listed below followed by an assessment of the likelihood of whether consideration of these environmental components may be eliminated from detailed discussion because the likelihood of significant impacts is remote.

a. The proposed action may be reasonably expected to jeopardize the sustainability of any target species that may be affected by the action.

The CPS FMP establishes an environmentally-based harvest guideline for sardines. The harvest guideline establishes a minimum threshold value of 150,000 mt for the stock biomass. Harvest of any biomass surplus to this cutoff value varies between 15% and 5%. Sea surface temperature, an environmental cue influencing stock productivity, is used as a variable in a formula to compute the actual harvest rate between these upper and lower bounds. If the harvest guideline is not exceeded, there is little risk that overfishing would occur; therefore, the sustainability of the target resource would not be jeopardized. As with the interim allocation framework, the proposed action will not change the fishery in such a way as to increase the risk that the harvest guideline would be exceeded.

b. The proposed action may be reasonably expected to jeopardize the sustainability of any non-target species.

The sardine fisheries affected by the proposed action have very low incidental catches of non-target species. The main incidental catch is of northern anchovy, a CPS fishery management unit species. Catch is monitored and accounted for in determining total harvest mortality on this stock. This ensures that incidental catch will not jeopardize the sustainability of these species. Other species are caught in very small quantities, with no likelihood of jeopardizing sustainability. Protected species (ESA listed, marine mammals, seabirds) are incidentally caught but considered separately under factor e below. The proposed action is not predicted to change incidental catch rates in such a way to jeopardize the sustainability of fish stocks other than protected species.

[2] Regulations (40 CFR 1508.14) state "Human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment."

c. The proposed action may be reasonably expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs.

Fisheries affected by the proposed action are prosecuted in pelagic habitats, which, because of their physical characteristics, are not are not significantly affected by the fishing gear. The proposed action will not affect the way in which fisheries are prosecuted such that effects on habitat would change from current conditions.

d. The proposed action may be reasonably expected to have a substantial adverse impact on public health or safety.

The interim allocation EA discusses health and safety implications for that management regime as follows:

> The proposed action is anticipated to enhance safety at sea (NS-10) by advancing the reallocation date from October 1 to September 1. Waiting until October 1 to reallocate has the potential of inducing Pacific Northwest fishers to fish in unsafe weather conditions. Ocean conditions off Oregon and Washington become increasingly rough in October. Also, crossing the Columbia River bar, always a hazardous exercise, becomes very dangerous during this time of year. (page 31)

The action alternatives considered under the current action either include reallocation on September 1 or have mechanisms to allow Pacific Northwest fishers continued access to harvest opportunity in September. As a result, the proposed action will not affect safety in a manner substantially different from the interim allocation regime, and will not have significant impacts on safety. There are no public health implications stemming from the action.

e. The proposed action may be reasonably expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species.

Adverse effects on threatened species may be considered in two contexts. First, the fishery target is an important forage species for a wide range of marine animals, including protected species. Second, fisheries subject to the proposed action could incidentally catch protected species, contributing to human-caused mortality. When developing the harvest guideline (see a above) the importance of CPS management unit species as forage fish was considered. The CPS FMP, as quoted in the interim allocation EA, notes:

> Sardine are important as forage to a large number of birds, marine mammals, and fish predators (including endangered species) although few data are available, because of the scarcity of sardine, until recently. Decisions about harvest formula options and the definition of overfishing for sardine must, therefore, consider sardine as forage. Forage and ecosystem-related goals and objectives are included in this FMP. (page 4)

As noted under a, above, the proposed action does not affect the calculation of the harvest guideline.

Section 2.2 of Appendix A to the CPS FMP reviews the incidental take of marine mammals, endangered salmon, and seabirds. CPS fisheries are categorized as Category II under the Marine Mammal Protection Act, meaning that incidental mortality of marine mammals is less than 50% of the potential biological removal (PBR) level. Although quantitative data are limited, anecdotal information indicates that the most significant interaction is between pilot whales and the squid fishery, a fishery not affected by the proposed action.

NMFS conducted an informal Section 7 consultation, pursuant to the ESA, in 1998 and found that CPS fisheries would not jeopardize the continued existence of endangered salmon stocks. However, this occurred before the development of a significant sardine fishery off the mouth of the Columbia River, which is the major factor driving the development of the new allocation scheme considered as the proposed action. Listed

salmon stocks (evolutionarily significant units) returning to the Columbia River system could be intercepted by sardine purse seine fisheries. Current data only identifies numbers of intercepted salmon at the species level, if that, which is insufficient to determine if listed stocks are being intercepted. For this reason NMFS decided to undertake a formal Section 7 consultation to determine if any stocks are being jeopardized. A jeopardy determination is also used as the threshold for identifying a significant impact to listed species in the NEPA context. The analysis in this draft document is based on the Biological Opinion prepared in the ESA consultation process.

f. The proposed action may be reasonably expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species.

The interim allocation EA discusses cumulative effects; the same factors would come into play in relation to the effects of the proposed action. For target and non-target species these factors are other fisheries taking CPS, especially Canadian and Mexican fisheries, and fluctuations in the ocean environment. For the target species, calculation of the harvest guideline takes these factors into account, so cumulative adverse effects are very unlikely. The non-target species with more than negligible harvest in the sardine fisheries is northern anchovy, another CPS monitored although not actively managed under the FMP. According to information in the most recent SAFE document, combined fishing mortality from all sources is well below the threshold that would constitute overfishing.

g. The proposed action may be expected to have a substantial impact on biodiversity and ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc).

As noted above, sardines are an important prey item (forage) for a wide range of marine animals; the primary significant ecosystem effect would be a reduction in sardine sufficient to threaten these other ecosystem components. As noted above, the harvest guideline was developed to account for their ecosystem role as forage. Because the proposed action would not affect the harvest guideline, significant impacts ecosystem impacts are not predicted.

h. If significant social or economic impacts are interrelated with significant natural or physical environmental effects, then an EIS should discuss all of the effects on the human environment.

The effects of allocation are almost exclusively economic. Therefore, the environmental impact assessment also evaluates these types of effects for potential significance. However, social or economic impacts by themselves, if there are no interrelated significant natural or physical environmental effects, would not meet the threshold requirement for preparing an EIS.

i. A final factor to be considered in any determination of significance is the degree to which the effects on the quality of the human environment are likely to be highly controversial. Although no action should be deemed to be significant based solely on its controversial nature, this aspect should be used in weighing the decision on the proper type of environmental review needed to ensure full compliance with NEPA. Socio-economic factors related to users of the resource should also be considered in determining controversy and significance.

Developing a new allocation scheme has been somewhat controversial because it has the potential of changing the distribution of socioeconomic benefits derived from sardine fisheries. This was an important factor in the initial determination to prepare an EIS. The EIS process includes a formal public comment opportunity in addition to any opportunities afforded as part of the Council process, which could help to make the decision-making process less controversial. The guidance states that no action should be deemed significant because of controversy alone; but an assessment of measurable non-significant impacts combined with the public expressing substantial concern could be a reason for preparing an EIS.

1.4. Purpose of This Document

As described in the chronology of events outlined above, a preliminary assessment by staff, in part based on the advice from Mr. McInnis, led to the decision to prepare an EIS. However, subsequent evaluation by the CPSMT and staff, considering the scope of the action, narrowed the scope of potential issues that need detailed evaluation. Three factors from NAO 216-6 §6.02 required further evaluation to adequately determine if potential impacts warrant preparation of an EIS:

1. Salmon stocks listed under the endangered species act (ESA) could be incidentally taken in numbers that would jeopardize their continued existence (factor e).
2. Allocation could affect the distribution of revenue and income across the regions designated in the allocation framework, engendering potentially significant economic impacts (factor h).
3. Because the action establishes a permanent allocation scheme, it could be highly controversial (factor i).

The preliminary analyses on listed salmon and economic impacts in this document, by disclosing whether significant impacts are predicted, can be used to determine if it is necessary to prepare an EIS. In this respect, this document functions as a preliminary EA; regulations (40 CFR 501.4) state that an agency shall prepare an EA to make its determination whether to prepare an EIS. If the preliminary analysis shows no significant impacts, a full EA and FONSI will be prepared after the Council takes final action, scheduled for the June 2005 meeting. (A Federal Register notice would be published when the EA is completed to notify the public of the decision not to prepare an EIS.) If significant impacts are predicted, NMFS and the Council will reaffirm their original intent to prepare an EIS; a draft EIS (DEIS) would then be published after the June Council meeting, commencing the public comment period.

Another factor considered in the decision of what type of NEPA document to prepare—aside from a finding of no significant impact—is the difference between an EIS and EA timeline. The shorter timeline for completing an EA would make it easier to implement the allocation framework before the beginning of the 2006 fishing year. The EIS process includes mandated public comment on a DEIS and publication of a final EIS responding to those comments before the action can be implemented. But many of the benefits of public participation have been accomplished through the Council process. For example, affected parties have been substantially involved in the development of the alternatives through the CPS Advisory Subpanel. Members of the public also have an opportunity to comment orally and in writing on the proposal, the analysis, and the Council action as part of the Council meeting process. Although a formal response is not required, these comments are considered by decision-makers and analysts evaluating the proposed action.

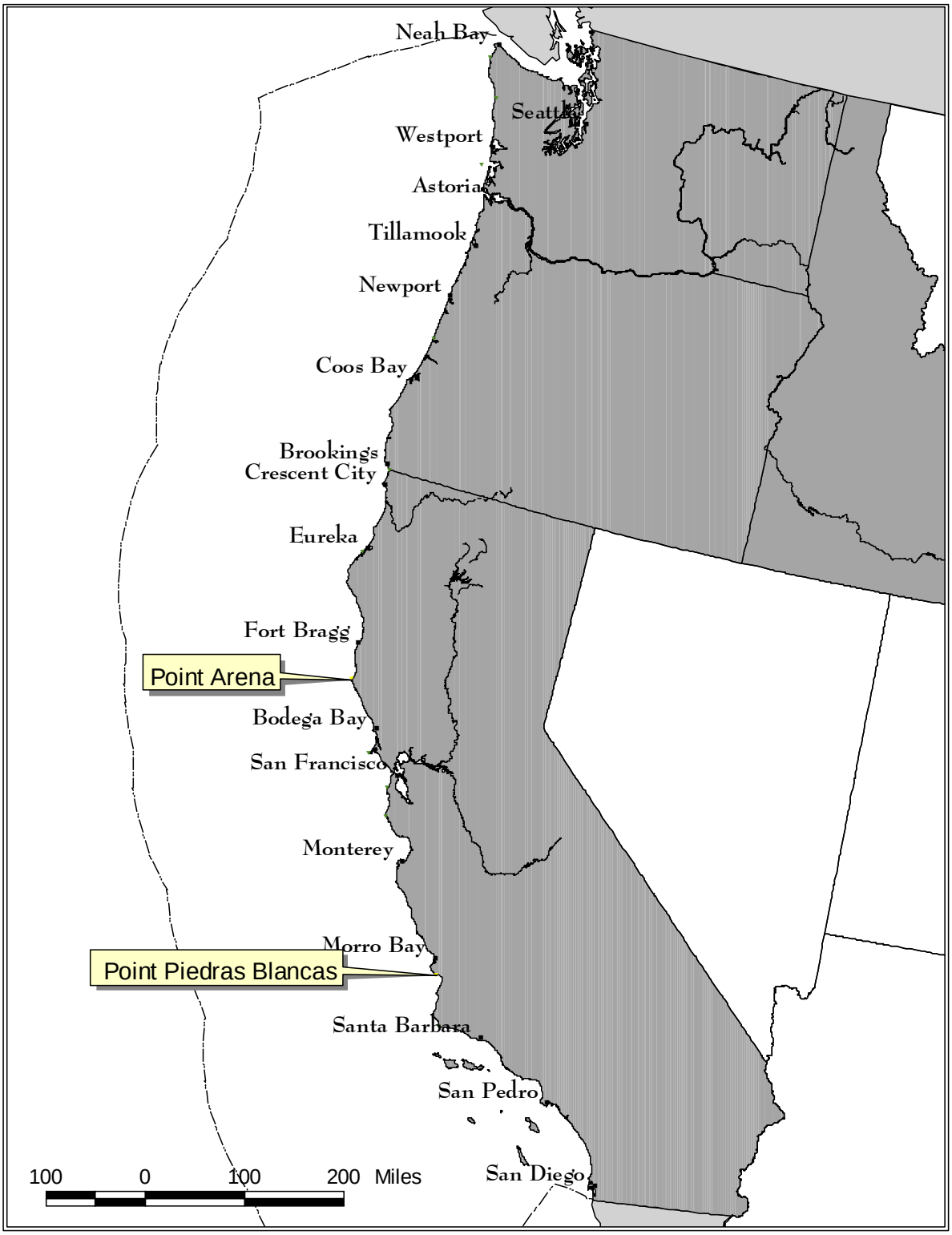

Figure 1-1. West Coast ports and sardine allocation subarea boundaries.

2.0 ALTERNATIVES

2.1. Development of the Alternatives

The CPSAS adopted the range of alternatives for sardine allocations at meetings in August and September 2004. At their November 2004 meeting the Council reviewed these alternatives and with some modifications and additions forwarded them to the CPSMT for preliminary analysis. They also identified the following program objectives, which can serve as a basis for evaluation.

- Strive for simplicity and flexibility in developing an allocation scheme.
- Transfer quota as needed.
- Utilize optimum yield.
- Implement a plan that balances maximizing value and historic dependence on sardine.
- Implement a plan that shares the pain equally at reduced harvest guideline levels.
- Implement a plan that produces a high probability of predictability and stability in the fishery.

The Council will review the analysis at their April 2005 meeting and adopt the final range of alternatives for public review.

2.2. Description of the Alternatives

Nine alternatives were forwarded for analysis including both a no action alternative is and a status quo alternative. If the Council takes no action, the allocation framework would revert to original FMP formula that was in place before the regulatory amendment was implemented in 2003. Under status quo the Council takes action to extend the interim allocation framework. The order of alternatives does not indicate rank or priority. All alternatives (except No Action) use Point Arena, California (39° N latitude) as the dividing line between the allocation subareas.

In order to present the alternatives in a clear and comparable fashion the descriptions bullet the fishing season and the allocations and reallocations made at different points during the fishing season.

No Action: FMP Allocation Framework

The allocation subareas are divided at Point Piedras Blancas, California (35° 40° N latitude).

Season: January 1–December 31

Initial allocation: On January 1, 33% of the harvest guideline is allocated to the Subarea A (north, which includes Monterey) and 66% to the Subarea B (Southern California)

Reallocation: On October 1 remaining unharvested portion of the harvest guideline is pooled and reallocated 50% to Subarea A (north) and 50% to Subarea B (south).

Status Quo: Interim Allocation Framework

Season: January 1–December 31

Initial allocation: On January 1, 33% of the harvest guideline is allocated to the Subarea A (north) and 66% to Subarea B (south).

Reallocation: On September 1 20% of the remaining unharvested portion of the harvest guideline is reallocated to the Subarea A (north) and 80% to Subarea B (south).

Second reallocation: On December 1 the remaining unharvested portion of the harvest guideline is reallocated coastwide.

Alternative 1: Coastwide Allocation In Two Periods

Season: January 1–December 31

Initial allocation: On January 1; 50% of the harvest guideline is allocated coastwide.

Reallocation: On July 1 the remaining harvest guideline (50% plus any unharvested portion from the initial allocation) is allocated coastwide.

Alternative 2: Coastwide Allocation on June 1

Season: June 1–May 31

Initial allocation: On June 1 100% of the harvest guideline is allocated coastwide with no subsequent reallocation.

Alternative 3: Coastwide Allocation In Three Periods

Season: January 1–December 31

Initial allocation: On January 1 40% of the harvest guideline is allocated coastwide

Reallocation: On July 1 40% of the harvest guideline (plus any unharvested portion from the initial allocation) is allocated coastwide

Second reallocation: On October 1 20% of the harvest guideline (plus any unharvested portion from the first reallocation) is reallocated coastwide.

Alternative 4: Allocation Formula Depends on the Size of the Harvest Guideline

Season: January 1–December 31

The coastwide harvest guideline is greater than 100,000 mt:

Initial allocation: On January 1 40% of the coastwide harvest guideline is allocated to the Subarea A (north) and 60% to the Subarea B (south).

Reallocation: On September 1 the remaining unharvested portion of the harvest guideline is pooled and allocated coastwide.

The coastwide harvest guideline is less than 100,000 mt:

Initial allocation: On January 1 33% of the coastwide harvest guideline is allocated to Subarea A (north) and 66% to the Subarea B (south).

Reallocation: On September 1 the remaining unharvested portion of the coastwide harvest guideline is pooled and 20% is allocated to Subarea A (north) and 80% to the Subarea B (south).

Second reallocation: On November 1 any remaining unharvested portion of the harvest guideline is again pooled and reallocated coastwide.

Alternative 5: Set-aside Released Incrementally During the Initial Allocation Period

Twenty percent of the harvest guideline is set aside at the start of the year, to be released in increments during the initial allocation period (January 1–September 30). The remaining 80% of the harvest guideline is initially allocated 40% to Subarea A and 60% to Subarea B. The set-aside is released in increments to a subarea once more than 90% of the initial allocation has been caught in that subarea (i.e., in Subarea A 28.8% of the coastwide harvest guideline and in Subarea B 43.2% of the coastwide harvest guideline). The analysis evaluates the effect of different size increments, ranging from 2% to 10% of the coastwide harvest guideline (i.e., 10%–50% of the set-aside).

Season: January 1–December 31

Initial allocation: On January 1 32% of the coastwide harvest guideline is allocated to Subarea A (north) (40% of the 80% remaining harvest guideline after the set-aside is deducted) and 48% to the Subarea B (south) (60% of 80%), with incremental release of the remaining 20% set-aside as described above.

Reallocation: on October 1 the remaining unharvested portion of the harvest guideline (which includes any of the remaining set-aside) is pooled and reallocated coastwide.

Alternative 6: Transfer of Unused Allocations Between Subareas

Season: January 1–December 31

Initial allocation (for 2006 only): On January 1 40% of the harvest guideline is allocated to the Subarea A (north) and 60% to the Subarea B (south).

Reallocation: on September 1 the remaining harvest guideline is pooled and allocated coastwide.

Transfer Rules For Computing Subsequent-Year Allocations

After the initial year (2006) these rules dictate the allocations to each subarea in each subsequent year:

Rule 1: The transfer of a portion of the harvest guideline from one subarea to the other, for the purpose of recomputing allocation percentages for the next year, occurs if the portion of a subarea's allocation remaining uncaught at the end of the year is greater than the transfer limits described in Rule 2.

Rule 2: If the harvest guideline is greater than 100,000 mt, the transfer amount will be equal to 10% of the coastwide harvest guideline for that year. When the coastwide harvest guideline is 100,000 mt or less, the transfer amount will be 5,000 mt.

Rule 3: The transfer amount is applied to the current-year allocation for each subarea. The resulting numerical values are then converted to percentages of the current-year coastwide harvest guideline and used to determine the initial allocation for the following year.

Rule 4: No subarea may initially be allocated more than 75% of the coastwide harvest guideline.

Rule 5: The September 1 coastwide reallocation always applies.

The box on the following page shows how the allocation formula would be computed over a series of years (using fictional values for the harvest guideline and subarea harvests).

Example Computations of the Allocation Formula in Alternative 6

Example Year 1

Current-year harvest guideline: 150,000 mt
Transfer amount: 15,000 mt.
Subarea A: 60,000 mt allocation (40%) - 45,000 mt catch = 15,000 mt uncaught
Subarea B: 90,000 mt allocation (60%) – 90,000 mt catch = 0 mt uncaught

The recomputed allocation formula for the next year would be:
Subarea A: (60,000 mt – 15,000 mt) / 150,000 mt = 30%
Subarea B: (90,000 mt + 15,000 mt) / 150,000 mt = 70%

Example Year 2

Current-year harvest guideline: 200,000 mt.
Transfer amount: 20,000 mt.
Subarea A: 60,000 mt allocation (30%) – 45,000 mt catch = 15,000 mt uncaught, which is less than the transfer amount
Subarea B: 140,000 mt allocation (70%) – 90,000 mt catch = 50,000 mt uncaught

The recomputed allocation formula for the next year would be:
Subarea A: (60,000 mt + 20,000) / 200,000 mt = 40%
Subarea B: (140,000 mt – 20,000 mt) / 200,000 mt = 60%

Example Year 3

Current-year harvest guideline: 75,000 mt
Transfer amount: 5,000 mt
Subarea A: 30,000 mt allocation (40%) – 5,000 mt catch = 25,000 mt uncaught
Subarea B: 45,000 mt allocation (60%) – 35,000 mt catch = 10,000 mt uncaught

In this case since the uncaught portion in both subareas is greater than the transfer amount, the transfers would cancel each other out and no change in the allocation formula would occur.

