

OBSERVER DATA ANALYSIS AND BYCATCH MODELING STATUS REPORT JUNE 2003, NWFSC

Observer Data Projects

The primary goal of the observer program is to estimate discard as accurately as possible. In order to develop information on total catch, the amount of retained catch must be known as well. Our plan is to use logbook and/or fishtickets for an estimate of retained catch. The observers do record a measure of retained catch. In most cases this reflects the boat's haul weight. These numbers must be reconciled with the fishticket information by much the same process as the states now use to adjust logbook data.

Status of matching observer data with fishtickets

Of the 619 observed groundfish trawl trips, fewer than 10 have not been matched to fishticket data. Landed catches from fishtickets are currently being used to adjust retained weights recorded by observers, for use in the calculating bycatch rates.

Status of matching observer data with logbooks

The process of matching observed tows to the appropriate logbook records will begin in June and is likely to require several weeks. In cases where it is not possible to match an observed tow to a logbook record, the current estimate of retained catch, based on the fishticket-adjusted weight recorded by the observer, will be used.

Analyses to look at how representative the observer data are

It is important to know if the observed trips represent accurately the catches and fishing patterns of the entire fleet. Based on matching of fishtickets and observer records, three comparisons of observed and unobserved trips have been developed and reported on previously. Additional analyses of the representativeness of fishing locations between the observed and unobserved fleets will be initiated when the matching of observer and logbook records has been completed.

Examination of stratification schemes for use of observer data in bycatch management model

Based on a preliminary matching of fishtickets and observer records, variances for bycatch ratios under some alternative post-stratifications of the data were calculated and summarized for discussion with the SSC at the March Council meeting. At the April meeting, the SSC suggested that additional decision criteria be evaluated for determining preferred levels of stratification. That evaluation has begun, but is incomplete at this time.

Bycatch Modeling Projects

Since the progress report presented at the April Council meeting, several changes have been made to the trawl bycatch/target projection model. These changes include the incorporation of newer logbook and fishticket data, as well as some structural changes in model operation.

Updating fishticket data used in the model

The previous version of the model used fishticket data from 1999-2001 for constructing baseline participation profiles for each trawl permit. The baseline profiles now reflect 1999-2002 fishticket data. Landings amounts for each target species or assemblage were combined across years using the weighting factors shown in Table 1. Different weighting factors were used for the landings in the first eight and last four months of the year, due to the closure of the DTS fishery in the latter part of 2001. Fleet projections for north and south of 40°10' N latitude were then constrained by the limits in place for the first 4 months of 2003 and all of 2002, estimated tonnages compared with actual landings, and scaling factors applied in order to better align estimated and actual landings during this period.

TABLE 1. Inter-annual weighting of fishticket landings in constructing baseline participation profiles.

| | 1999 | 2000 | 2001 | 2002 |
|--------------------|------|------|------|------|
| January-August | 0.1 | 0.2 | 0.3 | 0.55 |
| September-December | 0.15 | 0.25 | 0.25 | 0.6 |

Updating logbook data used in the model

The previous model version used the 1999 logbook data for purposes of distributing target species catch among depth strata, and among target fisheries. The model now derives depth distributions for target species from the 2000 to 2002 (partial) logbook data. Weighting factors for combining data across years are shown in Table 2. The second half of the year was treated differently for Washington, because data for most of the last half of 2002 was unavailable when this revised approach was implemented. This approach will be standardized after complete data are available. At this time, species are not being distributed among target fisheries for purposes of bycatch accounting, due to the small number of observations in many cells when the current observer bycatch data are post-stratified by target fishery. As a result, the logbook data are only being used, currently, for distributing species tonnage among depth zones.

TABLE 2. Inter-annual weighting of logbook tonnage for constructing species depth distributions.

| | 2000 | 2001 | 2002 |
|-----------------------|------|------|------|
| Oregon/California | 0.15 | 0.3 | 0.55 |
| Washington: Jan.-June | 0.15 | 0.3 | 0.55 |
| Washington: July-Dec. | 0.35 | 0.65 | 0 |

Modeling effects of specifying differential limits when small footropes used during a period

During the end of 2002 and again starting in May of 2003, the trawl fishery north of 40°10' N latitude has been managed with differential vessel limits when small footropes are used any time during a cumulative period. In addition to lowering the target tonnage (and hence projected bycatch) of any vessels continuing to fish shoreward of the closed area, these differential limits are also intended to shift effort farther offshore. Alternatives for incorporating this depth shift are still being explored. However the default approach at this stage involves assessing the proportion of each DTS species attributed to depths beyond the closed area, using the weighted 2000-2002 logbook data noted above. If the sum of the highest bi-monthly proportions within a season (November-April or May-October) exceeds a specified threshold, then all groundfish fishing during that season is assumed to occur in depths greater than the closed area.

