

Groundfish Management Team (GMT) Recommendations for Pacific Whiting Allowable
 Biological Catch, Optimum Yield, and Allocations for the 2002 Fishery

The GMT reviewed the Pacific whiting STAR/PSARC Panel report, the 2002 assessment document prepared by Helser, et al., and additional 10-year stock projections under alternative harvest rates provided by Dr. Helser. The STAR/PSARC Panel endorsed assessment Model 1, and also recommended that the strength of the 1999 year-class be assumed, at this time, to fall within the range of values referred to as "Low" and "Medium" within the assessment. The SSC has chosen to forward the "Low" through "High" scenarios for Council consideration, noting that the "Medium" assumption is most consistent with a risk-neutral characterization of the strength of the 1999 year-class. It is emphasized that under any of these scenarios, the 1999 year-class is larger than the mean recruitment during the assessment period. Over the full range of recruitment assumptions, the model results indicate a 62% likelihood that the whiting spawning stock biomass is below 25% of the currently estimated unfished level, which is the Council's approved threshold for determining that a stock is "overfished". Only under the "High" scenario for 1999 recruitment is there a greater than 50% likelihood that the 2002 biomass is greater than 25% of the unfished level. However, there remains considerable uncertainty regarding the specification of unfished biomass.

The STAR/PSARC Panel recommended use of an $F_{45\%}$ harvest policy (with use of the 40-10 rule) for setting ABCs and OYs for whiting. However, the SSC supports continued use of the current default harvest rate policy of $F_{40\%}$ for the 2002 fishery.

Using an $F_{40\%}$ harvest policy, the range of ABCs and OYs corresponding to the three recruitment scenarios is shown below. Management recommendations based on integration over all three scenarios would be essentially the same as for the "Medium" scenario.

Harvest rate	1999 strength	ABC		OY Adjusted by 40-10 rule		Percent of B_0
		Coastwide	US	Coastwide	US	
$F_{40\%}$	Low	174,000	139,000	117,000	93,600	20.16%
$F_{40\%}$	Medium	208,000	166,000	162,000	129,600	24.09%
$F_{40\%}$	High	251,000	200,000	219,000	175,200	29.02%

*Business Meeting
 [motion #6]*

Several considerations bear upon the determination of where within this range the 2002 ABCs and OYs should be set. In prior years, when assessments have determined species to be below the "overfished" threshold, the GMT has attempted to identify interim harvest specifications that would be consistent with the yield recommendations from subsequent, more exhaustive rebuilding analyses. To this end, Dr. Helser provided the GMT with a set of 10-year projections, based on a "Medium" 1999 year-class strength and deterministic recruitment near the long-term mean. The projections indicate that if mean levels of recruitment occurred annually, an $F_{40\%}$ policy (adjusted by the 40-10 rule) would rebuild the spawning stock to $B_{40\%}$ by the 2009-2011 time frame (Figure 1). With an $F_{45\%}$ policy, $B_{40\%}$ would be achieved by 2006. However, it is important to note that because of the highly skewed nature of the historical recruitment distribution, there is less than a 50% likelihood that annual recruitments would average at least the long term mean over this short period. It is equally important to acknowledge that these projections do not represent a thorough rebuilding analysis, and that adopting an approach for 2002 does not imply that the same policy would be continued until rebuilding was achieved.

The decision table in Appendix 3 of the STAR Panel report also provides valuable insight regarding the implications of alternative 2002 decisions. Regardless of which state of nature is assumed for 1999 recruitment, use of an $F_{40\%}$ harvest rate in 2002 is estimated to result in a higher spawning biomass in 2003, even if the "Low" recruitment scenario is the true state. The table also reveals that the 2003 spawning biomass, under any of the three "true" states of nature, is very similar under OYs representing the $F_{40\%}$ "Medium" scenario (162,000 mt) and the $F_{45\%}$ "High" scenario (180,000 mt).

OYs at the upper end of the identified range increase the risk of not being able to rebuild the stock to $B_{40\%}$ within 10 years, particularly if below average recruitments are encountered over the next several years. The view of the current stock structure which emerges from the assessment indicates that the fishery will be heavily dependent upon the 1999 year class in 2002 and potentially for several future years. We are even less certain about the strength of year classes that will enter the fishery over the next five years. If we were to see average or above average annual recruitments throughout this period, the stock would likely rebuild to $B_{40\%}$ within 10 years. However, several low recruitments during this period, combined with an aggressive short term harvest policy, could jeopardize the ability to rebuild in a timely manner without imposing more severe future reductions in yields.

OYs at the low end of the range increase risks to the financial viability of not only the whiting fleet, but the remainder of the groundfish trawl fleet as well. Total U.S. ex-vessel revenue from whiting in 2001 was about \$18 million. Under the low, medium, and high OY options, whiting revenue would be roughly \$9 million, \$13 million, and \$17 million, respectively. For the low to medium OY values identified above, the shoreside allocations for whiting would range from roughly 37,000 mt to 45,000 mt. More than 70,000 mt were caught by shoreside vessels in 2001, and more than 80,000 mt in each of the two preceding years. Not only would these reductions decrease ex-vessel revenues by \$3-4 million in that sector, they would also dramatically reduce the duration of the shoreside season. The bi-weekly cumulative landings summary provided in Table 1 indicates that fishery would likely not run beyond late July with the higher OY, and early to mid July at the low end of the range.

