

## GROUND FISH MANAGEMENT TEAM REPORT ON REBUILDING PLAN REVISION RULES

The GMT believes that it would be highly advantageous to have criteria in place for evaluating the adequacy of progress in rebuilding for the November 2005 Council meeting. Aside from the legal requirement that the probability ( $P$ ) of rebuilding by  $T_{MAX}$  be greater than 0.5, there are currently no criteria for assessing the adequacy of progress. This is despite the expectation that in new rebuilding analyses, the probability of rebuilding by  $T_{MAX}$  ( $P_{current}$ ) can be expected to vary from the rebuilding probabilities established in individual rebuilding plans ( $P_0$ ). The GMT recognizes that establishing these criteria is a policy decision for the Council. We have identified several options for the Council's consideration and have the following comments:

### **$P_{critical}$ ( $P_{crit}$ ):**

The GMT is supportive of the concept of a Council-designated value for  $P_{crit}$ , which would be the probability floor that would lead to a harvest rate revision. Currently the effective value for  $P_{crit}$  is 0.5 based on legal precedent. However, the GMT notes that the Council has adopted a de facto policy of setting rebuilding probabilities no lower than 0.6 in approving rebuilding plans. This would suggest that 0.6 may be a reasonable value for  $P_{crit}$ .

### **Scenario 1 - Rebuilding Probabilities Less Than Target Rebuilding Probabilities**

For the cases where new rebuilding probabilities ( $P_{current}$ ) are less than  $P_0$ , the GMT has identified options which include the concept of a buffer to reduce the need to frequently revise harvest rates in response to small deviations around the target rebuilding probabilities. As described in the Management Strategy Evaluation (MSE) framework, there would be advantages with regard to maintaining rebuilding trajectories and reducing management complexity in minimizing the frequency in which harvest rates are altered in response to new information.

The GMT would also like to clarify that the intent of a buffer would not be to reset  $P_0$ , but rather to allow for small movement around  $P_0$  that might result from recruitment variability and estimation uncertainty. The GMT also considered that if a buffer were adopted, the Council might want to reserve the ability to revise a harvest rate if sequential assessments indicated that a stock was likely to be below  $P_0$ , yet within the buffer.

#### Option 1

Establish a buffer of 5% for those stocks with  $P_0$  values less than 0.7 and a buffer of 10% for those stocks with  $P_0$  values greater than or equal to 0.7 (e.g., a stock with a  $P_0$  value of 0.6 would have a buffer of 0.55).

#### Option 2

Establish a buffer of 10% for all stocks, regardless of  $P_0$  value.

The GMT notes that for four of the eight overfished species (canary and widow rockfish, cowcod, and lingcod),  $P_0$  has been set at 0.6. If  $P_{crit}$  were set at 0.6, there is some question to how such a value would work in conjunction with the concept of a buffer around which harvest

rates would not be revised. The GMT discussed several approaches that might allow the two concepts to work together:

#### Option 3

Adopt one of the buffer options (Option 1 or 2) as well as a  $P_{crit}$  of 0.6, such that  $P_{crit}$  would trump the buffer for stocks in which the current  $P_0$  was 0.6.

#### Option 4

Adopt a  $P_{crit}$  that operated on a sliding scale. For example, set  $P_{crit}$  to 0.6 or 5% below  $P_0$ , whichever is lower, such that the effective  $P_{crit}$  for stocks in which  $P_0$  is equal to 0.6 would be 0.55.

#### Option 5

Adopt a buffer and Option 3 or 4, and require future rebuilding plans include  $P$  values of 0.65 or greater, so the resulting  $P$  is at least 5% greater than  $P_{crit}$ .

If the probability of rebuilding ( $P_{current}$ ) is below either the buffer option adopted or below  $P_{crit}$ , but the stock could be rebuilt with additional harvest rate reductions, then a reasonable option is:

#### Option 6

Adjust the harvest rate to be no less than that which would maintain the original  $P_0$  as a default target.

If a new analysis suggests that no feasible reduction in harvest rate (including  $F=0$ ) would result in achieving  $P=0.5$  by  $T_{MAX}$ , the only alternative is to amend the FMP to revise the rebuilding plan. If this happens, the GMT suggests that any revision be accompanied by a critical analysis of where the approach for rebuilding stocks failed, in order to determine whether the problem resulted in a fundamental failure in our understanding of stock dynamics and productivity, or whether the problem resulted from a failure to properly implement the rebuilding plan.

### **Scenario 2 – Rebuilding Probabilities Greater Than Target Rebuilding Probabilities**

The GMT also discussed those scenarios in which  $P_{current}$  may be greater than  $P_0$  in a revised rebuilding analysis. The GMT supports a de facto policy of maintaining target harvest rates to allow for increased performance in rebuilding in order to accelerate the rebuilding process and account for the substantial uncertainty in both assessment and rebuilding models. However we recognize that where stocks are rebuilding faster than expected, the Council may wish to consider increasing the harvest rate in order to reduce the constraints on fisheries for co-occurring healthy stocks. The GMT recognizes a responsibility to be precautionary in management without unduly constraining fishery opportunities, and consequently discussed possible options for doing so.

#### Option 7

Establish a buffer of 5 to 10% above  $P_0$ , above which the Council would consider liberalizing harvest rates on a case-specific basis.