Example Year 4

Current-year harvest guideline: 75,000 mt
Transfer amount: 5,000 mt
Subarea A: 30,000 mt allocation (40%) – 5,000 mt catch = 25,000 mt uncaught
Subarea B: 45,000 mt allocation (60%) – 43,000 mt catch = 2,000 mt uncaught

The recomputed allocation formula for the next year would be:
Subarea A: (30,000 mt – 5,000 mt) / 75,000 mt = 33%
Subarea B: (45,000 mt + 5,000 mt) / 75,000 mt = 66%

Example Year 5

Current-year harvest guideline: 105,000 mt
Transfer amount: 10,500 mt
Subarea A: 35,000 mt allocation (33%) – 5,000 mt catch = 30,000 mt uncaught
Subarea B: 70,000 mt allocation (66%) – 70,000 mt catch = 0 mt uncaught

Since the recomputed allocation percentage for Subarea A is less than 25% ((30,000 mt - 15,000 mt) / 105,000 mt = 14%), the Subarea A allocation is 25% and the Subarea B allocation is 75%.

Alternative 7: Equal Reallocation

Season: January 1–December 31

Initial allocation: on January 1 33% of the harvest guideline is allocated to the Subarea A (north) and 66% to the Subarea B (south).

Reallocation: on September 1 remaining harvest guideline is pooled and 50% of the harvest guideline is allocated to the Subarea A (north) and 50% to the Subarea B (south).

3.0 DRAFT ANALYSIS OF PROTECTED SPECIES EFFECTS

3.1. An Approach to Analyzing the Environmental Effects of the Long-Term Allocation of the Pacific Sardine Resource Off the U.S. Pacific Coast

The Pacific sardine (*Sardinops sagax*) fishery in the exclusive economic zone (EEZ, 3 to 200 nm off shore) offshore Washington, Oregon, and California is managed by the National Marine Fisheries Service (NMFS) under authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The Pacific Fishery Management Council (Council) has identified a range of alternatives to develop a new allocation framework for the coast-wide Pacific sardine fishery. This revision will occur through Amendment 11 to the Coastal Pelagic Species (CPS) Fishery Management Plan (FMP). The FMP amendment is intended to achieve optimal utilization of the resource and the equitable allocation of the Pacific sardine harvest guideline (HG). In implementing this action, NMFS is also responsible for administering the Endangered Species Act (ESA) with respect to threatened or endangered species. Section 7 of the ESA requires that federal agencies, proposing an action which may affect listed species, consult with NMFS to ensure that the action does not jeopardize the continued existence of any threatened or endangered species. NMFS Southwest Region (SWR) Protected Resources Division (PRD) has recently completed a biological opinion (BO) to complete the section 7 consultation on the take of listed salmon in the Pacific sardine fishery. Although the BO and incidental take statement (ITS) apply only to the 2005 fishery, the information provided in the BO will be applied as a starting point for analyzing the environmental effects of the long-term allocation of the Pacific sardine resource beginning of the 2006 season.

This analysis will provide a description of the Pacific sardine fishery, the action, and an outline a basic approach for analyzing the environmental effects of implementing a long-term allocation. A section 7 consultation will not be completed for each alternative, rather NMFS will advise if any of the alternatives are likely to jeopardize the continued existence or recovery of species listed under the ESA. A formal section 7 consultation on the Council's preferred alternative will be initiated as part of NMFS's rule making process.

3.2. The Pacific Sardine Fishery

The Pacific sardine fishery has been economically important since the early part of the 20th century off the west coast of North America (Conser et al., 2004). The Pacific sardine fishery developed in response to demand for food during World War I. Landings increased from 1916 to 1936, and supported the largest fishery in the western hemisphere during the 1930s and 1940s. The fishery decline in the late 1940s and remained at extremely low levels of abundance until the 1970s. In 1986, the state of California lifted its 18-year moratorium on sardine harvest on the basis of sea-survey and other data indicating that the spawning biomass has returned to fishable levels. In January 2000, management authority for the U.S. Pacific sardine fishery was transferred to the Council when the CPS FMP was adopted. Around the same time that the CPS FMP was being developed (the mid-1990s), the Pacific sardine stock expanded its range northward up into the Pacific Northwest prompting the start of state managed fisheries in Oregon and Washington in the year 2000.

Species managed under the CPS FMP include: Pacific sardine, Pacific mackerel (*Scomber japonicus*), northern anchovy *(Engraulis mordax*), jack mackerel (*Trachurus symmetricus*), and market squid (*Loligo opalescens*). The CPS FMP divides management unit species into the categories of actively managed and monitored. Harvest guidelines of actively managed species (Pacific sardine and Pacific mackerel) are based on formulas applied to current biomass estimates. No biomass estimates are calculated for species that are only monitored (jack mackerel, northern anchovy, and market squid). At public meetings each year, the biomass for actively managed species are reviewed by the Council's CPS Management Team (Team). The biomass, harvest guideline, and status of the fisheries are then reviewed at a public meeting of the Council's CPS Advisory Subpanel (Subpanel). This information is also reviewed by the Council's Scientific and

Statistical Committee (SSC). The Council reviews reports from the Team, Subpanel, and SSC, then, after providing time for public comment, makes its harvest guideline recommendation to NMFS which implements management measures in the EEZ if they are found to be consistent with the Magnuson-Steven Act and other applicable law, including the ESA. The annual harvest guideline and season structure is published by NMFS in the Federal Register as soon as practicable before the beginning of the appropriate fishing season. The Pacific sardine season begins on January 1 and ends on December 31 of each year.

The CPS FMP divides the fishery into a federally managed limited entry fishery, which occurs south of 39 degrees North latitude (Southern subarea), and an open access fishery, which occurs north of 39 degrees North latitude (Northern subarea). The latter is managed by the individual states of Oregon and Washington. Since 2004, the harvest guideline has been allocated one-third for Northern subarea, and two-thirds for Southern subarea beginning on January 1. On September 1 of each year, the remaining harvest guideline is pooled and reallocated to 80% for the Southern subarea and 20% for the Northern subarea. On December 1, all unharvested sardine that remain on are reallocated to a coast-wide harvest guideline until the fishing season ends on December 31. Revision of this allocation framework is the subject of this report and will occur through Amendment 11 to the CPS FMP.

The gear traditionally used in the CPS fishery is a purse seine. A typical purse seine net measures 185 fathoms long, 22 fathoms deep, and 1,600 meshes deep with 1¼ inch mesh (Lutz and Pendleton, 2000). There are 63 permits and 62 active vessels in the federally managed limited entry permitted portion (Southern subarea) of the CPS fishery. Vessels landing less than five metric tons of CPS per trip in the Southern subarea are exempt from limited entry requirements. In the open access area (Northern subarea), fishers must have individual state (Oregon and Washington) harvest permits to fish for Pacific sardine. In Oregon, the Pacific sardine fishery has been managed since the year 2000 under its Developmental Fishery Program which limits the number of harvest permits (McCrae, 2004). Prior to 2001, fifteen permits were allowed and in 2001, five additional permits were added for a total of 20 permits state-wide.

From 2000 to 2002, the Washington Department of Fish & Game (WDFG) managed Washington's Pacific sardine fishery as a trial fishery under which the number of participants cannot be limited (Culver and Henry, 2004). Following an extensive public process, the Director of WDFG decided to advance Washington's Pacific sardine fishery into an experimental fishery in 2003, which monitors the fishery under the Emerging Commercial Fishery provisions. The Emerging Commercial Fisheries legislation provides for the harvest of a newly classified species, or harvest of previously classified species in a new area or by new means, and also limits the number of permits to 25. For 2004, the number of permits issued in Washington state was 21 permits. Washington state Experimental Sardine Fishery Permits cost $185 (for residents and $295 for non-residents) and are non-transferable and the permit owner must designate a vessel on the permit a minimum of 48 hours prior to the first sardine fishing trip of that year.

3.3. Current Management Measures in Place to Reduce Bycatch and Protected Species Interactions

The Pacific sardine fishery has current management measures in place to reduce bycatch and interactions with protected species. The state of California does not allow fishing in state waters (i.e., shoreline to 3 nautical miles). Additionally, NWFS-SWR started a pilot observer program in the Southern subarea contingent of the CPS fishery in July of 2004. The pilot observer programs was put in place in order to document the type and amount of bycatch, and to validate bycatch rates provided by California Department of Fish and Game (CDFG) dockside sampling. Like California, Washington state does not allow fishing in state waters. Washington implemented a no fishing zone within state waters in order to minimize bycatch of salmon and to minimize the interaction between Pacific sardine fishers with recreational salmon fishers. The state of Washington has also had an observer program in place continuously since 2000. Observer coverage in the

Washington Pacific sardine fishery has ranged between 24% to 27% (Culver and Henry, 2004). Additionally, in 2000 and 2001, the state of Washington monitored dockside landings for bycatch—in particular, they were looking for incidental catch of juvenile salmon. After two years of dockside sampling, WDFG ceased dockside monitoring because of a low incidence of general bycatch and they specifically never observed bycatch of juvenile salmon (Culver, Pers. Comm., 2005). WDFG also has a mandatory logbook program. The state of Oregon allows fishing in state waters but requires fisher logbooks and grates to be placed over fish holds in order to minimize the take of incidentally caught species. Additionally, during the first two years (2000 & 2001) Oregon Department of Fish and Wildlife (ODFW) placed observers on the vessels, but after 2001 the observer program was halted due to a lack of funding. Observer coverage was between 4% and 7% for the state of Oregon (McCrae, 2001, and McCrae, 2002).

3.4. The Action

The Pacific sardine fishery is currently managed by NMFS as a limited entry fishery in the Southern subarea and an open access fishery in the Northern subarea. The Pacific Council is developing options for a new long-term allocation framework for the coast-wide Pacific sardine harvest guideline. The revision to the Pacific sardine allocation framework will occur through Amendment 11 to the CPS FMP. This FMP Amendment is intended to ensure optimal utilization of the Pacific sardine resource and equitably allocate harvest opportunity.

The Council tasked its CPS Advisory Subpanel (Subpanel) with initial development of a range of allocation alternatives. At the Subpanel's September 2004 meeting a suite of allocation scenarios were drafted that were then further refined into specific alternatives. The development of this suite of alternative was highly controversial between the Southern subarea fishery representatives and the Northern subarea fishery representatives. The pros and cons of each allocation alternative were developed to facilitate Council decision making. At the November 2004 meeting, the Subpanel presented seven alternative allocation formulae. The Council adopted for analysis the seven Subpanel alternatives and included two additional alternatives.

In developing long-term allocation framework recommendations for Pacific sardine, the Council analyzes alternative options occurring in the EEZ off the states of California, Oregon, and Washington. In order to implement long-term allocation framework for the Pacific sardine fishery in the EEZ, the NMFS must determine that implementing the allocation framework will not violate other applicable law, such as ESA. With specific regard to the ESA, NMFS must ensure that the action does not jeopardize the continued existences of any threatened or endangered species under the ESA. The BO produced by PRD analyzed the impacts of setting the 2005 Pacific sardine harvest guideline on Lower Columbia River chinook, Snake River fall chinook, and Willamette Spring chinook in the Northern subarea (specifically the Pacific Northwest portion) of the Pacific sardine fishery as there have been no documented bycatch of salmon species in the Southern subarea contingent of the Pacific sardine fishery since the inception of CDFG's dockside monitoring program back in the mid-1980s (Sweetnam and Laughlin, Pers. Comm., 2005). Additionally, in order to confirm salmon bycatch rates derived from the CDFG dock-side sampling, NMFS SWR started a pilot observer program in the limited entry fishery for CPS off California in July of 2004. From July 20 to January 17, 2005, observers have been observed approximately 45 vessel trips ranging from San Diego, California, in the south to Moss Landing, California, in the north. The preliminary data suggest no salmon bycatch in the Southern subarea of the Pacific sardine fishery. Other than salmon bycatch in the Northern subarea, preliminary data collected by at-sea observers in the California contingent of the Pacific sardine fishery and observer programs in the Northern subarea show no record of protected species interactions. Due to the absence of documented protected species interactions in the entire Pacific sardine fishery, and the absence of salmon bycatch in the California contingent of the Pacific sardine fishery, we have limited our area and species of concern in this analysis to the federally managed open access fishery in the Northern subarea (above 39 degrees North latitude) and to the ESA listed salmon species analyzed in the BO produced for the

2005 Pacific sardine harvest guideline. (Note: There is evidence of coho salmon bycatch. However, the evolutionary significant units (ESU) most likely to be taken are not currently listed. Two ESUs, Oregon coast natural and Lower Columbia coho will likely be listed as of June 2005 and will be analyzed at that time.)

3.5. Protected Species Analysis

This analysis will evaluate the impact of a range of annual landings for the years 2005-2009 in the Northern subarea on protected salmon in the affected environment. The analysis will be limited to the Chinook salmon identified in the BO as being the ESA listed species most likely captured as bycatch in the Northern subarea of the Pacific sardine fishery. This analysis uses Chinook salmon bycatch rates as documented in the BO and corresponding ITS provided by PRD for the 2005 Pacific sardine harvest guideline. We use these rates as a proxy for future bycatch by assuming that the Pacific sardine fishery characteristics remain similar to past years (i.e., the Northern subarea fishery remains similar in seasonality and geographically). We take this action because only the Washington component of the Northern subarea will be monitored in 2005. After 2005, no observer program in either Oregon or Washington will be conducted. Thus, after 2005 bycatch estimates will use a salmon bycatch rate based upon per metric ton of Pacific sardine landed. For the purposes of this action the annual average number of chinook salmon bycatch is estimated for the years 2005-2009 (step E below) and does not exceed the maximum threshold as established by using the ITS provided in the BO for the 2005 Pacific sardine harvest guideline (step A below).

Below is a brief analysis which uses the maximum allowable rate of chinook salmon bycatch for 2005 (step A below) to derive a maximum number of chinook salmon bycatch for 2005 (step B below) as a proxy for the maximum number of Chinook salmon allowed to be caught as bycatch for the years 2006-2009. By using this proxy maximum threshold, we then take the average rate of chinook salmon bycatch (step C below) and multiply that times the projected Pacific sardine landings for the years 2005-2009 (step D below) (Herrick, Pers. Comm., 2005) to derive the annual average number of Chinook salmon caught in the Northern subarea fishery for 2005-2009.

A. The maximum allowable rate of Chinook salmon bycatch from BO ITS for the 2005 Pacific sardine harvest guideline action. This will be used as the maximum rate of Chinook salmon bycatch threshold (i.e., a threshold that would trigger reinitiation). The rate is given in Chinook salmon per mt of Pacific sardine landed. This rate was derived by using the maximum annual bycatch rate observed in the state of Washington Pacific sardine fishery. The maximum Chinook salmon bycatch rate was observed as 0.057 in 2001. The rate has been rounded to the nearest hundredth.

   Maximum rate of chinook salmon from ITS: 0.06

B. Estimate the maximum number of Chinook salmon bycatch for 2005 and use as a proxy for the maximum threshold number to Chinook salmon allowed to be caught as bycatch for years 2006-2009. This will be performed by using the maximum allowable rate of Chinook salmon from the BO for the 2005 Pacific sardine harvest guideline action (A) and the projected landing for Pacific sardine in 2005.

   Maximum rate of Chinook salmon 0.06/mt P. sardine * 49,339 mt P. sardine=

   2,960 individual Chinook salmon maximum threshold for 2005

C. The mode (proxy for average) allowable rate of Chinook salmon bycatch from the BO ITS for the 2005 Pacific sardine harvest guideline action. This rate will be used as a proxy for the average rate of Chinook salmon bycatch. The rate is given in Chinook salmon per mt of Pacific sardine landed. The mode Chinook salmon bycatch rate was observed in the state of Washington as 0.033 in 2002.

Mode (used as average) rate of Chinook salmon from ITS: 0.033

D. Projected Pacific sardine landings for 2005-2009 in mt. These landings are projected landings for the Northern subarea fishery off Oregon and Washington (Herrick, Pers. Comm., 2005). These landings were calculated by taking 2004 landings plus a 10% increase per year.

Year	Projected Pacific sardine landings (mt) from the Northern subarea fishery
2005	49,339
2006	54,273
2007	59,701
2008	65,671
2009	72,238

E. Estimate the average annual number of Chinook salmon caught as bycatch for years 2005-2009. The estimated average annual number of chinook salmon caught as bycatch was estimated by using the projected annual landings for years 2005-2009 (C) (Herrick, Pers. Comm., 2005) and multiplying that estimate times the mode rate of Chinook salmon (B) from the BO for the 2005 Pacific sardine harvest guideline action.

Year	Projected Pacific sardine landings (mt) from the Northern subarea fishery	Mode (used as proxy for average) rate of chinook salmon caught per mt of Northern subarea fishery	Annual average number of chinook salmon caught in the Northern subarea fishery
2005	49,339	0.033	1,628
2006	54,273	0.033	1,791
2007	59,701	0.033	1,970
2008	65,671	0.033	2,167
2009	72,238	0.033	2,384

3.6. Conclusions

The annual average number of Chinook salmon caught in the Northern subarea fishery for the years 2005-2009 is estimated to be between 1,628 and 2,384 (E) which is below the 2,690 number of Chinook salmon (B) used as a proxy for the maximum threshold. Although this is a simple approach for analyzing the environmental effects of a long-term allocation Pacific sardine harvest guideline allocation, the analysis does not take the place of a ESA formal section 7 consultation which will be required once the Council identifies a preferred alternative. NMFS will be contributing to the environmental analysis provided as part of the documentation on possible environmental effects of implementing the new allocation framework for long-term allocation. An ESA section 7 consultation will not be completed for each alternative, rather NMFS will advise the Council if any of the alternatives are likely to jeopardize the continued existence or recovery of ESA listed species. A formal consultation on the council's preferred alternative will be initiated as part of the rule making process.

3.7. References

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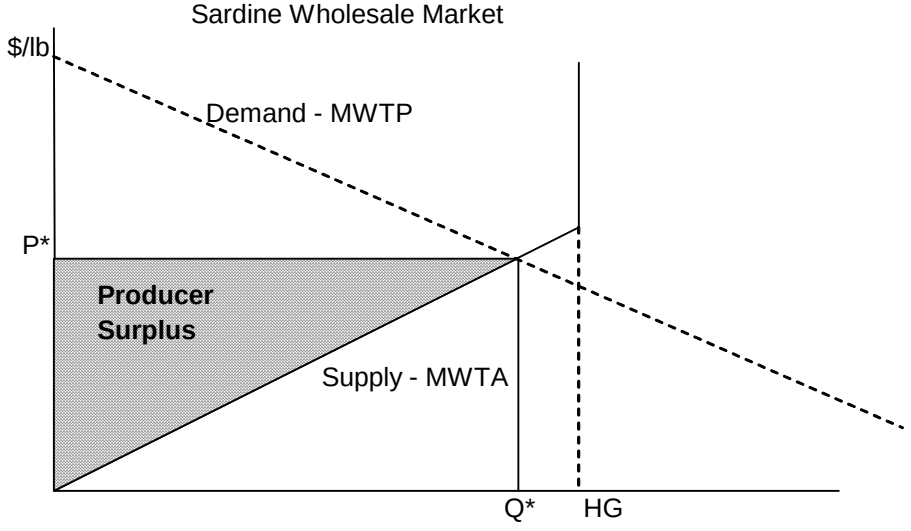
4.0 DRAFT ECONOMIC EVALUATION OF LONG-TERM PACIFIC SARDINE HARVEST GUIDELINE ALLOCATION ALTERNATIVES

4.1. Introduction

The economic analysis of alternative allocation schemes to partition the Pacific sardine harvest guideline (HG) estimates the incremental change in producer surplus/private profit (PS) for each fishery sector when comparing each of the proposed allocation alternatives to the status quo. The procedure used estimates both the distributional changes and total changes in PS under each option. Specifically, the year-end projected landings for each fishery sector under each alternative are subtracted from the corresponding projected year-end landings under the status quo. The differences in landings are multiplied by an estimate of PS per metric ton for each fishery sector to obtain estimates of the change in sectorial PS. The sectoral changes in PS are summed to obtain an estimate of the total change in PS associated with the option.

