

**REPORT TO THE PACIFIC FISHERY MANAGEMENT COUNCIL,
ON BYCATCH MODELING AND OBSERVER DATA DEVELOPMENTS
between February and August, 2003**

**Prepared by Dr. Elizabeth Clarke, Dr. James Hastie, and Jonathan Cusick,
Fishery Resource Analysis and Monitoring (FRAM) Division
Northwest Fisheries Science Center (NWFSC), NOAA Fisheries
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Implementation of recommendations from the Bycatch Review Panel Workshop

In January 2003, The Council's Scientific and Statistical Committee (SSC) convened a workshop to review the methodology employed in the existing model for estimating bycatch of overfished species. The workshop report contains several recommendations that have been incorporated into model improvements and implementation over the past six months.

Recommendation 1: Use the current model for 2003 management, possibly updating historical vessel landings or bycatch rates following SSC review.

Action: Alternative approaches for incorporating the new observer data, including a summary of associated bycatch rate variances, were presented to the SSC in March. Subsequently, new bycatch rates were reviewed by the SSC in April, and were incorporated into the analysis of inseason progress and management recommendations at the April and June Council meetings. Following the April Council meeting, historical vessel participation in the model was updated with more recent fish ticket and logbook data. These revisions were also incorporated into inseason recommendations at the June Council meeting.

Recommendation 2: For 2004 and beyond, replace existing bycatch rates used in the model with rates derived from the observer program, in accordance with SSC guidance.

Action: Alternative approaches for incorporating the new observer data were discussed with the SSC in March. New bycatch rates were reviewed by the SSC in April, and were incorporated into the preliminary analysis of 2003 management measures prepared for the June Council meeting and in the broader suite of management alternatives prepared for final 2004 decisions in September.

Recommendation 3: For 2004 and beyond, base the target fishery assignments for modeled landings on the most recent years of logbook data.

Action: Following discussions with the SSC in March regarding stratification options for incorporating the new bycatch data into the model, it was determined the target fishery approach that was used previously in applying bycatch rates could not be employed successfully with the amount of data available from the first year of the observer program. This decision will be re-evaluated as more data become available.

Recommendation 4: For 2004 and beyond, base the estimates of the depth distribution of target species catch on the most recent years of logbook data available.

Action: Following the April Council meeting, logbook data from 1999, which were previously used to estimate fishing depth distributions, were replaced by logbook data from 2000-2002. These data were weighted to emphasize the most recent catch of each vessel.

Recommendation 5: In order to better estimate effort redistribution associated with closing depth ranges to fishing, fish ticket-adjusted logbooks should be available by April 2004 and incorporated into modeling of options for 2005-2006.

Action: Logbook programs are administered by State fishery agencies. NMFS has emphasized the importance of logbook availability to the Council and state representatives on the Groundfish Management Team.

Recommendation 6: Following updates to the model, projections using 2003 management parameters should be compared to actual 2003 landings and appropriate calibration adjustments made before modeling 2004 management alternatives.

Action: Prior to the June Council meeting, baseline vessel participation was updated to include 2002 fish ticket

data, and then was adjusted in order to better align 2003 projections with preliminary landings data for the first four months of 2003. These adjustments were incorporated in all subsequent modeling of 2003 and 2004 management options.

Recommendation 7: The choice of bycatch rates is a technical, not a policy, decision that should be made by the GMT, consulting with the Groundfish Advisory Subpanel, with review and approval by the SSC.

Action: Bycatch rates based on the first year of observer data were presented to the GMT, SSC, and GAP at the April Council meeting. The new rates formed the basis of GMT recommendations at that meeting and in June. The GMT did not provide the Council with alternative bycatch rate scenarios from which to choose.

Additional bycatch modeling developments

At the June Council meeting NMFS initiated Council discussion of incorporating discard rates for target species, based on the new observer data, into the modeling of management options for 2004. Following the meeting, the bycatch model was modified in order to estimate total catches of target species, using depth-based discard rates calculated from observer data. In developing analysis of management alternatives for the 2004 fishery, trip limits have been modeled so that the estimated total catches of target species do not exceed the OYs available to the trawl fishery.

NMFS Observer Program Developments between February and August, 2003

Data adjustments

Following the review of the bycatch model in January, observer data were matched with fish tickets, in order to adjust vessels' estimated ("hailed") weights (reported by the observers on their data sheets) to reflect amounts of poundage recorded at the time of landing. Since the bycatch model is only intended to capture trawl activity directed towards federally managed groundfish species, observed trips targeting other species, such as California halibut, were filtered from the data set.

Bycatch rates and variances

After making these adjustments to the observer data set, average rates and variances for bycatch of overfished species in target trawl fisheries were calculated and evaluated between February and March. Alternative methods of applying rates to target fisheries were examined. These included approaches in which bycatch rates were allowed to vary with dimensions such as depth, latitude, season, and target fishery. A summary of these results was presented to the Scientific and Statistical Committee at the Council's March meeting. Due to the limited number of observations in some strata when several of these dimensions are used concurrently, a simple approach using only depth and latitude is being used until additional data has been gathered and analyzed.

Representativeness of the data

Prior to the April Council meeting, the representativeness of observer data to the entire trawl fleet was examined using fish tickets for observed and unobserved trips. The review covered three broad aspects of representativeness: similarity of average landings per trip and per vessel-period between observed and unobserved vessels, at several levels of geographic stratification; similarity between the observed and unobserved landings of each vessel; and the similarity in shares of species-group landings associated with observed and unobserved vessels, among subregions of the coast. In each of these aspects, observed vessel activity was found to be similar to that of the unobserved fleet.