Estimated Total Mortality Impacts As a Result of Proposed Inseason Adjustments - June 2005 Council Meeting

06/16/06 17:45								
Fishery	Bocaccio a/	Canary	Cowcod	Dkbl	Lingcod	POP	Widow	Yelloweye
<b>Limited Entry Trawl- Non-whiting b</b>	51.6	8.0	0.9	157.3	151.7	69.3	1.3	0.3
<b>Limited Entry Trawl- Whiting</b>								
At-sea w hiting motherships				7.6	3.1	1.3		0.0
At-sea w hiting cat-proc		4.7		10.5	0.9	0.6	200.0	0.0
Shoreside w hiting				4.2	2.3	2.4		0.0
Tribal w hiting		3.0		0.0	0.4	1.3	10.0	0.0
<b>Tribal</b>								
Midwater Trawl		1.3		0.0	0.1	0.0	40.0	0.0
Bottom Trawl		0.5		0.0	9.0	0.0	0.0	0.0
Troll		0.5		0.0	1.0	0.0		0.0
Fixed gear		0.3		0.0	15.0	0.0	0.0	2.3
<b>Limited Entry Fixed Gear</b>	13.4	1.2	0.1	1.3	20.0	0.4	0.5	2.9
<b>Open Access: Directed Groundfish</b>	10.6	3.0	0.1	0.2	100.0	0.1	0.1	3.0
<b>Open Access: Incidental Groundfish</b>								
CA Halibut	0.1	0.1		0.0	2.0	0.0		
CA Gillnet c/	0.5			0.0		0.0	0.0	
CA Sheephead c/				0.0		0.0	0.0	0.0
CPS- w efish c/	0.3							
CPS- squid d/								
Dungeness crab c/	0.0		0.0	0.0		0.0		
HMS c/		0.0	0.0	0.0				
Pacific Halibut c/	0.0		0.0	0.0		0.0	0.0	0.5
Pink shrimp	0.1	0.1	0.0	0.0	0.5	0.0	0.1	0.1
Ridgeback prawn	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Salmon troll	0.2	1.6	0.0	0.0	0.3	0.0	0.0	0.2
Sea Cucumber	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot Prawn (trap)								
<b>Recreational Groundfish e/</b>								
WA		8.5			206.0			6.7
OR							2.4	
CA	60.0	9.3	0.4		422.0		9.4	3.7
<b>Research: Includes NMFS trawl shelf-slope surveys, the IPHC halibut survey, and expected impacts from SRPs and LOAs.</b>								
	2.0	3.0	0.1	3.8	5.5	3.6	0.9	1.0
<b>Non-EFP Total</b>	138.9	45.1	1.6	184.9	939.8	79.0	264.7	20.8
<b>EFPs f/</b>								
CA: NS FF trawl	10.0	0.1	0.5		20.0			0.5
<b>EFP Subtotal</b>	10.0	0.1	0.5	0.0	20.0	0.0	0.0	0.5
<b>TOTAL</b>	148.9	45.2	2.1	184.9	959.8	79.0	264.7	21.3
<b>2005 OY</b>	307	46.8	4.2	269	2,414	447	285	26
<b>Difference</b>	158.1	1.6	2.1	84.1	1,454.2	368.0	20.3	4.7
<b>comm canary residual g/</b>								
<b>rec canary residual g/</b>								
<b>Percent of OY</b>	48.5%	96.6%	50.0%	68.7%	39.8%	17.7%	92.9%	81.8%
Key	= either not applicable; trace amount (<0.01 mt); or not reported in available data							

a/ South of 40°10' N. lat.

b/ The 8.0 mt harvest guideline of canary rockfish includes a buffer against the uncertainty of predicting impacts using the new selective flatfish trawl gear. The point estimate of canary rockfish impacts is 5.6 mt.

c/ Mortality estimates are not hard numbers; based on the GMT's best professional judgement.

d/ Bycatch amounts by species unavailable, but bocaccio occurred in 0.1% of all port samples and other rockfish in another 0.1% of all port samples (and squid fisheries usually land their whole catch). In 2001, out of 84,000 mt total landings 1 mt was groundfish. This suggests that total bocaccio was caught in trace amounts.

e/ Values for lingcod and yellow eye in California represent specified harvest guidelines.

f/ Values are proposed EFP bycatch caps, not estimates of total mortality. The EFP is terminated inseason if the cap is projected to be attained early.

g/ In June 2004, the Council apportioned the canary residual on a 50/50 basis between the recreational and commercial sectors. When the final regulations were enacted this residual was 1.25 for each sector.

#### Option 8

Establish an additional minimum P value (e.g., 0.7), above which increasing the harvest rate could be considered.

#### Option 9

Split the difference between  $P_{\text{current}}$  and  $P_0$ , such that half (for example) of the increased probability of rebuilding was applied to an accelerated rebuilding rate, and half could be considered for harvest rate liberalization.

The GMT refrains from recommending any such options without evaluating the potential risk in adopting such policies using the MSE modeling tool. The GMT notes that the GAP has recommended a buffer approach of 7.5% (0.075) in both the upwards and downwards direction, and believes that this would also be a reasonable option to evaluate using the MSE modeling tool. Finally, the GMT recommends that in the event the Council did consider any liberalization of harvest rates, such considerations be limited to increased incidental catches in fisheries targeting healthy stocks. Any targeting of overfished species should be avoided.

### GMT RECOMMENDATIONS

The GMT supports the concept of a  $P_{\text{crit}}$  value, as well as the concept of a lower buffer.

The GMT recommends that the Council select a subset of the above options as policy choices to be evaluated using the MSE modeling tool, and considered in more detail in the September Council meeting. Considering the extensive analysis associated with MSE modeling, the Council is advised to significantly limit the number of options to be analyzed.