Shortening of the shoreside season to this degree would have profound implications for management of the remaining groundfish fishery. As shown in Table 2, shoreside whiting vessels have accounted for roughly 50% of the annual harvest of DTS species in each of the past three years, as well as 20% or more of the non-Dover flatfish species. Table 3 shows the seasonal nature of participation in these other fisheries, and clearly illustrates that participation in them can be expected to resume when the whiting fishery closes. As a consequence, participation in DTS and flatfish fisheries will likely be considerably higher during August and September, and possibly July, than was projected for purposes of setting trip limits during the Fall of 2001. Thus, in order to effectively constrain landings of these target species, as well as the bycatch associated with them, the GMT will have to consider trip-limit reductions for at least the July-August cumulative period to counter this anticipated effort shift. The lower the whiting OY, the more pronounced this trip-limit reduction will need to be.

Regardless of the Council's harvest decision for 2002, the GMT's intention would be to conduct a thorough rebuilding analysis before recommending harvest specifications for the 2003 fishery. This would hopefully include further examination of the uncertainty surrounding the current estimate for unfished biomass.

Figure 1.--Ten-year deterministic projections of Pacific whiting spawning stock biomass under alternative harvest policies using the 40-10 adjustment.

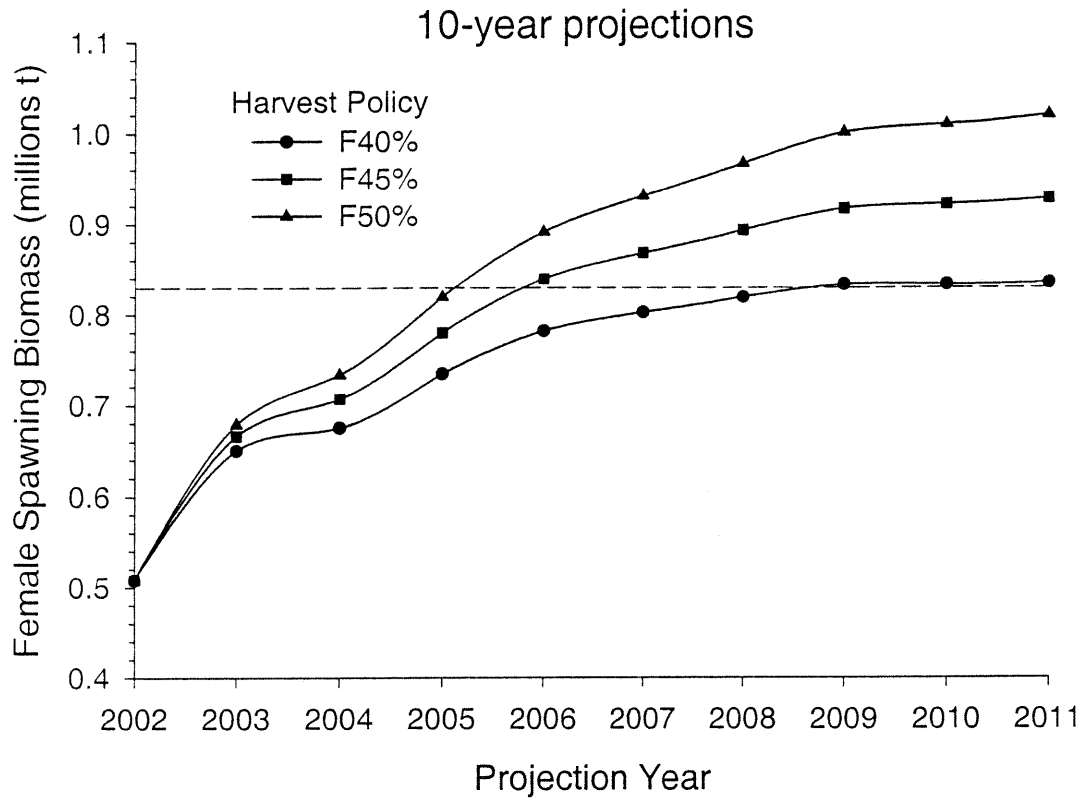


Table 1.--Bi-weekly catch rates and numbers of deliveries in the shoreside whiting fishery, 1999-2001.

