

Analysis of Sardine Harvest Guideline Allocation Options

**Presentation to the Pacific
Fishery Management Council
March 13, 2003**

- **Purpose**

- Implement an interim Pacific sardine harvest guideline allocation framework.

- **Need**

- To address recent problems which have occurred as a result of the current allocation framework.

- **Background**

- On January 1 the annual HG is partitioned 66% to the southern sub-area and 33% to the northern sub-area
- The current sub-area line is 35° 40' N latitude (approximately Pt. Piedras Blancas).
- On October 1 the remaining harvest guideline is pooled and re-allocated 50-50 to each sub-area.
- The southern sub-area primarily includes the fishery based in San Pedro and Los Angeles.

- **Background** (continued)
 - The northern sub-area includes fisheries off Monterey (Northern CA), Oregon and Washington.
 - The Southern California fishery starts harvesting sardine January 1 and increases steadily throughout the year.
 - The Northern California fishery starts in August (tied to market squid availability) and increases through January or February of the following year.

- **Background (continued)**

- The Oregon and Washington fisheries have a much more abbreviated season, which starts in June and ends in October.
- In 2002, the northern sub-area allocation was reached and the fishery closed on September 14, 2002.
- Under the status quo there is a high likelihood that the northern sub-area will fully utilize its initial allocation prior to October 1, 2003.
- The Council proposed an initial suite of alternatives for an interim change to the sardine HG allocation formula in November 2002, and gave discretion to the CPSMT to develop the most appropriate set of alternatives, including new alternatives.

- **Management Alternatives Developed by the CPSMT**
 - Status quo, 110% 2002 monthly landings for each fishery.
 - No allocation – institute a coastwide HG.
 - Move N-S boundary from 35°40'N to 39°N
 - 50:50 reallocation Sep 1; coastwide reallocation Dec 1
 - Coastwide reallocation Sep 1
 - 80:20 reallocation Sep 1; coastwide reallocation Dec 1
 - 50:50 initial allocation; 50:50 reallocation Sep 1; coastwide reallocation Dec 1

- **Management Alternatives Developed by the CPSMT (continued)**
 - N-S boundary at 35°40'N
 - 50:50 reallocation Sep 1, coastwide reallocation Dec 1
 - 50:50 reallocation Aug 1, coastwide reallocation Dec 1
 - 50:50 initial allocation; reallocation Sep 1, coastwide reallocation Dec 1

- **Analysis**

- Factors considered in analyzing the various alternatives:
 - Early closure of a fishery sector;
 - Landings forgone/gained relative to the status quo for the three fishery sectors - - S. CA, N. CA and OW;
 - Full use of available annual harvest guideline;
 - Incremental changes in net national benefits (producer surplus) under each alternative;
 - Is the alternative doable in 2003?
- For 2003: HG=110,908 mt; initial allocation 66% south, 33% north; N-S line at Pt Piedras Blancas.
- Monthly landings were projected for each fishery sector under each allocation alternative.

- **Analysis** (continued)

- Annual landings across all sectors were constrained by the 2003 HG.
- For each fishery sector, the change in annual landings from the status quo was calculated for each alternative.
- Unit measures of producer surplus (PS) for each sector were estimated from cost and earnings data provided by sardine processors.
- For each fishery sector the incremental change in PS was estimated for each alternative.

- **Results**

Monthly Landings of Pacific Sardine Under Proposed HG Allocation Options									
Status Quo, 2002 Landings + 10% (110,908 mt Harvest Guideline; 66% S, 33% N; N-S Line at 35° 40' N; Reallocate Remaining HG 50:50 October 1)									
Month	REGION LANDINGS			SUBAREA LANDINGS		ALLOC AVAILABLE (Month Start)			
	SC 2002	NC 2002	OW 2002	South	North	South	North		
Jan	5,250	249	0	5,250	249	73,939	36,969		
Feb	8,435	1,232	0	8,435	1,232	68,689	36,721		
Mar	6,990	178	0	6,990	178	60,254	35,488		
Apr	5,658	71	0	5,658	71	53,264	35,311		
May	2,257	1	0	2,257	1	47,605	35,239		
Jun	692	1	3,450	692	3,451	45,348	35,238		
Jul	3,322	362	13,329	3,322	13,691	44,656	31,788	HG remaining Sep 30	
Aug	4,875	2,934	15,163	4,875	18,097	41,334	18,097	South	North
Sep	4,473	0	0	4,473	0	36,459	0	31,986	0
Oct	4,190	6,188	1,204	4,190	7,392	15,993	15,993	Reallocate 50:50 on Oct 1	
Nov	3,674	2,473	0	3,674	2,473	11,803	8,601		
Dec	4,039	371	0	4,039	371	8,129	6,128		
Total	53,856	14,060	33,145	53,856	47,205	4,090	5,757	HG Remaining Season End	