Accounting for the effects of higher trip limits during the projection period

In circumstances where modeled future trip limits exceed the amounts that were allowed in the same 2-month period during most or all of 1999-2002 (the period used to determine baseline participation), if baseline permit tonnage is not increased, the model is more likely to underestimate landings with the higher limits. In the past, these adjustments were handled on an ad-hoc basis while configuring new model runs. The model has now been changed so that such adjustments are computed automatically, based on the ratio between the modeled trip limits (as specified in a parameter input file) and a weighted average of trip limits during the 1999-2002 period.

Stratification of observer data

Alternative stratifications of observer data for constructing bycatch rates for use with the model are still undergoing evaluation. At this time the default approach continues to use a north-south, deep-shallow configuration. For any pair of depth boundary lines defining the closed area, the annual average bycatch rates for depths shallower or deeper than the closed area are applied during that period.

Preliminary modeling of management measures for 2004

An initial draft model run of management options for 2004 was provided to the GMT at their May meeting. This run was intended to reflect a possible realization from the range of GMT-proposed OYs for 2004, and

was made using the revised model, including new observer-based bycatch rates, and the updated fishticket and logbook data. Trip limits (Table 3) and landings/bycatch results (Table 4) for that model are included here, for purposes of illustrating possible outcomes. Additional runs, which better reveal the range of impacts associated with the GMT's preliminary recommended OY ranges, will be completed prior to the Ad Hoc Allocation Committee meeting, June 10-11, 2003. Following that meeting additional model runs may be developed prior to Council and advisory body discussion at the June Council meeting. A full report of the initial as well as additional model runs will be presented at the June Council meeting

TABLE 3. Bi-monthly trip limits (pounds) for major target species, as part of a preliminary evaluation of 2004 management measures provided to the GMT on 5-8-03.

| Bi-monthly periods | North of 40°10' | | 38° - 40°10' | | South of 38° | |
|--------------------------------------|-----------------|---------|--------------|---------|--------------|---------|
| | 1 & 6 | 2 - 5 | 1 & 6 | 2 - 5 | 1 & 6 | 2 - 5 |
| Shallow line | 75 | 75 | 100 | 100 | 100 | 100 |
| Deep line | 150 | 250 | 150 | 250 | 150 | 150 |
| Sablefish | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 |
| Longspine | 13,000 | 13,000 | 13,000 | 13,000 | 13,000 | 13,000 |
| Shortspine | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 | 2,400 |
| Dover sole | 29,000 | 29,000 | 29,000 | 29,000 | 29,000 | 29,000 |
| Petrale sole | unlimited | 10,000 | unlimited | 20,000 | unlimited | 20,000 |
| Arrowtooth | unlimited | 150,000 | unlimited | 10,000 | unlimited | 10,000 |
| Other flatfish | 50,000 | 50,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| Slope rockfish | 1,800 | 1,800 | 1,800 | 1,800 | 30,000 | 30,000 |
| If small footrope used during period | | | | | | |
| Sablefish | 5,000 | 5,000 | | | | |
| Longspine | 5,000 | 5,000 | | | | |
| Shortspine | 1,500 | 1,500 | | | | |
| Dover sole | 10,000 | 10,000 | | | | |
| Petrale sole | 10,000 | 10,000 | | | | |
| Arrowtooth | 5,000 | 5,000 | | | | |
| Other flatfish | 50,000 | 50,000 | | | | |

TABLE 4. Projected landings of target species and total bycatch of rebuilding species, as part of a preliminary evaluation of 2004 management measures provided to the GMT on May 8, 2003.

| | North of 40°10' | South of 40°10' | Total |
|--|-----------------|-----------------|--------|
| Projected target species landings (mt) | | | |
| Total DTS | 8,297 | 3,600 | 11,898 |
| Sablefish | 1,606 | 625 | 2,231 |
| Longspine | 1,379 | 622 | 2,001 |
| Shortspine | 500 | 241 | 741 |
| Dover sole | 4,813 | 2,112 | 6,925 |
| Petrale sole | 1,357 | 466 | 1,823 |
| Arrowtooth | 1,535 | 12 | 1,547 |
| Other flatfish | 1,571 | 900 | 2,471 |
| Total flatfish | 9,276 | 3,490 | 12,766 |
| Yellowtail | 154 | 0 | 154 |
| Slope rockfish | 133 | 118 | 252 |
| Other rockfish | 103 | 47 | 150 |
| Projected bycatch of rebuilding species (mt) | | | |
| Lingcod | 39.8 | 54.8 | 94.6 |
| Canary | 6.3 | 1.3 | 7.6 |
| POP | 42.5 | 0.2 | 42.8 |
| Darkblotched | 47.8 | 13.4 | 61.2 |
| Widow | 0.7 | 0.4 | 1.0 |
| Bocaccio | 0.0 | 45.2 | 45.2 |
| Yelloweye | 0.24 | 0.11 | 0.35 |
| Cowcod | 0.00 | 1.19 | 1.19 |

Inseason evaluation of bycatch in the 2003 trawl fishery

An updated evaluation of bycatch in the 2003 fishery will be presented to the Ad Hoc Allocation Committee at its June 10-11, 2003 meeting, and Council advisory bodies at the June Council meeting. This update will utilize the changes to the bycatch model described above and will reflect available landings data through the month of April.