It was assumed that there would be no significant changes in the basic operations of sardine processors during its term. There was not expected to be any significant changes in investment in facilities, or other restructuring by processors that would alter the costs of operations during the period of the selected action. Under these circumstances, all but the variable costs of sardine processing (in particular, the costs of labor, energy/utilities, raw fish, and other inputs that vary directly with the quantities of sardines processed) were considered fixed over the time horizon of the action, and therefore, would not effect estimates of PS (i.e., only the, variable costs of processing sardines were used in the calculations of PS). It was further assumed that each of the inputs were traded in perfectly competitive markets, and, therefore, their private cost will be equal to their social opportunity cost. Under this assumption, there would be no difference in measures of producer surplus and private profit. In other words the profits realized from sardine processing would be the same as the net benefits to the nation.

Analytical Framework for the Economic Analysis of Pacific Sardine Allocation Alternatives



I. Focus on changes in Producer Surplus from status quo under each allocation alternative. From the above figure:

Supply - minimum willingness to accept (MWTA); marginal cost of producing one more unit

Demand - maximum willingness to pay (MWTP); marginal benefit from consuming one more unit

Equilibrium price

Producer surplus (PS)

PS = short run profit; area under price line above supply curve

= total revenue - total variable costs

Establish time horizon

project changes in PS under each allocation alternative relative to status quo for each year over time horizon

II. Data needs/assumptions for PS projections

Supply exvessel

Biomass estimates

assumptions

Harvest guideline

fraction (water temperature)

U.S. share

assumptions

Availability

coastwide distribution (+/- 39o N)

environmental factors

water temperature

other factors

assumptions

Landings by fishery sector

exvessel demand

quantities

price exvessel prices

landings under baseline/status quo

landings under each allocation alternative

Supply exprocessor

exprocesor demand

product mix

quantities

prices

assumptions

production

product quantities

variable costs

assumptions

Producer surplus/short-run profits

Total revenue - total variable costs under baseline/status quo

Total revenue - total variable costs under each allocation alternative

Other?

III. Methodology

Calculate PV of changes in PS for each alternative

time horizon

discount rate

4.2. Establish Baseline Sardine Landings by Fishery Sector

Landings projections under each allocation alternative were based on 2004 monthly reported landings for the Southern California (SCA), Northern California (NCA, Monterey Area) and the Pacific Northwest (PNW, Oregon and Washington) fishery sectors. SCA and NCA combine to form the Southern Subarea and PNW the Northern Subarea under each allocation alternative, except for the No Action alternative where SCA is the Southern Subarea and NCA and the PNW combine to form the Northern Subarea. Because reported landings for California in December 2004 were incomplete, average California landings for December 1999-2003 were used for December 2004. Total California landings were prorated between northern and southern California based on the average proportion of total sardine landings in northern and southern California from 1999-2002. The 2004 monthly landings were inflated by 10% annually through 2009 to account for expected growth in the regional fishery sectors over the next five years, 2005-2009.

The baseline landings were then subjected to the allocation constraints under each allocation alternative (status quo, no action, alternative 1, alternative 2, alternative 3, lternatives 4.a and 4.b, alternative 5, alternative 6, and alternative 7). This gave a projection of actual monthly landings under each of the allocation alternatives, by fishery sector. These projected landings were compared to the baseline landings for each fishery sector from 2005-2009 to identify months in which there would be a shortfall in landings (expected baseline - actual landings) and months which would start out with no available allocation. These differences were then used to identify shortfalls in landings, months with shortfalls, and months with zero allocations, by fishery sector, in each year of the 5-year period. These landings projections were conducted under three harvest guideline (HG) scenarios: 1) low HG = 72,000 mt; 2) Base case HG = 136,000 mt; and, 3) high HG = 200,000 mt. Monthly projected landings were summarized annually by fishery sector, under each allocation alternative and HG scenario. Surplus HG was calculated as the difference between the annual HG and projected landings for the year.

4.3. Preliminary Landings and Producer Surplus Comparisons

Annual landings under each allocation alternative were compared to the status quo alternative to determine differences in landings, landings shortfalls, the number of months with shortfalls, the number of months with no allocation and differences in surplus HG. These comparisons were made by fishery sector for each of the HG cases.

The net economic benefit or PS was calculated as the difference between gross revenue from the sales of processed sardine products, and the total variable cost of producing those products. Aggregate PS under each alternative was calculated by multiplying projected annual landings in metric tons for each fishery sector, under each alternative, by the estimated PS per metric ton for each fishery sector. These measures were then used to estimate the incremental changes in PS associated with the proposed allocation alternatives relative to the Status Quo alternative.

The estimated PS per metric ton for each fishery sector was calculated as:

$$PS_r = \Sigma_i (APS_{ir} \times W_{ir})$$

where:

PS_r is the weighted average PS for fishery sector *r*;

APS_{ir} is the average PS per metric ton for sardine product *i* in fishery sector *r* in 2004;

W_{ir} is the proportion of product *i* production of total production all products in fishery sector *r* for 2004.

and:

PS_{SCA} = \$326/mt

PS_{NCA} = \$197/mt

PS_{PNW} = \$434/mt.

Annual PS was calculated for each fishery sector, under each alternative, and under each HG case, for each of the years 2005-2009. Each measure of PS was compared to its corresponding measure under the Status Quo alternative. The net present value (NPV) for each estimate of annual PS was calculated for the 5-year time horizon using a social discount rate of 4.1%, assuming that each the per unit measure of PS for each fishery sector remained constant over the time horizon.

Preliminary results from the comparisons of each allocation alternative's projected landings and PS with the status quo alternative, by fishery sector and HG case, are summarized in Tables 1 through 5 and Figures 1 through 9.

4.4. Summary Comments on Preliminary Comparison Results

Status quo alternative - Projected total sardine landings for the entire 2005-2009 period ranged from 360,000 mt for the low HG case to 633,000 mt for the high HG case, with corresponding measures of PS ranging from \$110 million to \$198 (\$2004). Under the base HG case there were 12 months with shortfalls, all in the PNW, and six months in which there was no beginning allocation, all in the PNW. The number of months with shortfalls and zero allocations increases as the HG decreases and the converse. Surplus HG was over 80,000 mt for the period; surplus HG increases as the HG increases and the reverse.

Comparison of other alternatives to the Status Quo alternative:

No action alternative - Results in major shortfalls in landings for the northern subarea (NCA and PNW), particularly for the PNW. No shortfalls for SCA. Substantial loss in PS for the PNW and substantial increase in surplus HG. Results scaled accordingly for increase/decrease in the HG.

Alternative 1 - Increased harvest opportunities in the PNW result in increased total landings and the greatest net increase in the NPV of PS. Increases in the number of shortfalls and zero allocations in SCA and NCA toward the end of the 5-year period results in a loss of landings and PS for these fishery sectors. There is a decrease in surplus HG.

Alternative 2 - Similar to Alternative 1 in the distribution of impacts but difference in magnitude. Slightly lower overall PS. Benefits PNW primarily at the expense of SCA. Under low HG case PNW takes 70% of HG, a 94% increase from Status Quo. For high HG case there is no change from Status Quo.

Alternative 3 - Increase in PS since it favors PNW. However more constraining than alternatives 1 and 2. As in alternative 2, a bulge in the HG from July through September favors the PNW relative to SCA and NCA under a low HG.

Alternative 4.a (HG > 100,000 mt) - Same impacts as alternatives 1 and 6 (see below) under base and high HG cases.

Alternative 4.b (HG < 100,000 mt) - Not a substantial change from the Status Quo. Slight increase in total PS as gain for SCA offsets small losses for NCA and PNW.

Alternative 5 (Evaluated with a 10% release rate) - This alternative needs to be restructured to result in an improvement from the Status Quo. Under the base HG case leads to an overall loss in PS, which is reduced as the release rate increases. The 90% allocation threshold may be too high.

Alternative 6 - See above.

Alternative 7 - Overall improvement from Status Quo. Favors the PNW relative to the other fishery sectors but not to the extent of alternatives 1, 2, 3, 4.a under the base and low HG cases.

Table 4-1. Summary of actual landings projections and cost-benefit analysis results for status quo allocation option, 2005-2009.

Base Case: HG=136,000mt

Area	Projected Landings (MT)	Shortfall in Landings (MT)	Number of Months with Landings Shortfalls	Number of months with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	223,563	0	0	0	$64,217,890	2005	136,000	32,227
Northern CA	108,759	0	0	0	$18,872,232	2006	136,000	24,185
OR/WA	266,299	-34,923	12	6	$102,418,316	2007	136,000	15,724
Southern SA	332,322	0	0	0	$83,090,122	2008	136,000	7,855
Northern SA	266,299	-34,923	12	6	$102,418,316	2009	136,000	1,387
Total	598,621	-34,923	12	6	$185,508,438			81,379

Low HG Case: HG=72,000m t

Area	Projected Landings (MT)	Shortfall in Landings (MT)	Number of Months with Landings Shortfalls	Number of months with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	173,047	-50,516	14	10	$49,904,990	2005	72,000	0
Northern CA	56,030	-52,730	14	10	$9,858,709	2006	72,000	0
OR/WA	130,923	-170,299	25	15	$50,576,315	2007	72,000	0
Southern SA	229,077	-103,245	14	10	$59,763,699	2008	72,000	0
Northern SA	130,923	-170,299	25	15	$50,576,315	2009	72,000	0
Total	360,000	-273,544	39	25	$110,340,014			0

High HG Case: HG=200,000mt

Area	Projected Landings (MT)	Shortfall in Landings (MT)	Number of Months with Landings Shortfalls	Number of months with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	223,563	0	0	0	$64,217,890	2005	200,000	96,227
Northern CA	108,759	0	0	0	$18,872,232	2006	200,000	85,850
OR/WA	301,222	0	0	0	$115,229,243	2007	200,000	74,435
Southern SA	332,322	0	0	0	$83,090,122	2008	200,000	61,878
Northern SA	301,222	0	0	0	$115,229,243	2009	200,000	48,066
Total	633,544	0	0	0	$198,319,365			366,456

Table 4-2. Summary of actual projected landings and cost-benefit analysis results for long-term sardine harvest guidline allocation options, 2005-2009.

Base Case (HG = 136,000 mt)

Status Quo Summary, 2005-2009

Area	Status Quo Projected Landings (MT) 2005-2009	Status Quo Shortfall in Landings (MT) 2005-2009	Status Quo Mo/Yr of Shortfalls	Status Quo Mo/Yr with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	223,563	0			$64,217,890	2005	136,000	32,227
Northern CA	108,759	0			$18,872,232	2006	136,000	24,185
OR/WA	266,299	-34,923	10-11/06;10-11/07;8-11/08;8-11/09	11/06;11/07;10-11/08;10-11/09	$102,418,316	2007	136,000	15,724
Southern SA	332,322	0			$83,090,122	2008	136,000	7,855
Northern SA	266,299	-34,923	10-11/06;10-11/07;8-11/08;8-11/09	11/06;11/07;10-11/08;10-11/09	$102,418,316	2009	136,000	1,387
Total	598,621	-34,923			$185,508,438			81,379

No Action alternative (66% south, 33% north, 1/1; line at Pt. Piedras Blancas; Reallocate 50% south, 50% north 10/1), 2005-2009.

Area	No Action Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	No Action Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	No Action Mo/Yr of Shortfalls	No Action Mo/Yr with No Allocation	No Action NPV Producer Surplus
Southern CA	223,563	0	0	0			$64,217,890
Northern CA	100,162	-8,598	-8,598	8,598	8/05;8-9/06;8-9/07;8-9/08;8-9/09	9/06;9/07;9/08;9/09	$17,419,282
OR/WA	228,426	-43,459	-78,381	43,459	8/05;8-9/06;8-9/07;8-9/08;8-9/09	9/06;9/07;9/08;9/09	$85,824,645
Southern SA[1]	223,563	0	0	0			$64,217,890
Northern SA[2]	328,588	-52,057	-86,979	52,057	8/05;8-9/06;8-9/07;8-9/08;8-9/09	9/06;9/07;9/08;9/09	$103,243,927
Total	552,150	-52,057	-86,979	52,057			$167,461,817

No Action alternative, continued

Area	Change in NPV of PS from SQ	Year	No Action HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$0	2005	136,000	38,268	6,041
Northern CA	-$1,452,950	2006	136,000	33,028	8,843
OR/WA	-$16,593,671	2007	136,000	27,264	11,541
Southern SA[1]	$0	2008	136,000	20,924	13,069
Northern SA[2]	-$18,046,621	2009	136,000	13,950	12,563
Total	-$18,046,621			133,435	52,057

[1]Under the no action alternative the Southern Subarea consists of Southern California.

[2]Under the no action alternative the Northern Subarea consists of Northern California, Oregon and Washington.

Alternative 1 (50% Coastwide 1/1; 50% + Rollover 7/1), 2005-2009.

Area	Alternative 1 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 1 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 1 Mo/Yr of Shortfalls	Alternative 1 Mo/Yr with No Allocation	Alternative 1 NPV Producer Surplus
Southern CA	215,195	-8,367	-8,367	8,367	12/08;11/09;12/09	12/09	$61,970,183
Northern CA	100,696	-8,064	-8,064	8,064	12/08;11/09;12/09	12/09	$17,569,886
OR/WA	299,597	33,298	-1,625	-33,298	12/08;11/09;12/09	12/09	$114,650,611
Southern SA	315,891	-16,431	-16,431	16,431	12/08;11/09;12/09	12/09	$79,540,069
Northern SA	299,597	33,298	-1,625	-33,298	12/08;11/09;12/09	12/09	$114,650,611
Total	615,488	16,867	-18,056	-16,867			$194,190,680

Alternative 1, continued

Area	Change in NPV of PS from SQ	Year	Alternative 1 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$2,247,707	2005	136,000	32,227	0
Northern CA	-$1,302,346	2006	136,000	21,850	-2,335
OR/WA	$12,232,295	2007	136,000	10,435	-5,289
Southern SA	-$3,550,053	2008	136,000	0	-7,855
Northern SA	$12,232,295	2009	136,000	0	-1,387
Total	$8,682,242			64,512	-16,867

Alternative 2 (Season 6/1- 5/31 Coastwide HG), 2005-2009.

Area	Alternative 2 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 2 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 2 Mo/Yr of Shortfalls	Alternative 2 Mo/Yr with No Allocation	Alternative 2 NPV Producer Surplus
Southern CA	206,017	-17,546	-17,546	17,546	4-5/08;1-5/09	5/08;2-5/09	$59,515,724
Northern CA	108,250	-510	-510	510	4-5/08;1-5/09	5/08;2-5/09	$18,790,123
OR/WA	301,222	34,923	0	-34,923		5/08;2-5/09	$115,229,243
Southern SA	314,266	-18,056	-18,056	18,056	4-5/08;1-5/09	5/08;2-5/09	$78,305,847
Northern SA	301,222	34,923	0	-34,923		5/08;2-5/09	$115,229,243
Total	615,488	16,867	-18,056	-16,867			$193,535,090

Alternative 2, continued

Area	Change in NPV of PS from SQ	Year	Alternative 2 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$4,702,166	2005	136,000	32,227	0
Northern CA	-$82,109	2006	136,000	21,850	-2,335
OR/WA	$12,810,927	2007	136,000	10,435	-5,289
Southern SA	-$4,784,275	2008	136,000	0	-7,855
Northern SA	$12,810,927	2009	136,000	0	-1,387
Total	$8,026,652			64,512	-16,867

Alternative 3 (40% Coastwide 1/1; 40% + Rollover 7/1; 20% + Rollover 10/1), 2005-2009.

Area	Alternative 3 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 3 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 3 Mo/Yr of Shortfalls	Alternative 3 Mo/Yr with No Allocation	Alternative 3 NPV Producer Surplus
Southern CA	215,082	-8,481	-8,481	8,481	12/08;9/09;11-12/09	12/09	$61,939,909
Northern CA	104,931	-3,828	-3,828	3,828	12/08;9/09;11-12/09	12/09	$18,252,201
OR/WA	295,475	29,176	-5,747	-29,176	12/08;9/09;11-12/09	12/09	$113,186,735
Southern SA	320,013	-12,309	-12,309	12,309	12/08;9/09;11-12/09	12/09	$80,192,110
Northern SA	295,475	29,176	-5,747	-29,176	12/08;9/09;11-12/09	12/09	$113,186,735
Total	615,488	16,867	-18,056	-16,867			$193,378,845

Alternative 3, continued

Area	Change in NPV of PS from SQ	Year	Alternative 3 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$2,277,981	2005	136,000	32,227	0
Northern CA	-$620,031	2006	136,000	21,850	-2,335
OR/WA	$10,768,419	2007	136,000	10,435	-5,289
Southern SA	-$2,898,012	2008	136,000	0	-7,855
Northern SA	$10,768,419	2009	136,000	0	-1,387
Total	$7,870,407			64,512	-16,867

Alternative 4.a (HG > 100,000 mt; 40% North, 60% South 1/1; Coastwide Rollover 9/1), 2005-2009.

Area	Alternative 4.a Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 4.a Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 4.a Mo/Yr of Shortfalls	Alternative 4.a Mo/Yr with No Allocation	Alternative 4.a NPV Producer Surplus
Southern CA	215,195	-8,367	-8,367	8,367	12/08;11-12/09	12	$61,970,183
Northern CA	100,696	-8,064	-8,064	8,064	12/08;11-12/10	12	$17,569,886
OR/WA	299,597	33,298	-1,625	-33,298	12/08;11-12/11	12	$114,650,611
Southern SA	315,891	-16,431	-16,431	16,431	12/08;11-12/12	12	$79,540,069
Northern SA	299,597	33,298	-1,625	-33,298	12/08;11-12/13	12	$114,650,611
Total	615,488	16,867	-18,056	-16,867			$194,190,680

Alternative 4.a, continued

Area	Change in NPV of PS from SQ	Year	Alternative 4.a HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$2,247,707	2005	136,000	32,227	0
Northern CA	-$1,302,346	2006	136,000	21,850	-2,335
OR/WA	$12,232,295	2007	136,000	10,435	-5,289
Southern SA	-$3,550,053	2008	136,000	0	-7,855
Northern SA	$12,232,295	2009	136,000	0	-1,387
Total	$8,682,242			64,512	-16,867

Alternative 5 (20% Set Aside 1/1; 40% North, 60% South of Remaining 1/1, Coastwide Rollover 10/1), 2005-2009.

Area	Alternative 5 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 5 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 5 Mo/Yr of Shortfalls	Alternative 5 Mo/Yr with No Allocation	Alternative 5 NPV Producer Surplus
Southern CA	223,563	0	0	0			$64,217,890
Northern CA	108,759	0	0	0			$18,872,232
OR/WA	255,929	-11,420	-46,343	11,420	9/05;9/06;9/07;8-9/08;8-9/09		$98,036,659
Southern SA	332,322	0	0	0			$83,090,122
Northern SA	255,929	-11,420	-46,343	11,420	9/05;9/06;9/07;8-9/08;8-9/09		$98,036,659
Total	588,251	-11,420	-46,343	11,420			$181,126,781

Alternative 5, continued.

Area	Change in NPV of PS from SQ	Year	Alternative 5 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$0	2005	136,000	33,277	1,050
Northern CA	$0	2006	136,000	27,357	3,171
OR/WA	-$4,381,657	2007	136,000	18,124	2,401
Southern SA	$0	2008	136,000	10,961	3,105
Northern SA	-$4,381,657	2009	136,000	3,081	1,693
Total	-$4,381,657			92,799	11,420

Alternative 6 (50% North, 50% South 1/1; Coastwide Rollover 9/1; Variable N/S Allocation Based on Prior Year's Use), 2005-2009.

