GROUNDFISH MANAGEMENT TEAM REPORT ON PROPOSED DISCARD MORTALITY
FOR COWCOD, CANARY ROCKFISH, AND YELLOWEYE ROCKFISH RELEASED
USING DESCENDING DEVICES IN THE RECREATIONAL FISHERY

The Groundfish Management Team (GMT) presented two statistical methods used to calculate confidence intervals around the mortality rate point estimates reflecting the use of descending devices. We greatly appreciate the input provided by the Scientific and Statistical Committee (SSC) in their review of these methods. Point estimates and upper confidence intervals derived using the SSC-recommended Bayesian Hierarchical Model method and additional acoustic tagging data for 2013 are presented in Table 1 and Figure 1. These estimates reflect a correction to the input data causing the results for cowcod in the 50-100 fm depth bin to deviate from those provided in the GMT report provided in the March briefing book (Agenda Item D.3.b., GMT Report, March 2014).

In applying the preferred methods, the mortality estimates for cowcod in 50-100 fm (point estimate = 32 percent) were lower than the preceding 30-50 fm (point estimate = 39 percent) depth bin in part due to the application of the long-term mortality rate, presenting a logical inconsistency. A similar inconsistency is seen with confidence interval estimates where the upper 90 percent confidence interval estimate is 44 percent in the 50-100 fm bin and 57 percent for the 30-50 fm depth bin. While mortality estimates in shallower depths are provided by species other than cowcod, and cowcod are now better represented in the 50-100 fm depth bin, sample sizes remain lower than for shallower-depth bins. Consequently, the SSC recommended that the mortality rates from the 30-50 fm depth bin for cowcod be applied to the 50-100 fm depth bin to address the inconsistency in a precautionary fashion. No sample data were available for depths greater than 100 fm; therefore, mortality is assumed to be 100 percent at those depths. In the future, additional data should be incorporated, and methods for estimating point estimates and confidence intervals should be re-evaluated. The timing of future evaluation may fit well in off-year science as substantial additional data becomes available and workload allows.

In addition, the GMT discussed the next steps in review of the methods of applying the mortality rates to catch estimates. Each state provided descriptions of the methods they plan to pursue and the data available for estimating frequency of use in the private and party (or charter) boat fleets (Agenda Item D.5.b, Supplemental Washington Department of Fish and Wildlife, Oregon Department of Fish and Wildlife and California Department of Fish and Wildlife State Reports, April 2013). The Recreational Fisheries Information Network (RecFIN) Technical Committee (RecTech) is scheduled to meet at the end of March and has reserved time on their agenda to review methods for applying the final discard mortality rate reflecting use of descending devices in producing estimates of mortality to be used in management. The GMT understands that the SSC is recommending that the RecTech and RecFIN statistical committees will initially review each state's sampling program and implementation plans as a first step. Reviews of state sampling programs and any reports of the RecFIN statistical committee can be provided for consideration by the SSC to provide their comments at a later Council meeting.

Recommendations

1. Consider adopting updated estimates reflecting the revised statistical methods and additional data.
2. Confirm direction provided to the RecFIN Technical Committee to review implementation methods for applying mortality rates brought forward by each state.
3. Confirm the intent to begin accounting for use of descending devices in estimates retrospectively for 2013 and 2014 and forward, as decided by the Council in April 2013.

Table 1. Bayesian Hierarchical Method: Total discard mortality (%) estimates by depth bin for cowcod, canary and yelloweye rockfish at the surface, and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty.

Species	Depth (fm)	Current Surface Mortality	Mortality w/ Descending Devices	Estimate with 60% CI	Estimate with 75% CI	Estimate with 90% CI	Estimate with 95% CI
Canary Rockfish	0-10	21%	21%[1]	21%[1]	21%[1]	21%[1]	21%[1]
	10-20	37%	22%	22%	23%	25%	26%
	20-30	53%	22%	22%	23%	25%	26%
	30-50	100%	37%	39%	43%	48%	52%
	50-100	100%	37%	39%	45%	57%	65%
	>100	100%	100%	100%	100%	100%	100%
Yelloweye Rockfish	0-10	22%	22%[1]	22%[1]	22%[1]	22%[1]	22%[1]
	10-20	39%	22%	23%	24%	26%	27%
	20-30	56%	22%	23%	24%	26%	27%
	30-50	100%	23%	24%	25%	27%	28%
	50-100	100%	35%	39%	45%	57%	65%
	>100	100%	100%	100%	100%	100%	100%
Cowcod	0-10	21%	21%[1]	21%[1]	21%[1]	21%[1]	21%[1]
	10-20	35%	35%	35%[1]	35%[1]	35%[1]	35%[1]
	20-30	52%	39%	42%	48%	52%[1]	52%[1`]
	30-50	100%	39%	42%	48%	57%	64%
	50-100	100%	39%[2]	42%[2]	48%[2]	57%[2]	64%[2]
	>100	100%	100%	100%	100%	100%	100%