Bi-weekly period number start date	1999			2000			2001		
	# of deliveries	metric tons in period	metric tons cumulative	# of deliveries	metric tons in period	metric tons cumulative	# of deliveries	metric tons in period	metric tons cumulative
1 4/1							7	309	309
2 4/15				6	403	403	4	233	542
3 4/29	2	77	77	11	655	1,057	12	738	1,280
4 5/13			77	27	1,741	2,799	11	639	1,919
5 5/27			77	21	1,302	4,100	7	288	2,207
6 6/10	122	8,488	8,565	61	4,895	8,996	94	6,997	9,204
7 6/24	218	13,345	21,910	111	9,050	18,046	165	11,842	21,046
8 7/8	157	10,628	32,538	122	10,293	28,339	176	12,252	33,298
9 7/22	227	17,302	49,840	151	11,903	40,242	206	16,290	49,588
10 8/5	202	15,176	65,016	173	14,707	54,949	195	15,493	65,081
11 8/19	172	12,496	77,512	180	15,322	70,272	32	2,596	67,677
12 9/2	76	5,676	83,188	183	15,400	85,672	1	18	67,694
13 9/16			83,188			85,672	79	5,612	73,306
Total	1,176	83,188		1,046	85,672		989	73,306	

Table 2.--Comparison of aggregate groundfish species-group tonnage landed by trawl vessels, grouped by their participation in the shoreside whiting fishery, 1999-2001.

	Landed groundfish (mt), by species group				
	Whiting	DTS species	Non-Dover flatfish	<i>Sebastes</i> species	Other groundfish
1999					
Non-whiting vessels	126	1,280	1,215	662	257
Whiting vessels	83,293	1,335	502	2,594	93
% by whiting vessels	100%	51%	29%	80%	26%
# of ves > 40 mt of species	35	13	5	22	0
2000					
Non-whiting vessels	54	1,326	1,106	895	112
Whiting vessels	85,775	1,270	281	2,019	70
% by whiting vessels	100%	49%	20%	69%	38%
# of ves > 40 mt of species	35	14	3	21	0
2001					
Non-whiting vessels	65	962	1,226	475	254
Whiting vessels	73,354	904	260	916	302
% by whiting vessels	100%	48%	18%	66%	54%
# of ves > 40 mt of species	28	11	1	11	2

Table 3.--Monthly summary of groundfish tonnage and participation by vessels landing at least 50 mt of whiting in a year, 1999-2001.

	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
1999												
# of ves > 20 mt of whiting whiting tonnage				10.2	1	31	30	33	24	0.7		
# of ves > 1 mt of DTS DTS tonnage	9 94.9	7 103.0	13 209.7	13 177.2	14 91.8	14 139.4	1 6.1	1 5.3	13 145.1	15 154.5	12 130.6	6 77.8
# of ves > 1 mt of flatfish Flatfish tonnage	4 16.2	4 10.1	4 16.8	5 12.0	5 189.9	11 141.5	1.4	1.0	9 23.2	10 45.2	8 18.9	5 26.3
# of ves > 1 mt of <i>Sebastes</i> <i>Sebastes</i> tonnage	15 329.9	9 143.8	15 251.1	14 172.9	12 94.4	32 314.8	29 238.8	28 212.3	20 196.6	19 252.3	17 222.2	14 164.7
# of ves > 1 mt of other GF Other groundfish tonnage	2.8	1 2.5	2.6	1 4.6	1 11.6	3 12.2	8 24.0	4 17.3	3 8.6	2 4.4	1.6	0.3
2000												
# of ves > 20 mt of whiting whiting tonnage				3 411.6	6 2,785	27 9,690	29 23,416	26 33,231	25 16,235	1.7	0.8	3.3
# of ves > 1 mt of DTS DTS tonnage	11 157.0	10 100.4	9 205.0	11 167.6	10 104.7	7 22.6	6 52.0	5 45.2	3 33.1	15 142.8	16 145.6	9 94.0
# of ves > 1 mt of flatfish Flatfish tonnage	9 58.1	8 42.8	4 12.3	8 24.6	3 34.1	2 5.6	1 6.6	2 11.1	2.0	3 12.9	6 24.0	5 47.4
# of ves > 1 mt of <i>Sebastes</i> <i>Sebastes</i> tonnage	12 139.6	5 70.8	5 72.7	13 133.6	13 195.3	23 146.5	27 299.9	22 98.8	21 277.6	17 249.8	15 225.7	8 108.6
# of ves > 1 mt of other GF Other groundfish tonnage	2.0	0.8	1 3.2	1.2	3 5.2	1 2.6	2 7.7	6 20.7	4 14.0	2 4.9	2 4.5	1 3.3
2001												
# of ves > 20 mt of whiting whiting tonnage	0.5			2 606.2	4 1,382	25 12,667	25 30,111	25 22,958	13 5,582	1 47.0		
# of ves > 1 mt of DTS DTS tonnage	10 118.2	11 113.7	9 142.7	9 113.5	9 99.7	9 93.9	9 49.8	13 86.3	12 86.0			0.3
# of ves > 1 mt of flatfish Flatfish tonnage	8 56.5	10 71.2	6 35.4	6 21.0	6 24.8	6 15.9	0.8	1 4.2	4 9.2	1 1.8	2 7.5	1 12.3
# of ves > 1 mt of <i>Sebastes</i> <i>Sebastes</i> tonnage	10 92.3	7 114.3	8 112.8	13 141.4	8 52.4	15 85.5	21 66.2	16 48.1	10 27.4	0.9	12 163.3	1 11.6
# of ves > 1 mt of other GF Other groundfish tonnage	1.3	0.6	1.0	0.4	2 3.3	3 8.6	6 256.8	5 21.0	3 8.7	0.1		