Area	Alternative 6 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 6 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 6 Mo/Yr of Shortfalls	Alternative 6 Mo/Yr with No Allocation	Alternative 6 NPV Producer Surplus
Southern CA	215,195	-8,367	-8,367	8,367	12/08;11-12/09	12/09	$61,970,183
Northern CA	100,696	-8,064	-8,064	8,064	12/08;11-12/09	12/09	$17,569,886
OR/WA	299,597	33,298	-1,625	-33,298	12/08;11-12/09	12/09	$114,650,611
Southern SA	315,891	-16,431	-16,431	16,431	12/08;11-12/09	12/09	$79,540,069
Northern SA	299,597	33,298	-1,625	-33,298	12/08;11-12/09	12/09	$114,650,611
Total	615,488	16,867	-18,056	-16,867			$194,190,680

Alternative 6, continued.

Area	**Change in NPV of PS from SQ**	**Year**	**Alternative 6 HG**	**Surplus HG**	**Change in Surplus HG from SQ**
Southern CA	-$2,247,707	2005	136,000	32,227	0
Northern CA	-$1,302,346	2006	136,000	21,850	-2,335
OR/WA	$12,232,295	2007	136,000	10,435	-5,289
Southern SA	-$3,550,053	2008	136,000	0	-7,855
Northern SA	$12,232,295	2009	136,000	0	-1,387
Total	$8,682,242			64,512	-16,867

Alternative 7 (33% North, 66% South 1/1; 50% North, 50% South of Remaining 9/1, Coastwide Rollover 11/1), 2005-2009.

Area	Alternative 7 Projected Landings (MT) 2005-2009	Change in Landings (MT) from SQ	Alternative 7 Shortfall in Landings (MT) 2005-2009	Change in Shortfall from SQ	Alternative 7 Mo/Yr of Shortfalls	Alternative 7 Mo/Yr with No Allocation	Alternative 7 NPV Producer Surplus
Southern CA	218,490	-5,073	-5,073	5,073	11-12/09	12/09	$62,865,198
Northern CA	105,540	-3,219	-3,219	3,219	11-12/09	12/09	$18,353,673
OR/WA	291,327	25,028	-9,895	-25,028	8/08;8/09;11-12/09	12/09	$111,682,516
Southern SA	324,030	-8,292	-8,292	8,292	11-12/09	12/09	$81,218,871
Northern SA	291,327	25,028	-9,895	-25,028	8/08;8/09;11-12/09	12/09	$111,682,516
Total	615,358	16,736	-18,186	-16,736			$192,901,387

Alternative 7, continued.

Area	Change in NPV of PS from SQ	Year	Alternative 7 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	-$1,352,691	2005	136,000	32,227	0
Northern CA	-$518,559	2006	136,000	21,850	-2,335
OR/WA	$9,264,200	2007	136,000	10,435	-5,289
Southern SA	-$1,871,250	2008	136,000	131	-7,725
Northern SA	$9,264,200	2009	136,000	0	-1,387
Total	$7,392,950			64,642	-16,736

Table 4-3. Summary of actual landings projections and cost-benefit analysis results for long-term sardine harvest guidline allocation options, 2005-2009

High Harvest Guideline Case, HG = 200,000 mt

Status Quo Summary, 2005-2009

Area	Status Quo Projected Landings 2005-2009	Status Quo Shortfall in Landings 2005-2009	Status Quo Mo/Yr of Shortfalls	Status Quo Mo/Yr with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	223,563	0			$64,217,890	2005	200,000	96,227
Northern CA	108,759	0			$18,872,232	2006	200,000	85,850
OR/WA	301,222	0			$115,229,243	2007	200,000	74,435
Southern SA	332,322	0			$83,090,122	2008	200,000	61,878
Northern SA	301,222	0			$115,229,243	2009	200,000	48,066
Total	633,544	0			$198,319,365			366,456

No Action alternative (66% south, 33% north, 1/1; line at Pt. Piedras Blancas; Reallocate 50% south, 50% north 10/1), 2005-2009

Area	No Action Projected Landings 2005-2009	Change in Landings from SQ	No Action Shortfall in Landings 2005-2009	Change in Shortfall from SQ	No Action Mo/Yr of Shortfalls	No Action Mo/Yr with No Allocation	No Action NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	107,985	-774	-774	774	9/08;9/09		$18,746,714	-$125,518
OR/WA	291,733	-9,489	-9,489	9,489	9/08;9/09		$111,836,180	-$3,393,063
Southern SA[1]	223,563	0	0	0			$64,217,890	$0
Northern SA[2]	399,718	-10,263	-10,263	10,263	9/08;9/09		$130,582,894	-$3,518,581
Total	623,281	-10,263	-10,263	10,263			$194,800,784	-$3,518,581

Area	Year	No Action HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA[1]	2008	200,000	63,591	1,713
Northern SA[2]	2009	200,000	56,617	8,551
Total			376,719	10,263

[1]Under the no action alternative the Southern Subarea consists of Southern California

[2]Under the no action alternative the Northern Subarea consists of Northern California, Oregon and Washington.

Alternative 1 (50% Coastwide 1/1; 50% + Rollover 7/1), 2005-2009.

Area	Alternative 1 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 1 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 1 Mo/Yr of Shortfalls	Alternative 1 Mo/Yr with No Allocation	Alternative 1 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$115,229,243	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$115,229,243	$0
Total	633,544	0	0	0			$198,319,365	$0

Alternative 1, continued

Area	Year	Alternative 1 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 2 (Season 6/1- 5/31 Coastwide HG), 2005-2009.

Area	Alternative 2 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 2 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 2 Mo/Yr of Shortfalls	Alternative 2 Mo/Yr with No Allocation	Alternative 2 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$115,229,243	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$115,229,243	$0
Total	633,544	0	0	0			$198,319,365	$0

Alternative 2, continued

Area	Year	Alternative 2 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 3 (40% Coastwide 1/1; 40% + Rollover 7/1; 20% + Rollover 10/1), 2005-2009.

Area	Alternative 3 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 3 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 3 Mo/Yr of Shortfalls	Alternative 3 Mo/Yr with No Allocation	Alternative 3 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$115,229,243	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$115,229,243	$0
Total	633,544	0	0	0			$198,319,365	$0

Alternative 3, continued

Area	Year	Alternative 3 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 4.a (HG > 100,000 mt; 40% North, 60% South 1/1; Coastwide Rollover 9/1), 2005-2009.

Area	Alternative 4.a Projected Landings 2005-2009	Change in Landings from SQ	Alternative 4.a Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 4.a Mo/Yr of Shortfalls	Alternative 4.a Mo/Yr with No Allocation	Alternative 4.a NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$115,229,243	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$115,229,243	$0
Total	633,544	0	0	0			$198,319,365	$0

Alternative 4a, continued

Area	Year	Alternative 4.a HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 5 (20% Set Aside 1/1; 40% North, 60% South of Remaining 1/1, Coastwide Rollover 10/1), 2005-2009

Area	Alternative 5 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 5 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 5 Mo/Yr of Shortfalls	Alternative 5 Mo/Yr with No Allocation	Alternative 5 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	299,967	-1,255	-1,255	1,255	9/09		$114,783,676	-$445,568
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	299,967	-1,255	-1,255	1,255	9/09		$114,783,676	-$445,568
Total	632,289	-1,255	-1,255	1,255			$197,873,797	-$445,568

Alternative 5, continued

Area	Year	Alternative 5 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	49,321	1,255
Total			367,711	1,255

Alternative 6 (50% North, 50% South 1/1; Coastwide Rollover 9/1; Variable N/S Allocation Based on Prior Year's Use), 2005-2009.

Area	Alternative 6 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 6 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 6 Mo/Yr of Shortfalls	Alternative 6 Mo/Yr with No Allocation	Alternative 6 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$115,229,243	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$115,229,243	$0
Total	633,544	0	0	0			$198,319,365	$0

Alternative 6, continued.

Area	Year	Alternative 6 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Alternative 7 (33% North, 66% South 1/1; 50% North, 50% South of Remaining 9/1, Coastwide Rollover 11/1), 2005-2009.

Area	Alternative 7 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 7 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 7 Mo/Yr of Shortfalls	Alternative 7 Mo/Yr with No Allocation	Alternative 7 NPV Producer Surplus	Change in NPV of PS from SQ
Southern CA	223,563	0	0	0			$64,217,890	$0
Northern CA	108,759	0	0	0			$18,872,232	$0
OR/WA	301,222	0	0	0			$115,229,243	$0
Southern SA	332,322	0	0	0			$83,090,122	$0
Northern SA	301,222	0	0	0			$115,229,243	$0
Total	633,544	0	0	0			$198,319,365	$0

Alternative 7, continued

Area	Year	Alternative 7 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	2005	200,000	96,227	0
Northern CA	2006	200,000	85,850	0
OR/WA	2007	200,000	74,435	0
Southern SA	2008	200,000	61,878	0
Northern SA	2009	200,000	48,066	0
Total			366,456	0

Table 4-4. Summary of actual landings projections and cost-benefit analysis results for long-term sardine harvest guidline allocation options, 2005-2009.

Low Harvest Guideline Case, HG = 72,000 mt

Status Quo Summary, 2005-2009.

Area	Status Quo Projected Landings 2005-2009	Status Quo Shortfall in Landings 2005-2009	Status Quo Mo/Yr of Shortfalls	Status Quo Mo/Yr with No Allocation	Status Quo NPV Producer Surplus	Year	Status Quo HG	Surplus HG
Southern CA	173,047	-50,516	11-12/05;10-12/06;10-12/07;10-12/08;10-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09	$49,904,990	2005	72,000	0
Northern CA	56,030	-52,730	11-12/05;10-12/06;10-12/07;10-12/08;10-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09	$9,858,709	2006	72,000	0
OR/WA	130,923	-170,299	8-12/05;8-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;10-12/08;8,10-12/09	$50,576,315	2007	72,000	0
Southern SA	229,077	-103,245		12/05;11-12/06;11-12/07;11-12/08;10-12/09	$59,763,699	2008	72,000	0
Northern SA	130,923	-170,299		10-12/05;10-12/06;10-12/07;10-12/08;8,10-12/09	$50,576,315	2009	72,000	0
Total	360,000	-273,544			$110,340,014			0

No Action alternative (66% south, 33% north, 1/1; line at Pt. Piedras Blancas; Reallocate 50% south, 50% north 10/1), 2005-2009.

Area	No Action Projected Landings 2005-2009	Change in Landings from SQ	No Action Shortfall in Landings 2005-2009	Change in Shortfall from SQ	No Action Mo/Yr of Shortfalls	No Action Mo/Yr with No Allocation
Southern CA	204,165	31,118	-19,398	-31,118	12/06;12/07;11,12/08;10-12/09	12/08;11,12/09
Northern CA	39,700	-16,330	-69,059	16,330	8,9,11,12/05;8-12/06;7-12/07;7-12/08;7-12/09	9,12/05;9,11,12/06;8,9,11,12/07;8,9,11,12/08;8,9,11,12/09
OR/WA	139,842	-16,183	-186,482	16,183	8,9,11,12/05;8-12/06;7-12/07;7-12/08;7-12/09	9,12/05;9,11,12/06;8,9,11,12/07;8,9,11,12/08;8,9,11,12/09
Southern SA[1]	204,165	31,118	-19,398	-31,118	12/06;12/07;11,12/08;10-12/09	12/08;11,12/09
Northern SA[2]	179,542	-32,513	-255,542	32,513	8,9,11,12/05;8-12/06;7-12/07;7-12/08;7-12/09	9,12/05;9,11,12/06;8,9,11,12/07;8,9,11,12/08;8,9,11,12/09
Total	383,707	-1,396	-274,939	1,396		

No Action alternative, continued.

Area	No Action NPV Producer Surplus	Change in NPV of PS from SQ	Year	No Action HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$58,874,155	$8,969,165	2005	72,000	1,396	1,396
Northern CA	$7,002,685	-$2,856,024	2006	72,000	0	0
OR/WA	$44,345,935	-$6,230,380	2007	72,000	0	0
Southern SA[1]	$58,874,155	$8,969,165	2008	72,000	0	0
Northern SA[2]	$51,348,620	-$9,086,404	2009	72,000	0	0
Total	$110,222,776	-$117,238			1,396	1,396

[1]Under the no action alternative the Southern Subarea consists of Southern California.

[2]Under the no action alternative the Northern Subarea consists of Northern California, Oregon and Washington.

Alternative 1 (50% Coastwide 1/1; 50% + Rollover 7/1), 2005-2009.

Area	Alternative 1 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 1 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 1 Mo/Yr of Shortfalls	Alternative 1 Mo/Yr with No Allocation
Southern CA	141,434	-31,613	-82,129	31,613	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
Northern CA	31,746	-24,284	-77,013	24,284	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
OR/WA	196,565	55,897	-114,402	-55,897	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
Southern SA	173,180	-55,897	-159,142	55,897	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
Northern SA	196,565	55,897	-114,402	-55,897	9-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;9-12/06;9-12/07;9-12/08;9-12/09
Total	369,746	0	-273,544	0		

Alternative 1, continued.

Area	Alternative 1 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 1 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$40,785,313	-$9,119,677	2005	72,000	0	0
Northern CA	$5,558,556	-$4,300,153	2006	72,000	0	0
OR/WA	$72,201,236	$21,624,921	2007	72,000	0	0
Southern SA	$46,343,869	-$13,419,830	2008	72,000	0	0
Northern SA	$72,201,236	$21,624,921	2009	72,000	0	0
Total	$118,545,105	$8,205,091			0	0

Alternative 2 (Season 6/1- 5/31 Coastwide HG), 2005-2009.

Area	Alternative 2 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 2 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 2 Mo/Yr of Shortfalls	Alternative 2 Mo/Yr with No Allocation
Southern CA	75,397	-97,650	-148,166	97,650	10/05-5/06;10/06-5/07;9/07-5/08;9/08-5-09;9/09-5/10	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
Northern CA	31,039	-24,991	-77,721	24,991	10/05-3/06;10/06-3/07;9/07-3-08;9/08-3/09;9/09-3/10	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
OR/WA	255,578	122,641	-47,658	-122,641	10-12/05;10-12/06;9-12/07;9-12/08;9-12/09	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
Southern SA	106,436	-122,641	-225,886	122,641	10/05-5/06;10/06-5/07;9/07-5/08;9/08-5-09;9/09-5/10	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
Northern SA	255,578	122,641	-47,658	-122,641	10-12/05;10-12/06;9-12/07;9-12/08;9-12/09	11/05-5/06;11-06-5/07;10/07-5/08;10/08-5/09;10/09-5/10
Total	362,014	0	-273,544	0		

Alternative 2, continued.

Area	Alternative 2 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 2 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$21,879,411	-$28,025,579	2005	72,000	0	0
Northern CA	$5,480,381	-$4,378,328	2006	72,000	0	0
OR/WA	$97,551,312	$46,974,997	2007	72,000	0	0
Southern SA	$27,359,792	-$32,403,907	2008	72,000	0	0
Northern SA	$97,551,312	$46,974,997	2009	72,000	0	0
Total	$124,911,104	$14,571,090			0	0

Alternative 3 (40% Coastwide 1/1; 40% + Rollover 7/1; 20% + Rollover 10/1), 2005-2009.

Area	Alternative 3 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 3 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 3 Mo/Yr of Shortfalls	Alternative 3 Mo/Yr with No Allocation
Southern CA	147,854	-25,193	-75,709	25,193	8-9,11-12/05;8-12/06;8-12/07;6,8-12/08;6,8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/09
Northern CA	55,212	-817	-53,547	817	8-9,11-12/05;8-12/06;8-12/07;8-12/08;8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/10
OR/WA	172,752	26,010	-144,288	-26,010	8-9,11-12/05;8-12/06;8-12/07;6,8-12/08;6,8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/11
Southern SA	203,067	-26,010	-129,255	26,010	8-9,11-12/05;8-12/06;8-12/07;6,8-12/08;6,8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/12
Northern SA	172,752	26,010	-144,288	-26,010	8-9,11-12/05;8-12/06;8-12/07;6,8-12/08;6,8-12/09	9,12-05;9,11-12/06;9,11-12/07;9,11-12/08;9,11-12/13
Total	375,819	0	-273,544	0		

Alternative 3, continued.

Area	Alternative 3 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 3 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$42,646,432	-$7,258,558	2005	72,000	0	0
Northern CA	$9,665,651	-$193,058	2006	72,000	0	0
OR/WA	$60,668,430	$10,092,115	2007	72,000	0	0
Southern SA	$52,312,083	-$7,451,616	2008	72,000	0	0
Northern SA	$60,668,430	$10,092,115	2009	72,000	0	0
Total	$112,980,513	$2,640,499			0	0

Alternative 4.b (HG < 100,000 mt; 33% North, 66% South 1/1; 20% North, 80% South of Remaining 9/1, Coastwide Rollover 11/1), 2005-2009.

Area	Alternative 4.b Projected Landings 2005-2009	Change in Landings from SQ	Alternative 4.b Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 4.b Mo/Yr of Shortfalls	Alternative 4.b Mo/Yr with No Allocation
Southern CA	176,564	3,517	-46,998	-3,517	11-12/05;10-12/06;10-12/07;10-12/08;9-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09
Northern CA	53,425	-2,605	-55,334	2,605	11-12/05;10-12/06;10-12/07;10-12/08;9-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09
OR/WA	151,968	-913	-171,211	913	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	10,12/05;10-12/06;10-12/07;10-12/08;8,10-12/09
Southern SA	229,989	913	-102,332	-913	11-12/05;10-12/06;10-12/07;10-12/08;9-12/09	12/05;11-12/06;11-12/07;11-12/08;10-12/09
Northern SA	151,968	-913	-171,211	913	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	10,12/05;10-12/06;10-12/07;10-12/08;8,10-12/09
Total	381,957	0	-273,544	0		

Alternative 4.b, continued.

Area	Alternative 4.b NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 4.b HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$50,918,940	$1,013,950	2005	72,000	0	0
Northern CA	$9,405,087	-$453,622	2006	72,000	0	0
OR/WA	$50,226,029	-$350,287	2007	72,000	0	0
Southern SA	$60,324,027	$560,328	2008	72,000	0	0
Northern SA	$50,226,029	-$350,287	2009	72,000	0	0
Total	$110,550,055	$210,041			0	0

Alternative 5 (20% Set Aside 1/1; 40% North, 60% South of Remaining 1/1, Coastwide Rollover 10/1), 2005-2009.

Area	Alternative 5 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 5 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 5 Mo/Yr of Shortfalls	Alternative 5 Mo/Yr with No Allocation
Southern CA	163,484	-9,564	-60,079	9,564	9-12/05;9-12/06;8-12/07;8-12/08;8-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
Northern CA	55,826	-204	-52,933	204	9-12/05;9-12/06;8-12/07;8-12/08;8-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
OR/WA	161,900	9,767	-160,532	-9,767	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
Southern SA	219,310	-9,767	-113,012	9,767	9-12/05;9-12/06;8-12/07;8-12/08;8-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
Northern SA	161,900	9,767	-160,532	-9,767	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	11-12/05;11-12/06;11-12/07;11-12/08;11-12/09
Total	381,210	0	-273,544	0		

Alternative 5, continued.

Area	Alternative 5 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 5 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$47,252,856	-$2,652,134	2005	72,000	0	0
Northern CA	$9,812,602	-$46,107	2006	72,000	0	0
OR/WA	$54,209,912	$3,633,597	2007	72,000	0	0
Southern SA	$57,065,458	-$2,698,241	2008	72,000	0	0
Northern SA	$54,209,912	$3,633,597	2009	72,000	0	0
Total	$111,275,370	$935,356			0	0

Alternative 6 (50% North, 50% South 1/1; Coastwide Rollover 9/1; Variable N/S Allocation Based on Prior Year's Use), 2005-2009.

Area	Alternative 6 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 6 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 6 Mo/Yr of Shortfalls	Alternative 6 Mo/Yr with No Allocation
Southern CA	149,824	-23,223	-73,739	23,223	9-12/05;9-12/06;9-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
Northern CA	34,985	-21,045	-73,775	21,045	9-12/05;9-12/06;9-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
OR/WA	187,104	44,268	-126,031	-44,268	8-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
Southern SA	184,809	-44,268	-147,513	44,268	9-12/05;9-12/06;9-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
Northern SA	187,104	44,268	-126,031	-44,268	8-12/05;8-12/06;8-12/07;8-12/08;8-12/09	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09
Total	371,913	0	-273,544	0		

Alternative 6, continued.