Following the June Council meeting, for the portion of observed trips that could be successfully matched to logbook records, additional analysis was conducted on the representativeness of observer data, with respect to depth and smaller scale fishing locations. This evaluation also supported the conclusion that the data collected during the first year of the observer program is drawn from a representative sample of groundfish trawling on the west coast.

Observer Coverage during 2003

During the first two years (8/01-8/03) the West Coast Groundfish Observer Program (WCGOP) amassed more than 4,700 days at sea. From January 1, 2003 through July 31, 2003 the program accumulated 1,836 days at sea. During the same period in 2002 only 1,451 days were spent at sea. A summary of these data are presented in the tables below and are also available on the WCGOP website (<http://www.nwfsc.noaa.gov/research/divisions/fram/Observer/Summary.cfm>). The flow of data from observers to the central database has been streamlined in 2003, with the addition of a web-based data entry application that observers access via the internet upon completion of each trip.

Observer days at sea from August, 2001 through July 31, 2003

State	Total Sea	Trawl	Longline	Pot	Open Access
California	1,847	1,362	191	20	274
Oregon	2,084	1,699	159	144	82
Washington	814	594	189	27	4
Totals	4,745	3,655	539	191	360
Percent of sea days, by fleet		77.0%	11.4%	4.0%	7.6%

Observer days at sea from January to July 31, 2002

State	Total Sea Days	Trawl	Longline	Pot	Open Access
California	570	484	17	6	63
Oregon	615	523	19	31	42
Washington	264	233	31	0	0
Totals	1,449	1,240	67	37	105
Percent of sea days, by fleet		85.6%	4.6%	2.6%	7.2%

Observer days at sea from January to July 31, 2003

State	Total Sea Days	Trawl	Longline	Pot	Open Access
California	713	417	141	4	151
Oregon	862	752	51	59	0
Washington	261	182	63	16	0
Totals	1,836	1,351	255	79	151
Percent of sea days, by fleet		73.6%	13.9%	4.3%	8.2%

A summary of the percentages of landed groundfish tonnage and revenue associated with observed trips through the first five months of 2003 is shown in the table below, with the same period in 2002 provided for comparison. Despite the fact that many more sea days were logged in the first five months of 2003 than the preceding year, the percentage of tonnage and revenue that was observed declined in some segments of the fleet. This is primarily due to the lower catches attained by selected vessels. The limited-entry fixed-gear fleet in Oregon provides an example. The number of days that longline and pot vessels were observed more than doubled (from 50 to 118). However, the percentage of tonnage that was observed dropped from 14.4% to 5.4%.

This case illustrates the sensitivity of coverage statistics to factors such as: which particular vessels from a diverse fleet are sampled and what amounts of fish do they catch, as well as the timing with which sampling occurs, relative to seasonal opportunities. The primary sablefish season begins in April, but continues through October, so a relatively small portion of the period in which tier limits may be fished is reflected in this table. Furthermore, random selection of a Tier-1 vessel might yield coverage of one 50,000 lb trip of sablefish, while selection of a vessel without a sablefish endorsement could yield coverage of eight 300 lb trips in a 2-month period. The drop in Washington trawl coverage was due to the Period-1 selection of vessels that departed for Alaska without conducting west coast trips they declared they would make.

Percentages of landed tonnage and revenue covered by NMFS observers during the first 5 months of 2002 and 2003.

State	Sector	Gear	2002		2003	
			% observed		% observed	
			mts	revenue	mts	revenue
WA	LE	Trawl	19.2%	21.4%	8.2%	10.1%
		Fixed	2.2%	1.1%	2.4%	5.2%
		Other	0.0%	0.0%	0.0%	0.0%
	OA	Trawl	0.0%	0.0%	0.0%	0.0%
		Fixed	0.0%	0.0%	0.0%	0.0%
		Other	0.0%	0.0%	0.0%	0.0%
OR	LE	Trawl	15.6%	15.6%	16.1%	16.0%
		Fixed	14.4%	11.6%	5.4%	5.4%
		Other	0.0%	0.0%	0.0%	0.0%
	OA	Trawl	0.0%	0.0%	0.0%	0.0%
		Fixed	0.0%	0.0%	0.0%	0.0%
		Other	0.0%	0.0%	0.0%	0.0%
CA	LE	Trawl	13.0%	12.2%	10.7%	10.7%
		Fixed	1.6%	1.5%	2.3%	3.2%
		Other	0.0%	0.0%	0.0%	0.0%
	OA	Trawl	0.0%	0.0%	1.3%	1.1%
		Fixed	0.1%	0.0%	6.6%	5.2%
		Other	0.0%	0.0%	0.0%	0.0%
Total		13.7%	11.6%	11.7%	10.6%	

Participation in testing of gear designed to reduce bycatch

In addition to normal randomly selected observer coverage of the groundfish fleets, the observer program has been actively involved in providing guidance for the development Oregon's selective trawl gear Experimental Fishing Permit (EFP) and in providing observers to monitor fishing activity under the EFP. This EFP, which runs from May through October 2003, is collecting data that will be used to evaluate whether trawl gear modifications can reduce bycatch of rockfish species while maintaining flatfish catch rates. If use of this gear achieves its objectives, further bycatch reduction may be facilitated while addressing the lost revenue and management complications embodied by the Council's current approach to bycatch reduction.

Workshop on observers on small boats

On March 18-20, 2003, the NWFSC and the Alaska Fisheries Science Center co-convened a workshop on how to improve sampling on small boats nationwide. A report containing recommendations from the workshop and is expected in Fall 2003.

Observer Coverage Workshop

On July 29-31, 2003, the NMFS National Observer Program convened a workshop to discuss the appropriate sample sizes that should be obtained by U.S. observer programs. A report of the recommendations from this workshop is also expected in Fall 2003.