Estimated economic impacts, changes in producer surplus (PS), of proposed West Coast sardine harvest guideline reallocation options (2001 \$).				
	Regional Impact			
	Southern CA	Northern CA	OR & WA	Total
Option: STATUS QUO (2002 Landings + 10%, 66/33, Pt. Piedras Blancas, Re-all Oct 1)				
Projected Landings (MT)	53,856	14,060	33,145	101,061
PS Per Ton	\$134.40	\$130.26	\$205.64	
Total PS	\$7,238,050	\$1,831,481	\$6,815,794	\$15,885,326
Option: NO ALLOCATION (HG available coastwide all year)				
Projected Landings (MT)	51,356	16,299	43,253	110,908
Change from Status Quo	2,500	2,239	10,108	9,847
Change in PS	\$336,022	\$291,693	\$2,078,460	\$2,034,131
Option: 3a (66/33, Pt. Arena, Re-all Sep 1, Coastwide Dec 1)				
Projected Landings (MT)	50,239	14,095	43,253	107,587
Change from Status Quo	3,618	35	10,108	6,526
Change in PS	\$486,175	\$4,624	\$2,078,460	\$1,596,909
Option: 3aii (66/33, Pt. Arena, Coastwide Sep 1)				
Projected Landings (MT)	51,356	16,299	43,253	110,908
Change from Status Quo	2,500	2,239	10,108	9,847
Change in PS	\$336,022	\$291,693	\$2,078,460	\$2,034,131
Option: 3aiii (66/33, Pt. Arena, Re-all 80/20 Sep 1, Coastwide Dec 1)				
Projected Landings (MT)	53,631	16,508	40,767	110,907
Change from Status Quo	225	2,449	7,622	9,846
Change in PS	\$30,239	\$318,951	\$1,567,441	\$1,856,152
Option: 3b (50/50, Pt. Arena, Re-all Sep 1, Coastwide Dec 1)				
Projected Landings (MT)	50,239	14,095	43,253	107,587
Change from Status Quo	3,618	35	10,108	6,526
Change in PS	\$486,175	\$4,624	\$2,078,460	\$1,596,909
Option: 4a (66/33, Pt. Piedras Blancas, Re-all Sep 1, Coastwide Dec 1)				
Projected Landings (MT)	53,856	14,334	41,236	109,426
Change from Status Quo	0	274	8,091	8,365
Change in PS	\$0	\$35,692	\$1,663,693	\$1,699,385
Option: 4ai (66/33, Pt. Piedras Blancas, Re-all Aug 1, Coastwide Dec 1)				
Projected Landings (MT)	53,856	7,672	41,286	102,815
Change from Status Quo	0	6,387	8,141	1,754
Change in PS	\$0	\$832,052	\$1,674,141	\$842,089
Option: 4b (50/50, Pt. Piedras Blancas, Re-all Sep 1, Coastwide Dec 1)				
Projected Landings (MT)	53,856	13,607	43,166	110,629
Change from Status Quo	0	453	10,021	9,568
Change in PS	\$0	\$58,960	\$2,060,570	\$2,001,609

Summary of options for restructuring the 2003 sardine allocation framework.

(Based upon 2002 landings inflated by 10% for every sector)

CPSMT Alternative	Initial Alternatives	Early Closure			Change in Utilization (MT)			Harvest Guideline Remaining (MT)	Change in Producer Surplus (2001 \$)	Do-able in 2003
		S. CA	N. CA	OR/WA	S. CA	N. CA	OR/WA			
Alternative 1	Status Quo	No	Yes	Yes	0	0	0	9,847	\$0	Yes
	No Allocation	Yes	Yes	Yes	-2,500	2,239	10,108	0	\$2,034,131	No
Alternative 2	3a (66/33, Pt Arena)	Yes	Yes	No	-3,618	35	10,108	3,321	\$1,596,909	Yes
	3aii (66/33, Coastwide - Sep 1)	Yes	Yes	No	-2,500	2,239	10,108	0	\$2,034,131	No
Alternative 3	3aiii (66/33, 80/20 on Sep 1)	Yes	Yes	Yes	-225	2,449	7,622	1	\$1,856,152	Yes
	3b (50/50, Pt Arena)	Yes	Yes	No	-3,618	35	10,108	3,321	\$1,596,909	No
Alternative 4	4a (66/33, Sep Re-all)	No	Yes	Yes	0	274	8,091	1,482	\$1,699,385	Yes
	4ai (66/33, Aug Re-all)	No	Yes	Yes	0	-6,387	8,141	8,093	\$842,089	No
	4b (50/50, Sep Re-all)	No	Yes	Yes	0	-453	10,021	279	\$2,001,609	No

Note: All "3" options shift the allocation line to Pt. Arena

CPSMT alternative
Not do-able in 2003
Rejected by CPSMT as not reasonable