Area	Alternative 6 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 6 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$43,255,904	-$6,649,085	2005	72,000	0	0
Northern CA	$6,121,691	-$3,737,018	2006	72,000	0	0
OR/WA	$67,669,595	$17,093,279	2007	72,000	0	0
Southern SA	$49,377,595	-$10,386,103	2008	72,000	0	0
Northern SA	$67,669,595	$17,093,279	2009	72,000	0	0
Total	$117,047,190	$6,707,176			0	0

Alternative 7 (33% North, 66% South 1/1; 50% North, 50% South of Remaining 9/1, Coastwide Rollover 11/1), 2005-2009.

Area	Alternative 7 Projected Landings 2005-2009	Change in Landings from SQ	Alternative 7 Shortfall in Landings 2005-2009	Change in Shortfall from SQ	Alternative 7 Mo/Yr of Shortfalls	Alternative 7 Mo/Yr with No Allocation
Southern CA	168,504	-4,543	-55,059	4,543	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09	11-12/05;11-12/06;11-12/07;10-12/08;10-12/09
Northern CA	44,788	-11,242	-63,971	11,242	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09	11-12/05;11-12/06;11-12/07;10-12/08;10-12/09
OR/WA	163,350	15,785	-154,514	-15,785	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	10-12/05;10-12/06;10-12/07;10-12/08;8,10-12/09
Southern SA	213,292	-15,785	-119,030	15,785	10-12/05;10-12/06;10-12/07;9-12/08;9-12/09	11-12/05;11-12/06;11-12/07;10-12/08;10-12/09
Northern SA	163,350	15,785	-154,514	-15,785	8-12/05;8-12/06;8-12/07;8-12/08;7-12/09	10-12/05;10-12/06;10-12/07;10-12/08;8,10-12/09
Total	376,642	0	-273,544	0		

Alternative 7, continued.

Area	Alternative 7 NPV Producer Surplus	Change in NPV of PS from SQ	Year	Alternative 7 HG	Surplus HG	Change in Surplus HG from SQ
Southern CA	$48,559,190	-$1,345,800	2005	72,000	0	0
Northern CA	$7,837,630	-$2,021,079	2006	72,000	0	0
OR/WA	$56,824,132	$6,247,817	2007	72,000	0	0
Southern SA	$56,396,820	-$3,366,879	2008	72,000	0	0
Northern SA	$56,824,132	$6,247,817	2009	72,000	0	0
Total	$113,220,952	$2,880,938			0	0

Table 4-5. Quota shortages by year and month under different HG sceanarios, 2005-2009.

Low HG Case: HG = 72,000 mt
Alt: Status Quo

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	11-12	10-12	10-12	10-12	10-12	12	11-12	11-12	11-12	10-12
NC	11-12	10-12	10-12	10-12	10-12	12	11-12	11-12	11-12	10-12
OW	8-12	8-12	8-12	8-12	8-12	10-12	10-12	10-12	10-12	10-12

Alt: No Action

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC		12	12	11-12	10-12				12	10-12
NC	8,9,11,12	8-12	7-12	7-12	7-12	9,12	9,11,12	8,9,11,12	8,9,11,12	8,9,11,12
OW	8,9,11,13	8-13	7-12	7-12	7-12	9,13	9,11,13	8,9,11,12	8,9,11,12	8,9,11,12

Alt: 1

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	9-12	8-12	8-12	8-12	8-12	10-12	9-12	9-12	9-12	9-12
NC	9-12	8-12	8-12	8-12	8-12	10-12	9-12	9-12	9-12	9-12
OW	9-12	8-12	8-12	8-12	8-12	10-12	9-12	9-12	9-12	9-12

Alt: 2

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	10-12	1-5, 10-12	1-5, 9-12	1-5,9-12	1-5,9-12	11-12	1-5,11-12	1-5, 10-12	1-5, 10-12	1-5, 10-12
NC	10-12	1-3, 10-12	1-3, 9-12	1-3, 9-12	1-3, 9-12	11-12	1-5, 11-12	1-5, 10-12	1-5, 10-12	1-5, 10-12
OW	10-12	10-12	9-12	9-12	9-12	11-12	1-5, 11-12	1-5, 10-12	1-5, 10-12	1-5, 10-12

Alt: 3

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	8,9,11,12	8-12	8-12	6,8-12	6, 8-12	9,12	9,11,12	9,11,12	9,11,12	9,11,12
NC	8,9,11,12	8-12	8-12	8-12	8-12	9,12	9,11,12	9,11,12	9,11,12	9,11,12
OW	8,9,11,12	8-12	8-12	6, 8-12	6, 8-12	9,12	9,11,12	9,11,12	9,11,12	9,11,12

Alt:

4.b

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	11-12	10-12	10-12	10-12	9-12	12	11-12	11-12	11-12	10-12
NC	11-12	10-12	10-12	10-12	9-12	12	11-12	11-12	11-12	10-12
OW	8-12	8-12	8-12	8-12	7-12	10,12	10-12	10-12	10-12	8, 10-12

Alt: 5

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	9-12	9-12	8-12	8-12	8-12	11-12	11-12	11-12	11-12	11-12
NC	9-12	9-12	8-12	8-12	8-12	11-12	11-12	11-12	11-12	11-12
OW	8-12	8-12	8-12	8-12	7-12	11-12	11-12	11-12	11-12	11-12

Alt: 6

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	9-12	9-12	9-12	8-12	8-12	10-12	10-12	10-12	9-12	9-12
NC	9-12	9-12	9-12	8-12	8-12	10-12	10-12	10-12	9-12	9-12
OW	8-12	8-12	8-12	8-12	8-12	10-12	10-12	10-12	9-12	9-12

Alt: 7

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC	10-12	10-12	10-12	9-12	9-12	11-12	11-12	11-12	10-12	10-12
NC	10-12	10-12	10-12	9-12	9-12	11-12	11-12	11-12	10-12	10-12
OW	8-12	8-12	8-12	8-12	7-12	10-12	10-12	10-12	10-12	8, 10-12

Base Case: HG = 136,000 mt
Alt: Status Quo

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW		10-11	10-11	8-11	8-11		11	11	10-11	10-11

Alt: No Action

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC	8	8-9	8-9	8-9	8-9		9	9	9	9
OW	8	8-9	8-9	8-9	8-9		9	9	9	9

Alt: 1

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				12	11-12					12
NC				12	11-12					12
OW				12	11-12					12

Alt: 2

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				4-5	1-5				5	2-5
NC				4-5	1-5				5	2-5
OW									5	2-5

Alt: 3

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				12	9, 11-12					12
NC				12	9, 11-12					12
OW				12	9, 11-12					12

Alt: 4.a

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				12	11-12					12
NC				12	11-12					12
OW				12	11-12					12

Alt: 5

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW	9	9	9	8-9	8-9					

Alt: 6

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC				12	11-12					12
NC				12	11-12					12
OW				12	11-12					12

Alt: 7

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC					11-12					12
NC					11-12					12
OW				8	8, 11-12					12

High HG Case: HG = 200,000 mt
Alt: Status Quo

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: No Action

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC				9	9					
OW				9	9					

Alt: 1

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 2

	Year Months with Shortfall					Year Months with 0 Allocation				
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 3

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 4.a

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 5

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW					9					

Alt: 6

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

Alt: 7

	Year	Months with Shortfall				Year	Months with 0 Allocation			
Area	**2005**	**2006**	**2007**	**2008**	**2009**	**2005**	**2006**	**2007**	**2008**	**2009**
SC										
NC										
OW										

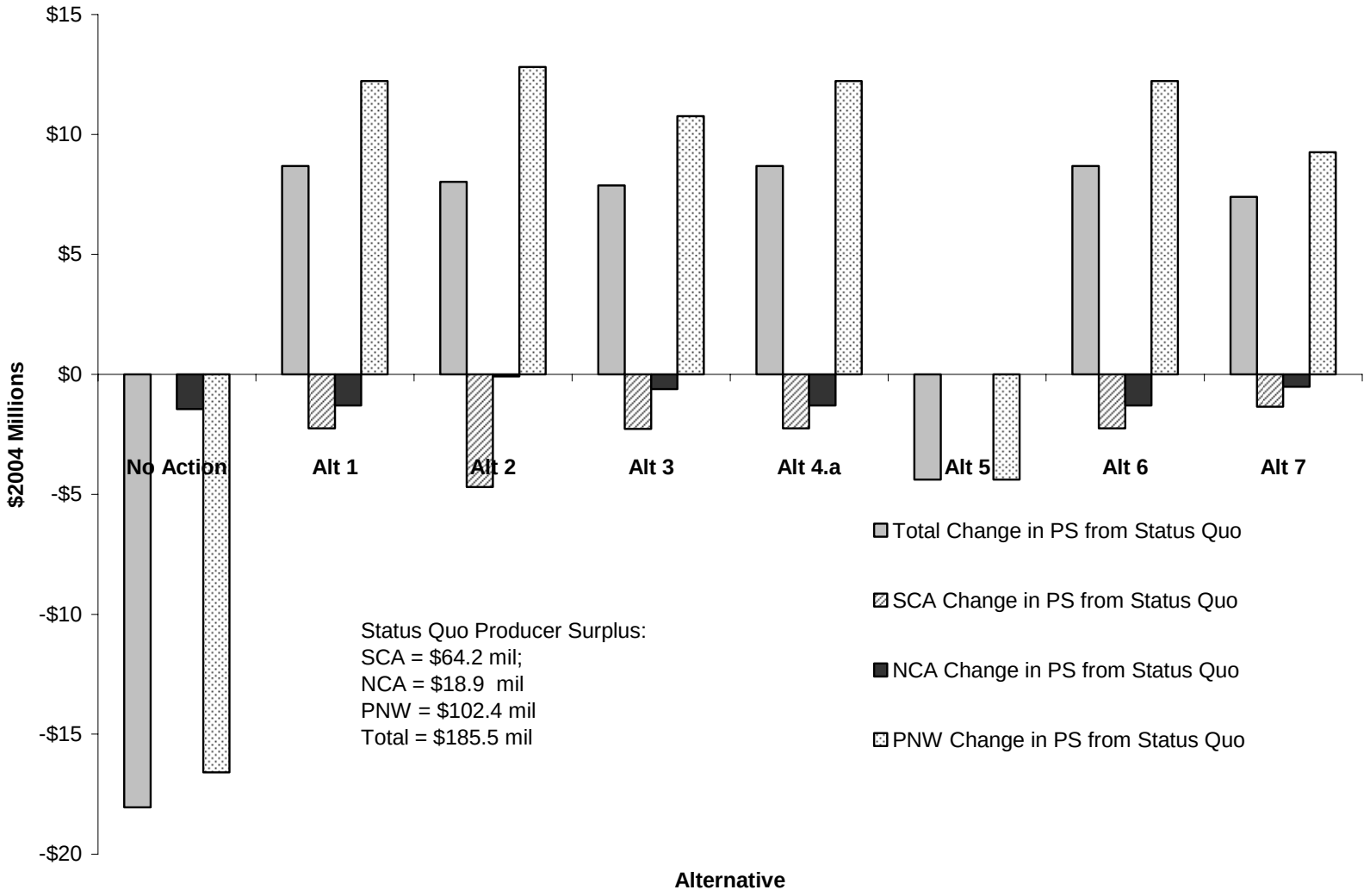


Figure 4-1. Change in producer surplus from the status quo under each alternative, by region, base case, 2005-2009.

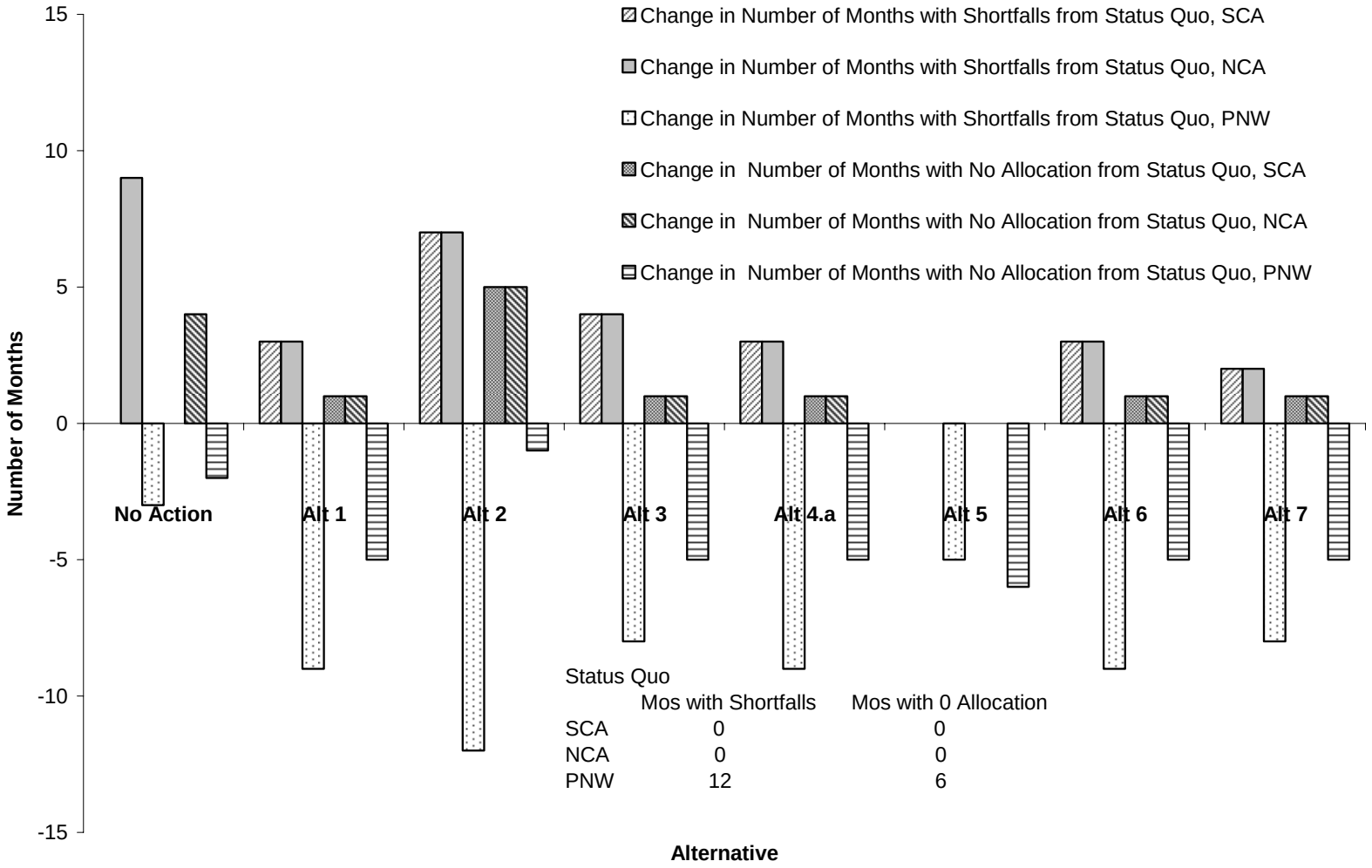


Figure 4-2. Change in the number of months with a landings shortfall and the number of months with a zero allocation for each allocation alternative relative to the status quo, by region, base case, 2005-2009.

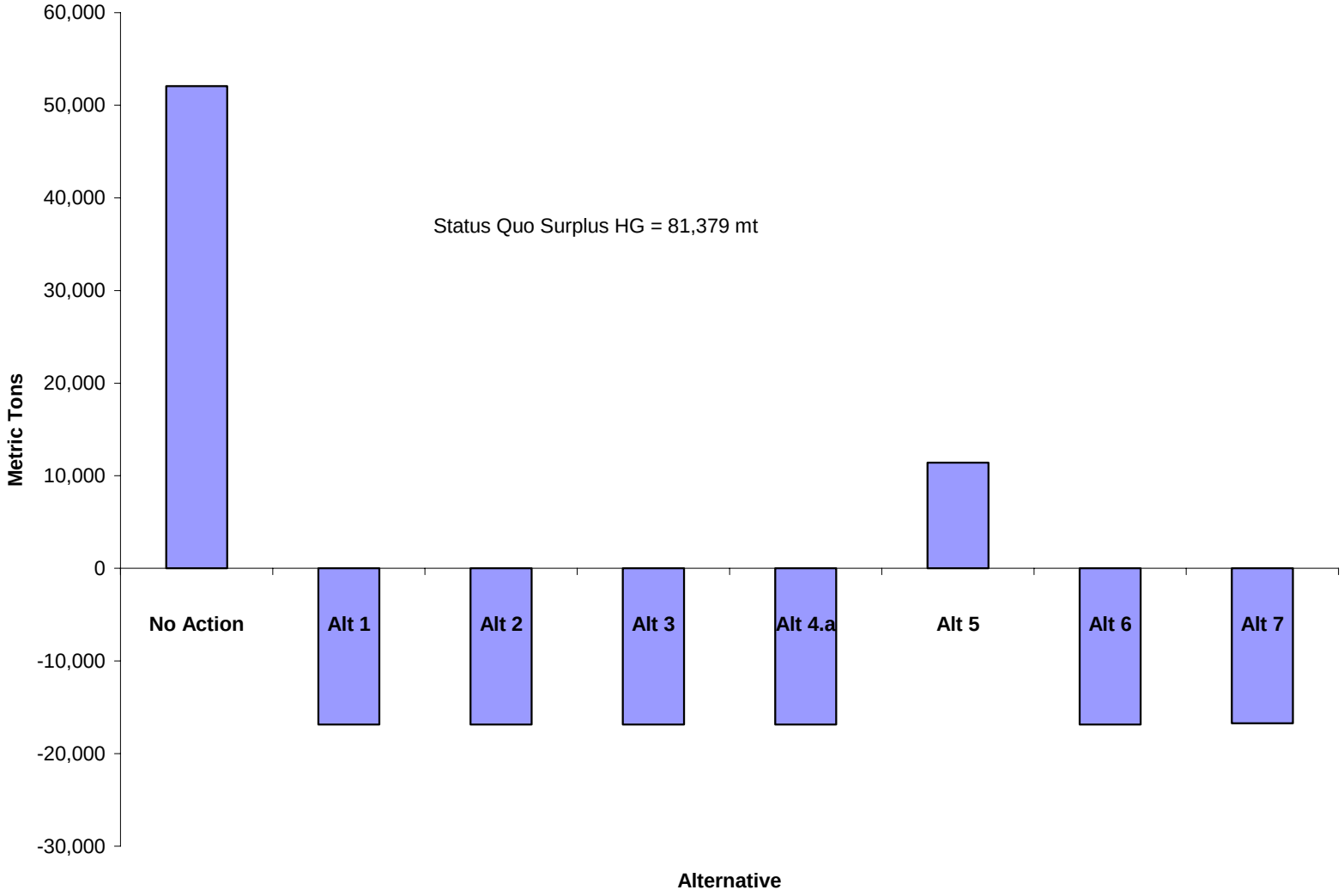


Figure 4-3. Change in surplus harvest guideline (mt) from the status quo for each allocation alternative, base case, 2005-2009.

