CLARIFICATION ON METHODS USED TO ASSESS BYCATCH
IN THE WEST COAST GROUNDFISH TRAWL FISHERY

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Over the past few months, comments have been circulated regarding the methods that have been used by the Northwest Fisheries Science Center (NWFSC) to develop total mortality estimates for groundfish. In particular, the comments have focused on two issues: the absence of a recent review of the methods used to estimate trawl fleet bycatch, and the use of a retained catch measure, rather than tow hours, for expansion of observed bycatch up to the fleet level. We have prepared the following to address these comments and to correct inaccuracies or misconceptions upon which these comments appear to be based.

The methods that have been used to expand trawl observations up to fleet-wide estimates of total catch were reviewed for the first time in January 2003. At that time, the SSC conducted a 2-day review of the trawl bycatch model, which also included an outside reviewer provided by the Center for Independent Experts. The characterization of target fisheries used in the model was simplified during the following year, and the model, including those changes, was again reviewed and endorsed for Council use by the SSC during the spring of 2004. The methods used to estimate bycatch and total mortality have remained essentially the same as when last reviewed by the SSC. In general, unless substantial changes are made, the standard practice is to conduct a major review of methods used in a stock assessment or discard estimation once every 5 years.

The bycatch model is designed to project catch in an upcoming fishery, and uses observer, logbook, and fish ticket data from several prior years for that purpose. Total mortality estimates, on the other hand, are developed for a specific year that has already occurred. Therefore, only data from a specific year are included in the estimation of total mortality for that year. Discard estimation for the non-whiting trawl fishery, however, includes the same sources of information as the bycatch model, and employs a similar stratified approach that acknowledges area, depth, and seasonal differences in bycatch rates and trawl effort. The methods which have been used to develop the total mortality estimates are available and posted, with a description of total mortality estimation for 2005 available on the NWFSC web site (http://www.nwfsc.noaa.gov/ research/divisions/fram/observer/datareport/docs/totalmortality2005_final.pdf).

Comments have been made concerning the use of retained target catch as a measure of effort instead of trawl tow duration. Arguments can be made in support of either method. In actuality, the use of either method yields higher estimates for some species and lower estimates for others. Comments identified widow rockfish as a species for which discard was being underestimated using the current method. However, computing widow rockfish for 2005 using

tow hours as the effort metric produces a slightly lower estimate of discard than the catch-based approach.

The fact that there are differences does not mean that the use of tow duration is necessarily superior. That depends on whether bycatch is better correlated with the catch of other species or with tow time, and also on whether one of these relationships is more consistent between the observed and unobserved fleet. Additionally, there is the question of which of these metrics is reported more consistently and reliably. Tow hours are self-reported by fishers in logbooks, and specific entries may, in some cases, not be recorded until days afterwards. Since logbooks are not submitted for all trips, and trawl hours are not reported on fish tickets, another metric, such as retained catch, must still be used to expand estimates for the "logbook" fleet up to the total fleet. Unlike logbooks, fish tickets must be signed, under penalty of law, as to the accuracy of the landed catches that are reported. There is some inherent inaccuracy in the adjustment of logbook hailed weights for individual tows, based on the entire trip's landings. However, there is no indication that the methods used by the states to adjust logbook hailed weights are biased, and given the aggregation of data used in estimating discard, it is unlikely that such tow-level anomalies affect discard estimates in any significant way. The bottom line is that a consistent effort metric (retained catch) is used throughout the analysis, and that estimates for the entire trawl fleet include all of the landed catch reported on fish tickets.

The following discussion addresses other inaccuracies contained in the comments. All validated observer data are included in developing discard estimates, as long as there is a corresponding fish ticket(s) with which to adjust the vessel's tow-level hailed weights that are recorded by the observers. Observations from a trip need not have an associated logbook record in order to be included in the analysis. The retained and discard weights of species from all of these observed tows are summed within strata, and then used to calculate discard ratios for each stratum. These rates are applied to logbook retained catch assigned to each stratum, and the resulting amounts of discard are adjusted using the ratio of retained catches in fish tickets and logbooks, to account for missing logbook data. "Adjusted-and-expanded" logbook catches from Washington are not used in expanding observed rates; instead, the basic "adjusted" Washington catch amounts are used. These are calculated by Washington Department of Fish and Wildlife using procedures that are comparable to those employed by the states of Oregon and California. Total catch for each stratum is not taken from the GMT Scorecard, since the final Scorecard amounts for the trawl fleet are, in fact, derived from this analysis, i.e. the total catch in the non-whiting trawl sector is derived from summing the model-estimated discards with landed catches reported through PacFIN. Estimated discard is not calculated through multiplying observed rates by total catch, because total catch is not known until the discard component has been estimated and added to reported landings.

It was also commented that access to groundfish observer data is very limited. As per the newly re-authorized Magnuson-Stevens Act, observer data is confidential. Release of observer data in a manner that directly or inferentially allows the association of catch records to specific vessels would not only create legal liabilities, it would also undermine trust between the industry and the observer program. This concern extends to release of these data to organizations that are not legally able to withhold release of the data as part of outside requests by members of the public through available legal channels. NWFSC staff have worked with the GMT, assessment

scientists, and others, however, to provide summarized observer data to inform management and assessment activities in a timely manner.

There also appears to be a misconception that substantial under-estimation of discard amounts between 1988 and 2003 was the primary cause of the decline in stocks that are now under rebuilding plans. This view is inconsistent with the findings of recent stock assessments for many of the overfished species. For instance, according to the 2005 assessments, depletion levels for bocaccio, cowcod, and canary rockfish are estimated to have fallen below the current overfished threshold prior to 1986; with depletion levels for darkblotched rockfish, Pacific ocean perch, and lingcod falling below the threshold by 1990 or 1991. These assessments consistently indicate excessive landings and reductions in recruitment were the principal drivers in the decline of these stocks. All of these assessments are available for review on the Council's web site.

The NWFSC and the West Coast Groundfish Observer Program remain committed to collecting and analyzing observer and other fisheries data in a manner that is scientifically sound, unbiased, and as precise as our resources permit.