[1]The value reflects surface mortality since mortality estimates for descending devices are not expected to exceed surface release.

[2]The value reflects mortality from the next shallower depth bin since mortality estimates are not expected to decrease at deeper depths.
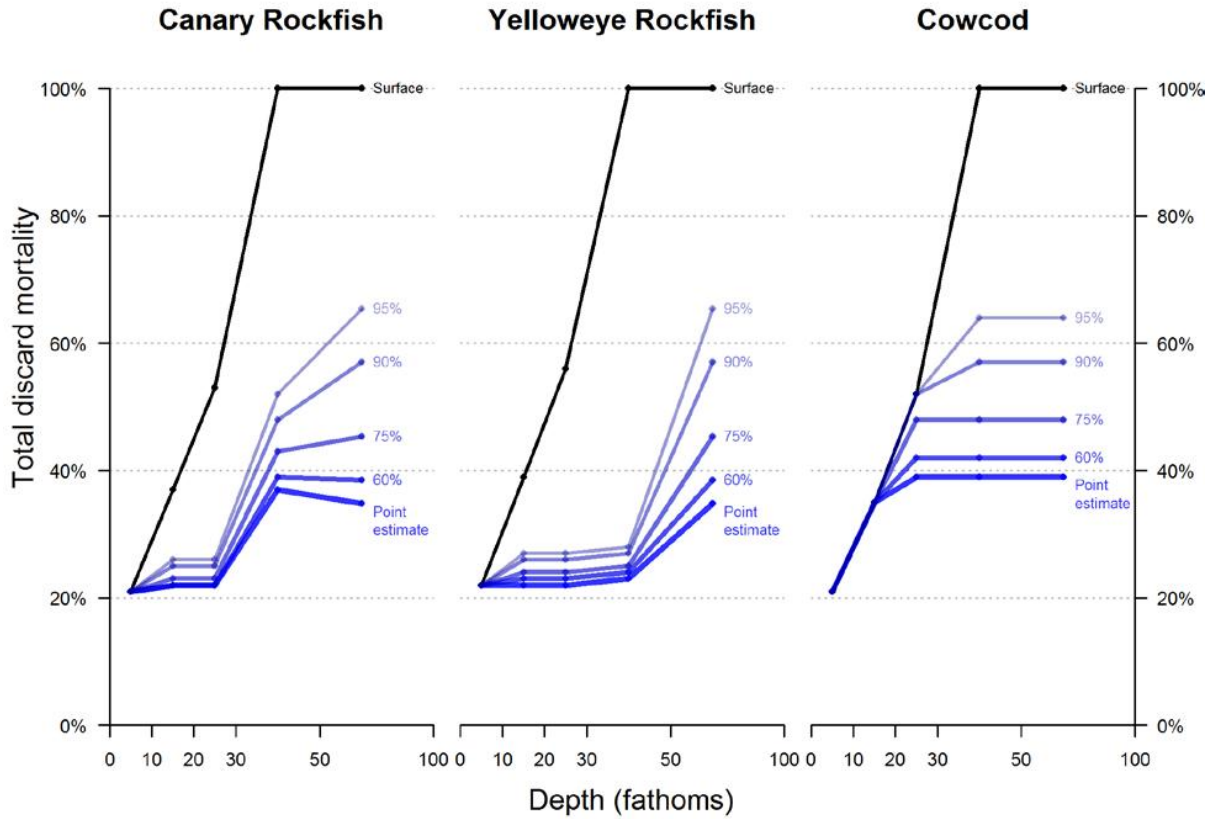
Figure 1. Total discard mortality (%) estimates by depth bin for canary rockfish at the surface and reflecting the use of descending devices incorporating short-term mortality, long-term mortality, unaccounted for mortality and upper 60, 75, 90, and 95 percent confidence intervals as precautionary buffers for uncertainty.

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