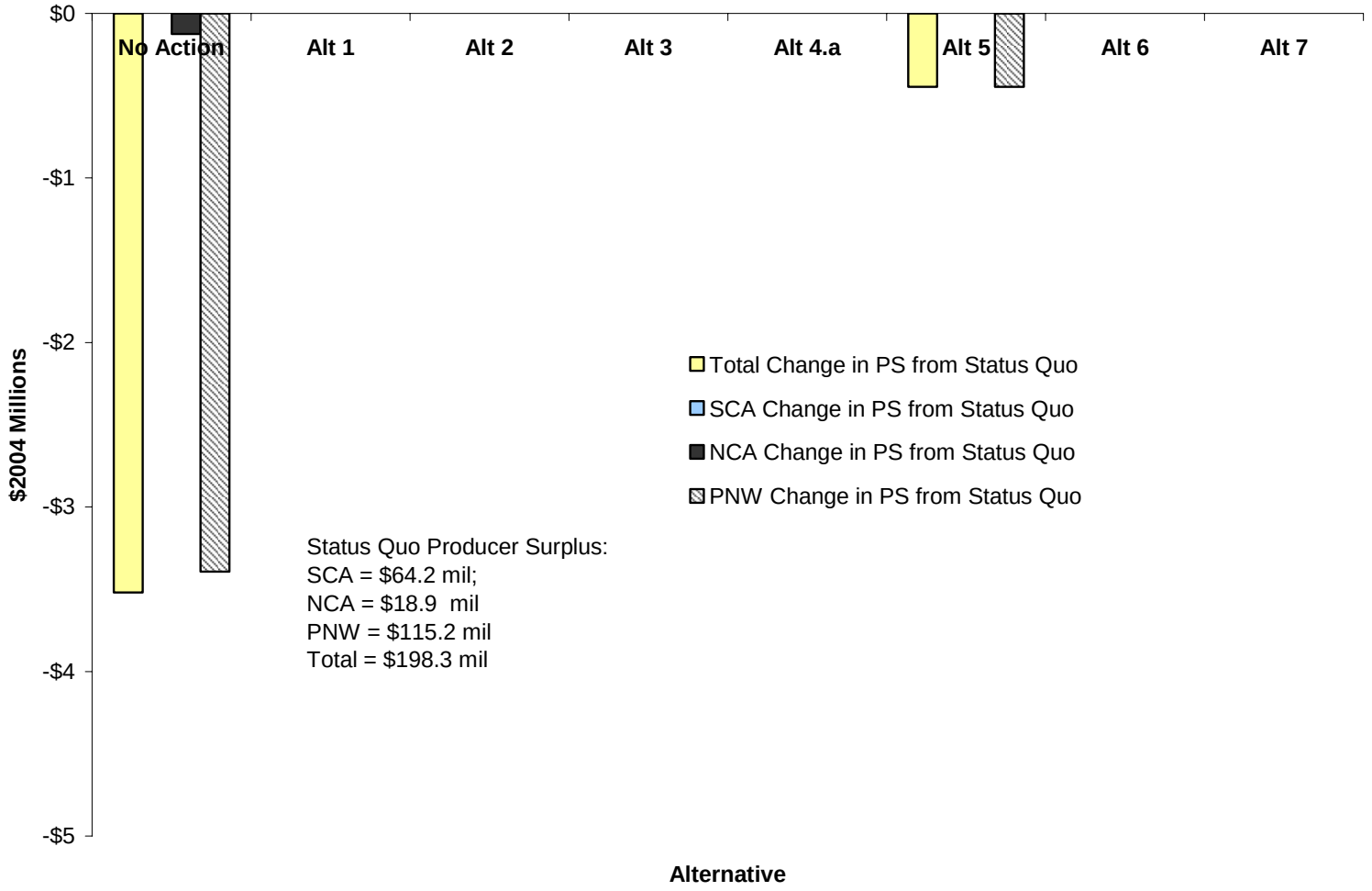


Figure 4-4 Change in producer surplus from the status quo under each alternative, by region, high harvest guideline case, 2005-2009

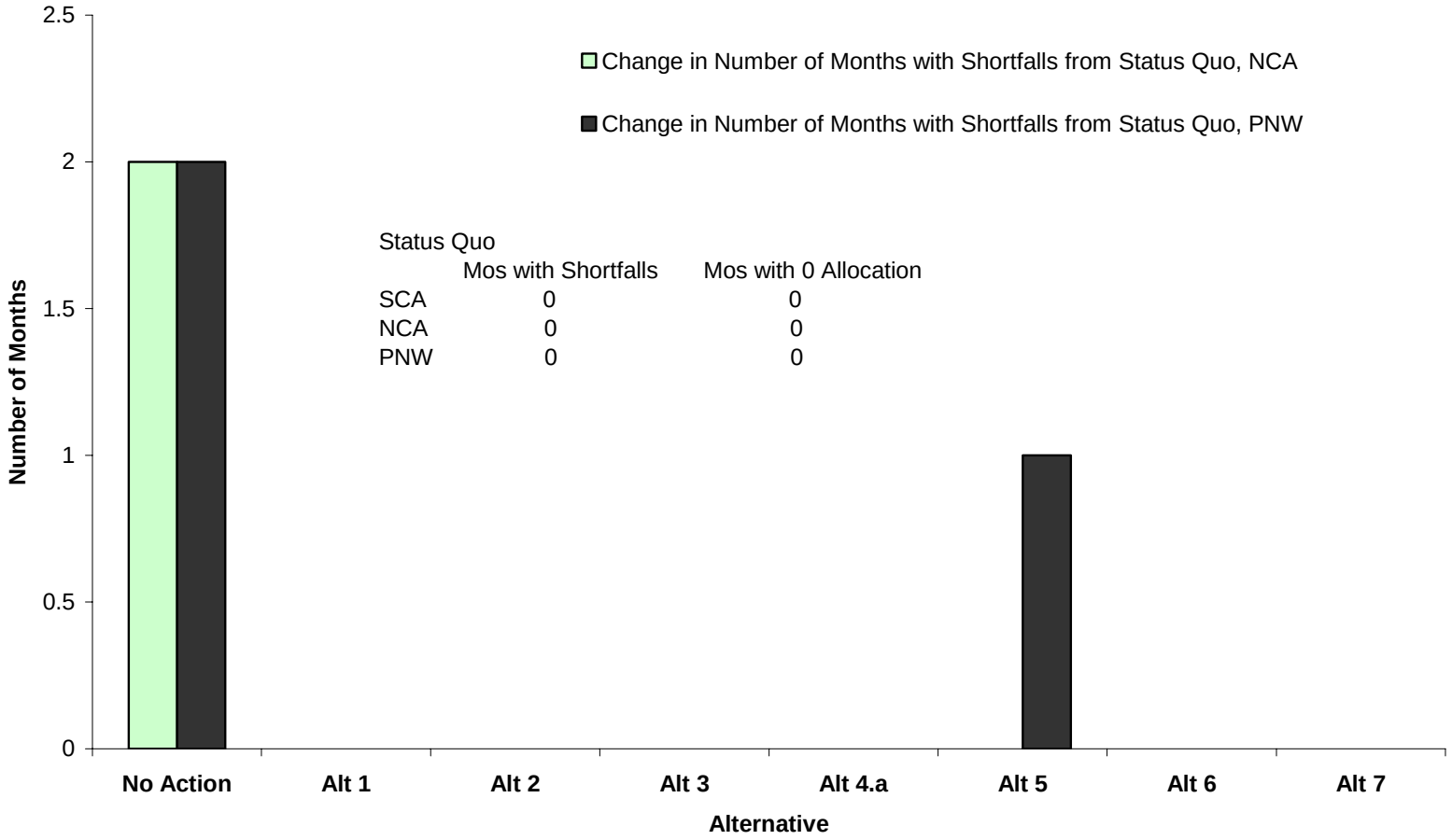


Figure 4-5. Change in the number of months with a landings shortfall and the number of months with a zero allocation, by region, for each allocation alternative relative to the status quo, high harvest guideline case, 2005-2009.

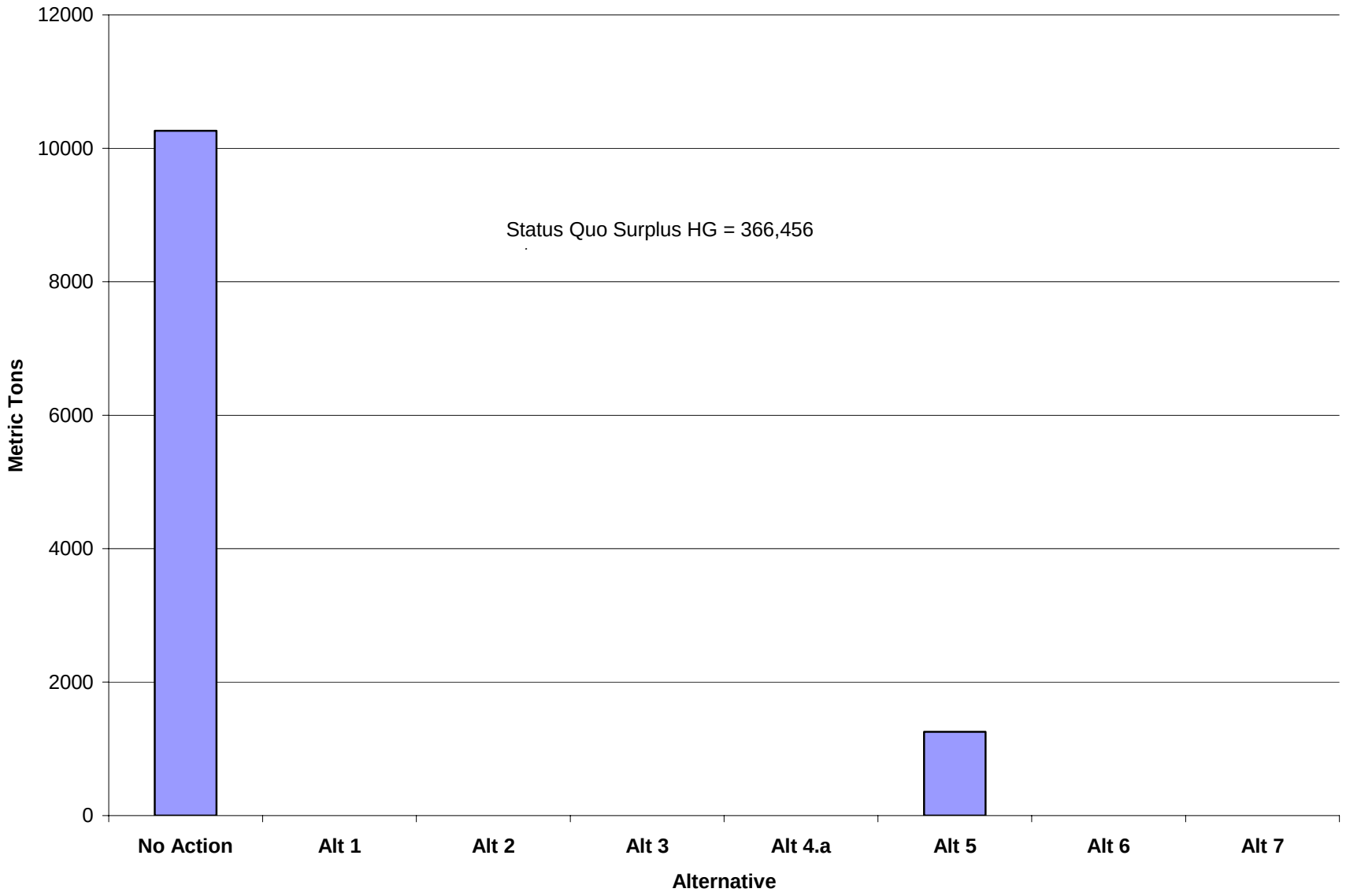
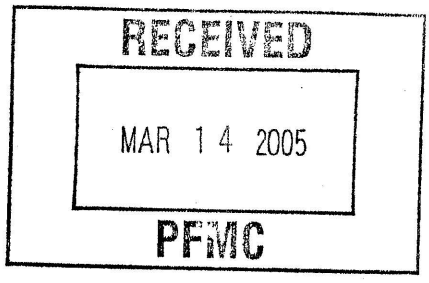


Figure 4-6. Change in surplus harvest guideline (mt) from the status quo for each allocation alternative, high harvest guideline case, 2005-2009.

Monterey Fish Company, Inc.
1222 Merrill St. / Salinas, CA 93901 / 831-775-0522 / Fax: 831-775-0156

March 11, 2005



Mr. Donald Hansen, Chair and
Members of the Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

PFMC FAX: (503) 820-2299

Subject: Long Term Pacific sardine allocation

Dear Chairman Hansen and Council Members:

Monterey Fish Company is a family-owned company that processes high quality fresh and frozen sardines, mainly for human consumption. MFC follows a tradition that has gone on for nearly a century, when Monterey was the sardine capital of the western world. Sardines have been the lifeblood of the Monterey Bay area fishing community during all that time, and they continue to be vitally important today.

Our family business employs hundreds of people to pack and distribute sardine products. Other processors in the area employ hundreds more. This industry also supports the fishermen who harvest sardines for our company and other wetfish processors in the area, as well as their families. I am writing this letter on behalf of our employees, the fishermen, their families and the broader fishing community in Monterey as well as the fishing communities in Ventura - Pt. Hueneme and San Pedro, California. Wetfish provide the majority of landings for these fishing communities, and sardines are an essential part of our total production. Our company and California's wetfish industry would not survive without sardines.

As the Pacific Fishery Management Council considers options for long-term sardine allocation, I ask you to understand the importance of sardines to our fishing industry here in California, and the need to protect this historic industry. The decision made by the Council has a major impact on our future.

The history of the sardine resource has shown that sardines undergo dramatic natural fluctuations. We ask the Council to employ the best available science and adopt a range of options that allows managers to use the most recent field research to develop biomass estimates and harvest guidelines. That means beginning the fishing season in January. Due to the potential to shut down the California fishery during our peak fall season as the harvest guideline declines, we also ask the Council to adopt a range of options that will minimize premature shutdown in California when the fishing quota is reduced. That would have severe negative impacts on our fishing communities. Approving different allocation formulas above and below 100,000 tons would allow more flexible harvest in times of sardine abundance and protect California's wetfish industry when the harvest guideline declines.

We support Alternative 7, modification of the status quo, allocating 33% to the north and 66% to the south, including Monterey in the southern subarea, on January 1, then reallocating unharvested fish on September 1 at a 50:50 rate, with coast-wide reallocation on November 1. This will provide more fish to the north while protecting California's fall season.

We also encourage the Council to actively support expanded coast-wide research on the sardine spawning biomass, which will improve biologists' understanding of the resource and capture the full extent of spawning. Considering the current lack of knowledge of sardine stocks and inability to predict the future, we ask the Council to reexamine the allocation framework in two or three years, when more information is available.

It is also important for the Council or National Marine Fisheries Service to re-examine fishing capacity and determine how much capacity the resource can support over the long term. A major purpose of the CPS FMP was to protect against overcapitalization, yet there has been major expansion in the north without a full

assessment of the resource, and we believe both the research and capacity analysis are called for to assure precautionary management.

In conclusion, please consider the historic and present day importance of Monterey's sardine industry when adopting the new allocation framework and approve a plan that protects California's wetfish industry.

Thank you for your consideration of these comments.

Sincerely,

Sal Tringali

Cc: Dr. Bill Hogarth, NMFS
Rod McInnis, NMFS SW Region

March 14, 2005

Mr. Don Hansen, Chair and
Members of the Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

PFMC FAX: (503) 820-2299

Subject: Long Term Pacific Sardine Allocation

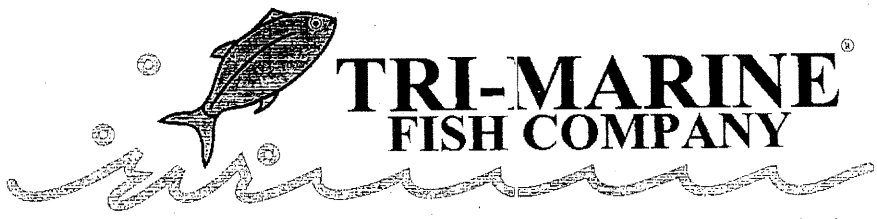
Dear Mr. Hansen and Council Members:

Tri-Marine Fish Company is a fish processing company that packs wetfish, including sardines, in Terminal Island, California. Our company is similar to the rest of California's wetfish industry in that this industry relies on a mix of cyclical wetfish species, including sardines, mackerel and market squid, as we have for more than 100 years. Sardines are a year-round fishery in California, and our company depends on sardines for as much as half of our total business; this percentage is even higher in years when squid are scarce. Sardines are the backbone of the wetfish industry in California; our company would not survive without them.

On behalf of this company, our employees and the fishermen who supply us, I urge you to consider the importance of sardines to California's wetfish industry when you make your decision on long-term sardine allocation. Please keep in mind that in the California fishery sardines are of highest quality in the fall and winter months, when they return from their migration to the north. Any allocation scheme that would shut us down during that time would have a devastating effect on our industry.

Please consider that the CPS Fishery Management Plan emphasized precautionary management is especially important for sardines due to their extreme natural variability. The CPS FMP implemented a limited entry fishery and capacity goal in California as a risk-averse management strategy to prevent overcapitalization, but in recent years a new sardine industry has mushroomed in the north and now wants more quota to expand even further. How much fishing capacity can the sardine resource support? It seems important to conduct another analysis of fishing capacity before precipitating overcapitalization - the exact condition the CPS FMP intended to prevent. If the Council declines to do this analysis, then I ask the National Marine Fisheries Service tc do it.

220 Cannery Street • San Pedro, CA 90731 • (310) 547-1144 • Fax: (310) 547-1166



I hope the Council does not intend to limit the traditional California sardine industry during our peak fall season to provide more fishing opportunity in the north in the summertime.

We also ask that you please send a letter to the National Marine Fisheries Service requesting a series of coast-wide field cruises to be launched beginning in 2006 to measure the full extent of the spawning biomass. This research is critical to produce a better picture of the size of sardine stocks. Currently the daily egg production counts stop at San Francisco, but we know that spawning is occurring in the north. Considering that this resource now has two fisheries to support, we need better information to avoid over-fishing in addition to overcapitalization. California's wetfish industry remembers the 20-year fishing moratorium on sardines and we don't want to repeat that history.

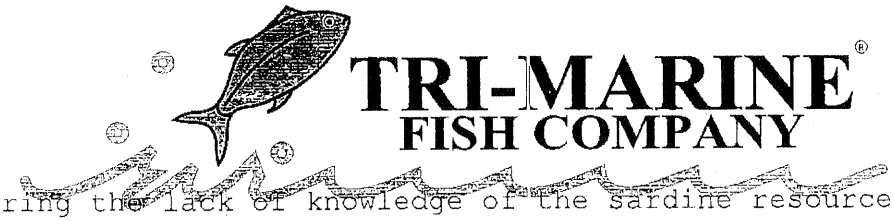
As for allocation options, California wetfish industry representatives discussed all the alternatives, and we support #7, modification of the status quo 33% north, 66% south (including all of California), with a 50:50 reallocation of unused harvest effective September 1, and coast-wide reallocation on November 1.

California wetfish processors agreed that this modified status quo is the best option at the present time, considering the current lack of knowledge about the resource. We also agreed that a periodic release of quota coast-wide would encourage bad business practices. In practice, a coast-wide allocation would cause derby fishing at the beginning of each period, leading to lower-quality fish, plugged freezers, lower prices and idle periods at end of each period. A seasonal release, or any coast-wide release, of allocation would not be good for the fishery.

In support of Option #7, we point out that the northern sector did not utilize its full allocation in 2004 with the 20% reallocation framework. Reallocating 50% of unused harvest guideline effective September 1 would allow additional fishing opportunity in the north when sardines are abundant, while protecting California's fall fishery and precautionary management strategies.

We have also learned that Pacific Northwest Indians will request a sardine allocation, and this will be deducted before regional allocation percentages are computed, so northern processors who are partnering with the Treaty Tribes will get more sardines from the Indian allocation, and this should use up most of the quota remaining at current harvest guideline levels.

220 Cannery Street • San Pedro, CA 90731 • (310) 547-1144 • Fax: (310) 547-1166



Considering the lack of knowledge of the sardine resource and inability to predict quotas or markets in the future, we ask that the new allocation framework be adopted for only two or three years, and reconsidered along with research gathered from expanded coast-wide field studies.

We also believe it is important to set different allocation formulas for high and low harvest guideline years. If the Council adopted different allocation frameworks for high and low quota years, this could provide a more flexible framework to achieve optimum yield when the quota is high (above 100,000 mt), and still protect California's historic federally permitted limited entry fishery from early closure during our peak fall harvest season when the harvest guideline falls. We could support retaining the status quo (unmodified) framework when the quota falls below 100,000 tons.

Thank you very much for this opportunity to present these comments.

Sincerely,

Vince Torre

Cc: Dr. Bill Hogarth, NMFS
Rod McInnis, NMFS SW Region

220 Cannery Street • San Pedro, CA 90731 • (310) 547-1144 • Fax: (310) 547-1166

PACKERS OF: OCEAN ANGEL

TELEPHONE: (831) 763-3000
FAX: (831) 763-2444

DEL MAR SEAFOODS, INC. 331 FORD ST. WATSONVILLE, CA 95076

Processors and Distributors of Monterey Bay Squid

March 14, 2005

Mr. Donald Hansen, Chair and
Members of the Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

PFMC FAX: (503) 820-2299

Subject: Long Term Pacific sardine allocation

Dear Mr. Hansen and Council Members:

Del Mar Seafood processes sardines in California for human consumption, animal feed and bait. This company employs hundreds of people to pack and distribute sardine products, following a tradition that has gone on since the early 1900s, when Monterey was called the sardine capital of the world. Sardines continue to be vitally important to Monterey's fishing community, as well as the entire California wetfish industry. This industry supports the fishermen who harvest sardines for our company and other wetfish processors, as well as their families. In addition, California's wetfish industry provides seasonal employment for many out-of-state fishermen who come to California nearly every year to harvest squid.

As you know, the wetfish industry in California depends on three major stocks – sardines, mackerel and squid. Each species has cycles of abundance, and each is important to maintain the viability of the industry. Sardines are like one leg of a three-legged stool; our company and California's wetfish industry could not survive without sardines.

When the Pacific Fishery Management Council considers options for long-term sardine allocation, please understand the importance of sardines to California's fishing industry, and the need to protect this historic industry. The Council's decision will have a major impact on our future.

We're asking the Council to adopt a range of options that will not cause early closure of the California fishery when the sardine harvest guideline is reduced. That would have severe negative impacts on our community because in California sardines are the highest quality and best value in fall and winter months. Approving a different allocation formula above and below 100,000 tons would provide a more flexible harvest scheme in times of sardine abundance and still protect California's wetfish industry when the harvest guideline declines.

We support Alternative 7, which modifies the status quo (begin January 1 with 33% to the north and 66% to the south, including Monterey in the southern subarea), by reallocating unharvested fish at a 50:50 rate on September 1, with coast-wide reallocation on November 1. This will provide more fish to the north while protecting California's fall season.

It is also important for the Council or National Marine Fisheries Service to re-examine fishing capacity and determine how much capacity the resource can support. A key reason for creating the CPS FMP was to protect against overcapitalization, yet there has been major expansion in the north without a full assessment of the resource, and we believe both the research and capacity analysis are necessary to assure risk-averse management.

We also ask the Council to signify support for expanded coast-wide research on the sardine spawning biomass, to capture the full extent of spawning as it occurs in spring and early summer. Considering the current lack of

knowledge of sardine stocks and inability to predict the future, we ask the Council to reexamine the allocation framework in two or three years, when more information is available.

In conclusion, please consider the historic and present day importance of Monterey's sardine industry when adopting the new allocation framework and approve a plan that protects California's wetfish industry.

Thank you for this opportunity and your consideration of these comments.

Sincerely,

Joe Cappuccio

Cc: Dr. Bill Hogarth, NMFS
Rod McInnis, NMFS SW Region

BUCCANEER FISHING
David Crabbe
PO Box 4224
Carmel, CA 93921

March 15, 2005

Mr. Don Hansen, Chair; Dr. Donald McIsaac, Executive Director and
Members of the Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

SUBJECT: LONG-TERM SARDINE ALLOCATION

Dear Mr. Hansen, Dr. McIsaac and Council members,

These comments on long-term sardine allocation present the views of Monterey sardine fishermen, all of whom have federal CPS limited entry permits. The sardine fishery is a vital part of the wetfish catch in California, and we again urge the Council to consider the historic importance of this resource to California, as well as the history of sardine fishing in Monterey, when you adopt a new allocation plan. The sardine fishery operates year 'round here and accounts for more than half of our total harvest, especially in years when squid is unavailable.

A primary goal of the CPS Fishery Management Plan was to prevent over-capitalization. California now has a federally authorized limited-entry fishery with daily landing limits and a capacity goal, all regulated through the federal CPS FMP. But the new and expanding sardine industry in the Pacific Northwest has unilaterally added another 40 permits or more, without the Council or National Marine Fisheries Service first conducting essential research on the total spawning biomass, and without re-analyzing total fishing capacity.

We believe it is important to analyze total harvest capacity, as well as undertake expanded research coast-wide to determine the total extent of sardine spawning biomass, and we request that this work be done as soon as possible.

As the history of the sardine resource shows, this is a cyclical resource that can decline rapidly in a short time. In the interest of providing a sustainable fishery over time, we ask the Council to adopt a range of options that considers the year-long jobs, culture and social structure of California's historic fishing communities and protects this historic, limited-entry fishery, especially when the harvest guideline declines to a point when California can use the entire quota.

We support Alternative #7, which is a modification of status quo that starts the fishing year on January 1 with 33 percent to the north (Pacific Northwest) and 66 percent to the south, including Monterey in the southern area, and reallocates unused fish on September 1 at a 50:50 rate, instead of the current rate, 20n : 80s. This option would provide more fish to the north when sardines are plentiful, but still protect California's peak fall harvest season.

If the Council adopts two allocation formulas based on the abundance of sardine, the modified formula for above 100,000 tons (e.g. Alternative 7) and the status quo (unmodified) at lower quota levels, that would avoid the severe economic impact to California's limited entry fishery caused by premature shutdown in our peak fall harvest season.

Please also consider that no one single allocation formula is likely to work well in both high and low quota situations, so we ask the Council to revisit this issue in two or three years, after conducting expanded field research on the coast-wide sardine resource.

Thank you very much for your attention and consideration of these comments.

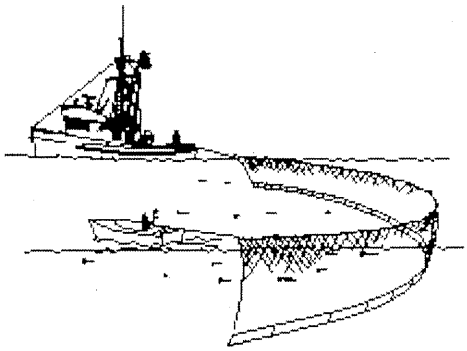
Sincerely,

David Crabbe

The following Monterey Fishermen strongly support this letter.

Fisherman	**Boat**
Anthony Russo	King Philip
Andy Russo	Sea Wave
Richie Aiello	New Stella
Dominic Alliotti	Alliotti Brothers
Sammy Mercurio	Shari Renee
David Crabbe	Buccaneer
Franco Sardina	Anna S
Tommy Noto	Lady J
Sal Mineo	Mineo Bros
Richard Deyerle	Miss Kristina
Frank Alliotti	El Dorado
Frank Lombardo	Little Joe
Joe Davi	Ocean Angle 2

This list of fishermen represents 85 percent of the boats in Monterey with a Coastal Pelagic Species Limited Entry Permit. The percentage could be higher, but I was unable to reach everyone.



CALIFORNIA WETFISH PRODUCERS ASSOCIATION

Representing California's Historic Fishery

March 16, 2005

Mr. Don Hansen, Chair &
Dr. Don McIsaac, Executive Director
Pacific Fishery Management Council
7700 NE Ambassador Place #200
Portland OR 97220-1384

RE: Agenda Item F.2.c – CPS FMP Amendment 11 – Sardine Allocation

Dear Chairman Hansen, Dr. McIsaac and Council members,

The California Wetfish Producers Association (CWPA) represents the major sardine processors in both Monterey and southern California, along with fishermen from both regions. We very much appreciate this opportunity, once again, to address the Council on the issue of long-term sardine allocation.

Gathering my thoughts for this statement, I reviewed all the comments I've submitted over the past two and a half years, and I also studied Amendment 8, the beginning of the CPS FMP, Amendment 10, justification for the capacity goal for California's limited entry fishery, and the Regulatory Amendment, approving the interim change in the allocation framework. My first impression was, as Yogi Berra once said, this is déja vu all over again – this is where I came in.... The comments that I submitted in 2002, as well as in November 2004 and all the meetings inbetween, are just as applicable today as they were when I first addressed this Council.

As I surveyed California wetfish processors to gather the cost-earnings data used in the socio-economic analyses of the alternatives under consideration, I was again struck by the enormous and continuing importance of sardines to California's wetfish industry. I've testified before that sardines are the backbone of this industry: sardines are a year-round fishery in California – one leg of a three legged stool. I borrowed that expression from Joe Capppuccio, Del Mar Seafoods in Monterey, because the image is vivid and it fits: the stool needs all three legs to stand up. So it is with California's wetfish industry and sardines.

In truth, the total value of California's wetfish industry should be considered in the RIR – RFA analysis for Amendment 11, because that's the value that the State and wetfish industry will lose if California's sardine fishery is curtailed.

In "An Economic Overview of the California Wetfish Industry Complex," *(Hackett 2001)* economist Steven Hackett reported that the value added by California wetfish processors in 2000 ranged as high as $90.3 million (the wetfish industry-wide real value added, including both fishing and processing sectors, totaled more than $98 million, median estimate, to a high value exceeding $126 million).

PO Box 1951 Buellton, CA 93427 Phone: 805-693-5430 Fax: 805-686-9312
Email: dplesch@earthlink.net

Approximately 25 percent of the real value added by processors was generated from sardines in 2000. The total real processor value added for Pacific sardine, according to Hackett, was estimated as high as $20 million, and industry-wide value added, including both harvesting and processing, exceeded $25 million.

It is important to understand that sardines contribute more than 50 percent of the total wetfish catch in years when squid are scarce – as they were in 1998.
Moreover, wetfish – including sardines – represent more than 80 percent of total commercial fishery volume landed in the State of California, as they have more more than a century.
This wetfish fishery produces:
95 percent of the volume and 63 percent of the value of all fishery landings in Monterey
86 percent of the volume and 32 percent of the value of all landings in Ventura-Pt. Hueneme
95 percent of the volume and 47 percent of the value of all landings in LA - San Pedro

Sardines are an essential part of this industry, and this industry is essential to the fishing ports and fishing communities in Monterey and southern California.

Summary from Sardine Cost-Earnings Reports

Re: Economic values

In addition to domestic uses, California's wetfish industry exports sardines to 26 countries worldwide. In light of the decline of sardines in Japan and other sardine producing nations in recent years, Japan has become an increasingly important market for California sardine products.

In 2003, the wholesale value of southern California's volume sardine fishery averaged more than $20 million (with potential to exceed $23 million). The ex-processor value averaged more than $7 million (with potential exceeding $9 million). The live bait sardine fishery adds millions of dollars more to the value of the sardine resource in California: as high as $18.1 million retail and $14 million "ex-producer". In 2004, the wholesale value of Monterey's sardine fishery averaged more than $7 million (potential exceeding $8 million) with ex-processor value near $3 million.
In aggregate, sardines represent much more than multi-millions of dollars annually to the State and fishing communities.

The economic value of the resource is only one of multiple objectives in the Magnuson Sustainable Fisheries Act and CPS FMP, however. Both also mandate protection for historic reliance on the resource and participation in the fishery.

Re: CA Wetfish Fishery infrastructure:

Of the 63 federally permitted CPS limited-entry vessels, 37 are home-ported in S.CA. and 16 are home-ported in the Monterey Bay area.

S.CA. "category (4)" wetfish processors (processed at least 500 mt of CPS annually) number 7 to 9, while Monterey "category (4)" processors number 3.

The S.CA. wetfish industry employs between 1,400 and 1,500 workers (excluding fishermen) and has a maximum packing capacity estimated between 1,900 and 2,000 tons per 24 day, in aggregate with maximum 24/7 weekly (168 hr) capacity of 25,800 tons.

The Monterey wetfish industry employs at least 420 employees (excluding fishermen) and has a maximum daily packing capacity estimated at 1,100 tons, with a weekly maximum packing capacity of 7,700 tons.

Combined, the California wetfish industry infrastructure that depends on sardines is as follows:

At least 53 LE vessels with average crew of 6 each, totaling 318 fishermen and their families
10-12 category (4) processors
approximately 2,000 workers
Estimated daily maximum packing capacity of 3,100 tons
Estimated weekly maximum packing capacity of 33,500 tons

In addition to the volume fishery, at least 24 live bait receiver operators serve the recreational fishing industry in California and generate an estimated $30 million per year overall, with the majority of that value represented by sardines.

As the Council adopts a range of options for public review, please reconsider the comments we submitted at the November meeting in your deliberations:

• A repeating theme found throughout Amendment 8 and Amendment 10 – which instituted a limited entry fishery in California and set a capacity goal equal to the 65-vessel limited entry fleet – was to **prevent over-capitalization and protect historic participation in the fishery**.

The final rule for interim allocation stated that fishing capacity will be an issue when the Council begins review of "long term" allocation procedures.

> We again request that the Council or National Marine Fisheries Service re-examine the limited entry and capacity goal justifications in its analysis of "long term" allocation options as part of this Amendment 11 process. Considering the capacity dependent on sardines in California, how much more fishing capacity can this resource support over time?

• The FMP and related documents, including the interim allocation, repeatedly acknowledge the extreme variability of the sardine resource. There are repeated references to providing fishing opportunities in the north "when sardine abundance is high", and characterizations of the northern fishery as "temporary". There are also statements of concern re: the uncertainties about the role the large sardines play in the productivity of the stock (or stocks). **According to the Interim Allocation Final Rule, "research into the relationship of northern and southern components is necessary before allowing a higher harvest."**

However, no new science is yet available to guide decision-making in this "long-term" decision-making process: the CPSMT and SSC continue to acknowledge uncertainties about the stock structure and migration rates of the largest fish harvested in the north (which spawn 40 times per year) and the small fish in the south (which spawn only 4-6 times).

> We continue to advocate for expanded research – including a series of synoptic cruises to measure coast-wide biomass.

The graphs included at the end of this statement illustrate the rapid decline experienced by the sardine resource in the 1940s – from 1.2 million mt spawning biomass in 1944 to 720 thousand mt in 1945 and 405 thousand mt in 1946. The sardine fishery disappeared from Pacific Northwest after the 1948-49 season.

In commenting on the 2005 sardine stock assessment, which employed the new ASAP model for the first time, the SSC observed that the new model illustrates that the sardine population has "stabilized". The chart depicting recent year Spawning Stock Biomass, Acceptable Biological Catch and coast-wide landings also shows a flat power trend line for both SSB and ABC. Considering coast-wide landings, including Mexico and Canada, the sardine resource is fully utilized, and in fact was overfished in 2002. This points up the critical need for a series of coastwide synoptic cruises as soon as possible.

>In light of the lack of knowledge of the full extent of the resource, we believe setting a "long-term" allocation framework is premature at this time. We again ask the Council to establish another "interim" allocation program and revisit this issue in two or three years, in conjunction with new data gathered from the field, hopefully including a series of synoptic coastwide cruises that measure the full extent of the spawning biomass.

>In our comments last November, we also emphasized that achieving OY and maximizing value are only one goal: the CPS FMP and Magnuson Act have multiple goals and objectives, seeking to achieve balance between economic and social values.
The economic information I provided at the beginning of this letter emphasizes the need to acknowledge the importance of sardines to California's wetfish industry and understand the dire implications of premature closure to this year-long fishery during its peak fall fishing season.

No language in the CPS FMP, nor the interim allocation, suggests that the historic Limited Entry fleet and wetfish processing industry in California should be jeopardized or curtailed during its peak fall harvest season to provide more fishing opportunity during the summer "open access" fishery in the Pacific Northwest.

In summary, I again ask the Council to consider the three points I presented at the September and November 2004 meetings:

• approve allocation options that employ best available science, e.g. spawning biomass and HGs based on current year research. This necessitates beginning the fishing year on January 1.

• because no "one size fits all" allocation formula can equitably address both high-quota and low-quota conditions, consider the need to adopt a framework that provides for different allocation formulas for HGs above and below a pre-defined level – for example, 100,000 tons.

• consider that any "long-term" allocation scheme adopted by the Council should be reviewed and, if necessary, adjusted after two or three years. A framework tied to HG level might be the appropriate benchmark for review, as in the interim allocation process.

Over the past months I've met with CA wetfish industry representatives to discuss this issue; they have considered all the alternatives presented to the Council and they overwhelmingly supported **Alternative Number 7**, proposed by Phil Anderson at the November meeting, as the best option at this time to provide additional fishing opportunity in the north at higher harvest guideline levels while still protecting California's peak fall fishing season, and taking a reasonably precautionary approach to the allocation issue.

If the Council adopts a preferrred alternative at this meeting to expedite the amendment process, we suggest that you select Alternative 7 for the reasons identified above.

It's important to point out that the Pacific Northwest was not prematurely shut down in 2004, even at a 20 percent September 1 reallocation rate. The north received an additional 5,000 tons to begin

the year in 2005, and if the biomass and harvest guideline remain at current levels, their allocation would increase even further in 2006 with a 50:50 reallocation in September.

If the biomass does not continue at current levels, then a more aggressive allocation program would be "robbing Peter to pay Paul". In our view, this was not the intent of the CPS FMP.

I'd also like to re-emphasize the opposition voiced by California processors to the concept of a seasonal coastwide release of harvest guideline, for numerous good reasons. Ironically, I submitted the seasonal 40%-40%-20% concept as a way to facilitate flexible use of the harvest guideline in times of abundance. After further discussion with processors, however, who were concerned about the foibles of human nature leading to a rush for fish, they convinced me that this concept, while looking good in theory, would in reality foster bad business practices. I defer to their better judgement.

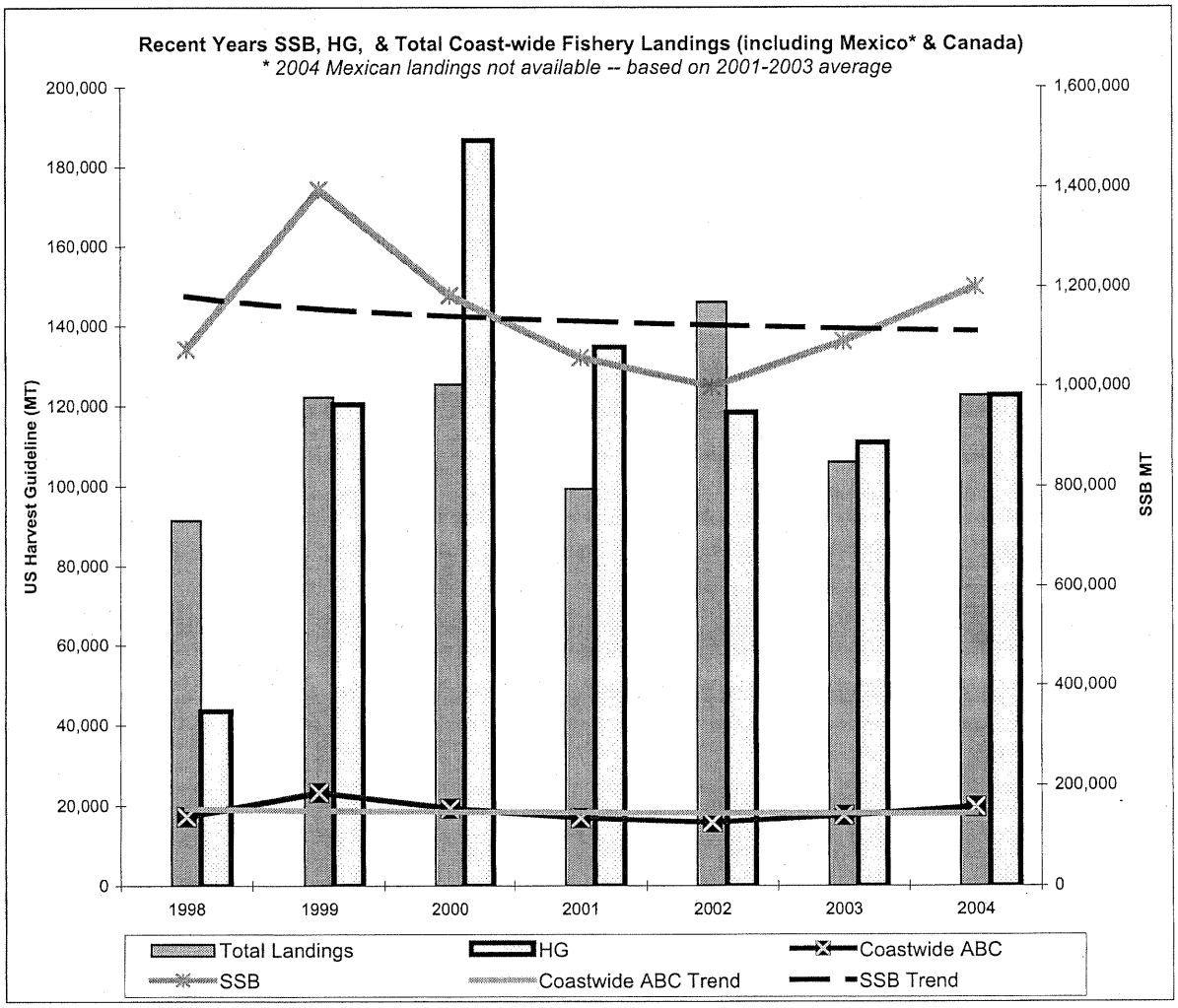
In conclusion, on behalf of California's wetfish industry as well as myself, we again thank the Council for your earnest consideration of our concerns, and beg your understanding of our request for precaution: to California wetfish processors and fishermen, leaving small fish in the water to grow up is conserving the resource for the future. California paid dearly to recover this resource, and our industry will bear the brunt of the eventual sardine decline. **We simply do not want to repeat the history of this fishery.**

Sincerely,

Diane Pleschner-Steele
Executive Director

cc: Rod McInnis
Mike Burner

COAST-WIDE SARDINE LANDINGS vs. SPAWNING BIOMASS AND ACCEPTABLE BIOLOGICAL CATCH - 1998 - 2004



PACIFIC SARDINE FISHERY IN RECENT YEARS - 1998-2005

Sources: CDFG, PFMC, (PFMC 2004b) Table 14 - 2005 Sardine Stock Assessment

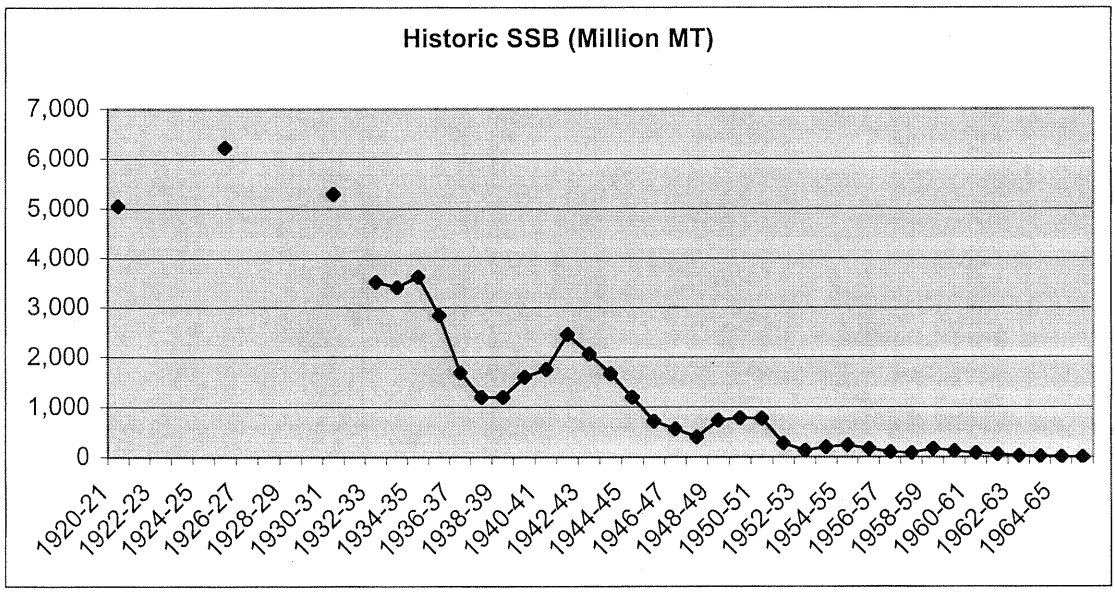
Season	SSB	U.S. HG	COAST ABC	BC	WA	OR	CA	Ensenada* Total (MT)	
(Calendar Yr)	MT	(mt)	(mt)		(mt)	(mt)	(mt)		
1998	1,073,000	43,545		745	0	0	42,956	47,812	91,513
1999	1,395,273	120,474	138,450	1,250	0	855	61,643	58,569	122,317
2000	1,182,000	186,791	186,791	1,718	4,791	9,528	58,203	51,173	125,413
2001	1,057,000	134,737	154,800	1,600	10,837	12,780	51,957	22,246	99,420
2002	999,000	118,442	136,050	1,044	15,212	22,713	63,712	43,436	146,117
2003	1,090,000	110,908	127,350	954	11,604	25,258	37,717	30,537	106,070
2004	1,200,000	122,747	141,000		8,799	36,111	47,702	32,073	122,743
2005		136,179	157,500						

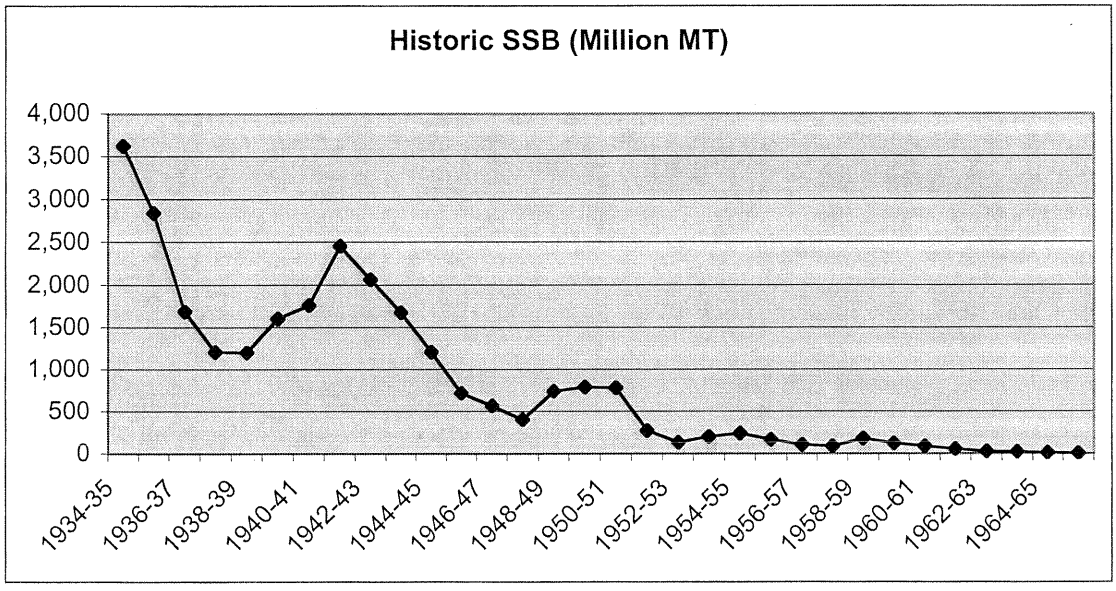
PACIFIC SARDINE LANDINGS 1916-1917 through 1967-1968 vs SSB
From Amendment 8 – Appendix A:

"Extreme natural variability and susceptibility to recruitment overfishing are characteristic of clupeoid stocks like Pacific sardine.... Sardine population declines were characterized as lasting an average of 36 years; recoveries lasted an average of 30 years. Biomass estimates of the sardine population inferred from scale-deposition rates in the 19th and 20th centuries indicate that the biomass peaked in 1925 at about 6 mllion metric tons.

SSB estimated from catch-at-age analysis averaged 3.5 million mt from 1932 through 1934, fluctuated between 1.2 million mt and 2.8 million mt over the next 10 years (1934-1944), then declined steeply during 1945 through 1965, with some short-term reversals..."

Note: 1944 SSB = 1.206 million mt – 1945 SSB = 720 thousand mt – 1946 = 405 thousand mt
The fishery disappeared from PNW after the 1948-49 season.





March 16, 2005

Mr. Don Hansen, Chair and
Members of the Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

SUBJECT: LONG-TERM SARDINE ALLOCATION

Dear Chairman Hansen and Council members,

These comments represent the views of San Pedro and southern CA sardine fishermen who qualified for or bought, and currently maintain federal CPS limited entry permits.

The CPS fishery management plan was originally intended to prevent over-capitalization. California now has a federally authorized limited-entry fishery with daily landing limits and a capacity goal, all regulated through the federal CPS FMP. But the new sardine industry in the Pacific Northwest has unilaterally added another 40 permits or more, and now seeks more fishing quota to expand vessel and processing capacity even further, before the Council or National Marine Fisheries Service has first conducted critically important research on the total spawning biomass, and without analyzing total fishing capacity to determine how much capacity this resource can support in the long run.

We believe the work to analyze total harvest capacity, as well as undertake expanded research coast-wide to determine the total extent of sardine spawning biomass, should done as soon as possible, and we ask the Council and/or the National Marine Fisheries Service to act on this request.

The history of the sardine resource illustrates that this is a cyclical resource that has declined rapidly in the past due to natural conditions beyond fishing pressure. Sardine population growth has leveled off and another natural decline may occur over the next several years. We therefore ask the Council to adopt a range of allocation options that considers the year-long jobs, culture and social structure of California's historic fishing communities and protects this historic, limited-entry fishery, especially when the harvest guideline declines.

We support Alternative #7, a modification of status quo that begins the fishing year on January 1 with 33 percent allocated to the north (OR-WA) and 66 percent to the south (CA), and reallocates unused fish on September 1 at a 50:50 rate, instead of the current rate, 20% N : 80% S. This option would provide more fish to the north when sardines are plentiful, but still protect California's peak fall harvest season.

If the Council adopts two allocation formulas based on the abundance of sardine, the modified formula for above 100,000 tons (Alternative 7) and the status quo (unmodified) at lower quota levels would minimize the economic hardship to California's limited entry fishery caused by early closure in our peak fall harvest season.

The sardine fishery is a vital part of the wetfish catch in California, and we again urge the Council to consider the historic importance of this resource to San Pedro and southern California when you adopt a new allocation plan. The sardine fishery operates yearlong in California and accounts for more than half of our total harvest, especially in years when squid is unavailable.

Please also consider that no one single allocation formula is likely to work in both high and low quota years, and we ask the Council to reconsider this issue in two or three years, after conducting expanded field research on the coast-wide sardine resource.

Thank you very much for your attention and consideration of these comments.

Sincerely,

John Marovich Fleet Manager
John Aiello F/V Retriver
Bill Hargrave F/V Midnight Hour
Sal Ciamintarro F/V Maria
Vito Terzolli F/V Maria T
Vince Lauro F/V Endurance
Ben Mattera F/V Pioneer
Nick Hoflund F/V Theresa Marie

STATE FISH COMPANY, INC.
Tel: 310-832-2633 Fax: 310-831-2402

March 10, 2005

Mr. Don Hansen, Chair and
Members of the Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

PFMC FAX: (503) 820-2299

Subject: Long Term Pacific Sardine Allocation

Dear Chairman Hansen and Council Members:

As we've noted in earlier communications, State Fish Company is a family-owned company that has operated in San Pedro, California, for five generations. I am again writing this letter on behalf of our many hundreds of employees, whom we consider our extended family, as well as the fishermen, their families and the broader fishing community in San Pedro, and in addition, the fishing communities in Ventura - Pt. Hueneme and Monterey, California, all of whom have depended on sardines for a substantial part of their livelihoods since the turn of the 20th century.

As the Council deliberates alternatives for long-term sardine allocation, we urge you to consider the historic and current importance of sardines to California's wetfish industry. Sardines are a year-round fishery in California, a foundation resource on which this industry depends, as the primary leg of a tripod. California's wetfish industry relies on the seasonal abundance of three stocks – sardines, mackerel and squid – all cyclic and all important to the future of this industry. Sardines represent more than 50 percent of the wetfish catch in El Niño years, when squid are largely absent, and close to a third or more of the total even during times of peak squid abundance.

As I stated in my October 11, 2004 letter to the Council on the subject of sardine allocation, the sardine fishery has come full circle, from heavy fishing in the 1950's, to collapse, a near 20-year sardine fishing moratorium and eventual rehabilitation of the resource. Best available science now indicates that population growth has leveled off; further, the current coast-wide harvest equals or may even exceed the Acceptable Biological Catch, considering Mexican and Canadian catches in addition to the U.S. It is clear that the choices made by the Council in the Amendment 11 process have serious implications for future of California's sardine industry.

We appreciate the complexity of your decision, particularly in light of the inability to predict with accuracy the long-term behavior of this highly variable resource. Likewise we are unable to predict future markets, as sardines are a global resource and marketing success is contingent on international supply and demand trends, as well as resource abundance in the global marketplace.

The CPS FMP, Amendment 8, emphasizes that risk averse management is particularly important for Coastal Pelagic Species due to their "extreme natural variability and susceptibility to recruitment overfishing" *(Amendment 8, Appendix A)*. We agree. In that vein, we ask the Council to act accordingly:

please send a strong letter to the National Marine Fisheries Service supporting a series of synoptic field cruises to be launched beginning in 2006 to measure the full extent of the spawning biomass. This research is essential to produce a more accurate picture of the stocks, and to gain better understanding of the relationship of its regional components.

We also believe it is essential to re-analyze fishing capacity in the context of expanded research on the coast-wide biomass. The over-arching emphasis of both Amendment 8 and Amendment 10 was to prevent overcapacity. In light of the major expansion that has occurred and is planned in the Pacific Northwest sardine fishery, how much fishing capacity can the sardine resource support over time? It seems prudent to ask this question before precipitating overcapitalization – the very condition the CPS FMP was implemented to prevent.

We have reviewed all the alternatives presented to the Council, and we can support Alternative #7, modification of the status quo 33% PNW, 66% CA, with a 50:50 reallocation of unused harvest effective September 1, and coast-wide reallocation on November 1.
The northern sector did not utilize its full allocation in 2004 with the 20% reallocation framework in place. Reallocating 50% of unused harvest guideline effective September 1 would provide additional fishing opportunity in the Pacific Northwest, while maintaining a risk averse management philosophy.

In addition, we have learned that PNW Treaty Tribes will request a sardine allocation, which will be deducted before regional allocation percentages are applied. This allocation "off the top" will likely utilize a significant portion, if not all, of any unused harvest guideline; therefore the goal to achieve full use of optimum yield could be met under the existing status quo allocation formula.

Before selecting Alternative 7, we gave serious thought to the concept of a seasonal coast-wide release of harvest guideline in increments. Although seemingly more flexible in theory, in practice we believe this would encourage a derby-style rush to fish at the beginning of each time block, likely producing lower quality fish, filled freezers, lower prices and potential shut down at end of each time block. In short, a seasonal release would encourage bad business practices.

In light of the current lack of knowledge of the sardine resource and inability to predict the future, we recommend that the new allocation framework be adopted for only two or three years, and reconsidered in conjunction with data gathered from synoptic expanded field studies.

We further believe it is critically important to employ different allocation formulas for high and low harvest guideline situations. A two-tier allocation system could provide a more flexible framework to achieve optimum yield when the HG is high (above 100,000 mt), and yet protect California's historic federally permitted limited entry fishery from premature shutdown during peak fall harvest season when the harvest guideline falls.

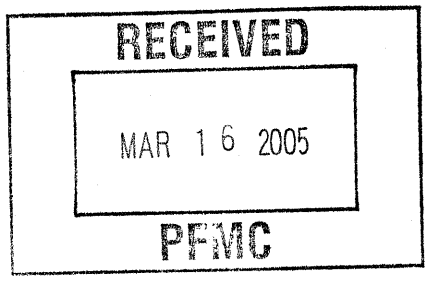
Thank you for your consideration of our comments and concerns. We will continue to emphasize the importance of sardines to California, as well as the need to protect this historic fishery and the communities it serves, as this amendment process continues.

With Thanks,

Vanessa DeLuca

Cc: V.Dr. Bill Hogarth, NMFS
Rod McInnis, NMFS SW Region

March 16, 2005



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

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The history of the sardine resource illustrates that this is a cyclical resource that has declined rapidly in the past due to natural conditions beyond fishing pressure. Sardine population growth has leveled off and another natural decline may occur over the next several years. We therefore ask the Council to adopt a range of allocation options that considers the year-long jobs, culture and social structure of California's historic fishing communities and protects this historic, limited-entry fishery, especially when the harvest guideline declines.

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220 Cannery Street • San Pedro, CA 90731 • (310) 547-1144 • Fax: (310) 547-1166

The sardine fishery is a vital part of the wetfish catch in California, and we again urge the Council to consider the historic importance of this resource to San Pedro and southern California when you adopt a new allocation plan. The sardine fishery operates yearlong in California and accounts for more than half of our total harvest, especially in years when squid is unavailable.

Please also consider that no one single allocation formula is likely to work in both high and low quota years, and we ask the Council to reconsider this issue in two or three years, after conducting expanded field research on the coast-wide sardine resource.

Thank you very much for your attention and consideration of these comments.

(Vessel's fishing for Tri-Marine Fish Company)

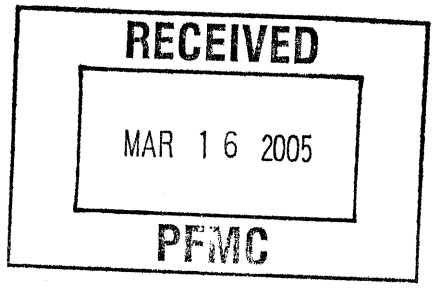
Sincerely,

F/V Ferrigno Boy
F/V Eileen
F/V Pacific Leader
F/V Paloma
F/V St. Katherine

220 Cannery Street • San Pedro, CA 90731 • (310) 547-1144 • Fax: (310) 547-1166

David Haworth
F/V Barbara H Inc.
4369 Niagara Avenue
San Diego, CA 92107

March 11, 2005



Mr. Don Hansen, Chair; Dr. Donald McIsaac, Executive Director and
Members of the Pacific Fishery Management Council
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SUBJECT: LONG-TERM SARDINE ALLOCATION

Dear Chairman Hansen and Council members,

I am a California fisherman with a federally authorized CPS limited entry permit, and I'm writing again to urge the Council to consider the importance of sardines to California's wetfish industry when considering changing the allocation scheme in the CPS Fishery Management Plan. The sardine fishery in California operates year-long and is a very important part of my livelihood – in some years it represents more than half of my total catch.

Because of California's historic dependence on the sardine resource, it is important to adopt an allocation plan that protects the California fishery when the harvest guideline declines.

I believe it is also important to conduct extended research on the sardine resource, running the egg pump up the coast from southern California to Washington at the same time of year to determine the full extent of spawning biomass. I hope the Council will send a strong message in support of doing this research in 2006.

I also ask the Council or NMFS to re-analyze fishing capacity in relation to the data developed in the expanded research program. The intent of the FMP in establishing a limited entry fishery in California was to avoid overcapitalization. As I commented in my October 2004 letter, some veteran California fishermen, including several In San Diego, were denied limited entry permits, and the final ruling said these boats could harvest sardine in the "open access" fishery north of Pt. Arena. But fishermen with federal CPS limited entry permits cannot catch sardines in Oregon or Washington unless they also have state permits because both state fisheries went limited entry and gave permits to individuals—some do not even have boats. Now the new sardine industry is expanding in the Pacific Northwest, as many as 40 permits have been issued, and this expansion is coming at a time when the sardine population has stopped growing. Re-analyzing fishing capacity at this time would answer the question: how much fishing capacity can the resource handle over time? The sardine fishery in the Pacific Northwest is not sustainable at its current level over the long-term, and California fishermen worry that this expansion will cause premature closure in our peak fall season, especially when the harvest guideline declines.

As history has shown, sardines are a cyclical resource with large swings in abundance. In order to provide a sustainable fishery for as long as possible, I ask the Council to adopt an allocation plan that considers the long-term impacts on the jobs and families of California's historic fishing communities – including Monterey as well as southern California – and protects this historic,

limited entry fishery.

I have studied all the alternatives, and I can support Alternative #7, a modified version of status quo that begins in January by allocating 33% of the harvest guideline to the Pacific Northwest and 66% to California, then reallocates unharvested fish at a 50:50 rate on September 1, with coast-wide reallocation on November 1. This plan would provide more fish to the north when the harvest guideline is high, while still reserving fish for California's fall season.

I also believe the Council should approve different allocation plans for high and low quota years that protects CA's limited entry fishery when the harvest guideline drops, to avoid shutting down the CA fishery during our peak fall season in years when the quota is reduced.

Also, because no one can predict the sardine resource over the long term, I hope the Council will reconsider the allocation framework in two-to-three years, after more information becomes available on the status and trends of the sardine resource, and after conducting coast-wide studies of the spawning biomass.

Thank you for your consideration of these comments.

Sincerely,

David Haworth
F/V Barbara H