AT-SEA BYCATCH CONTROL PLAN

Historical Bycatch

The bycatch of other species has historically been a very small part of the at-sea Pacific whiting fishery catch, averaging about 1 percent of the total catch. However, with the reduction in TAC for non-whiting groundfish species, and the endangered species status of salmon species there is interest in further minimizing bycatch in the whiting fishery. In the whiting fishery, there are three species of special concern regarding bycatch. These are Chinook salmon, yellowtail rockfish and widow rockfish.

The following table shows the catch of whiting, yellowtail, and widow rockfish in tonnes, and the bycatch rates for these species expressed as kg per tonn of whiting, in the sectors of fishery since 1993 (Table 1.). In general, the bycatch has been lowest in the catcher-processor sector, followed by the mothership fishery, and then the Tribal mothership fishery. In the non-tribal fishery, the bycatch rate has been trending downward, however, in 1999 the bycatch rate of yellowtail rockfish increased.

Table 1. Catch of Pacific whiting, yellowtail and widow rockfish in tonnes by sector and the bycatch rate for yellowtail and widow rockfish in kg/tonn.

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<thead>
<tr>
<th>CATCHER-PROCESSOR</th>
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<th>TRIBAL MOTHERSHIP</th>
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Bycatch Rates (kg/tonn)

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<td>8.0</td>
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Distribution of bycatch

Bycatch of yellowtail rockfish occurs in the whiting fishery from southern Oregon to the U.S.-Canadian border. However, the greatest amount of bycatch occurs off the Washington coast from 46° N northward. Hauls from catcher-processors containing high bycatch (>50 kg/tonn) are shown in Figure 2. for 1997, 1998 and 1999. Yellowtail bycatch was low in 1997, extremely low in 1998, and extremely high in 1999. No clear pattern is evident in the distribution of high bycatch hauls between 1997 and 1999 other than the number of hauls with high bycatch increased in hauls deeper than 100 fa. increased in 1999.

The At-sea sector has been conducting operations in a manner that reduces the bycatch of non-whiting species to the minimum extent possible. In 1999, the bycatch controls that have been successfully employed in prior years were ineffective. It is likely that the higher than normal bycatch experienced in 1999 was the result of unique oceanographic conditions resulting from the recent strong El Nino and La Nina events. The strong variation in ocean conditions appears to have altered the spatial distribution of whiting and bycatch species. Whiting were distributed further to the north than usual, and yellowtail rockfish were encountered further offshore than usual.
Widow rockfish bycatch is not as widespread and more localized than yellowtail rockfish in the at-sea whiting fishery (Figure 2).

Regardless of the underlying cause of the increased bycatch in 1999, the at-sea sector is taking steps to monitor and improve bycatch control in the 2000 fishery. Bycatch control in the at-sea whiting fishery rests with the captain or fishing masters of individual vessels. They are aided by reports from SeaState which compiles catch data and report back to the fleet with information on areas of high bycatch. To assist the vessels in minimizing bycatch we plan to make better use of the available information, and provide clear bycatch avoidance criteria and instructions to at-sea vessels for the 2000 fishing season.

**Bycatch Control Measures**

The focus of the at-sea bycatch control program is to:

1. Avoid areas of known concentrations of rockfish and salmon.
2. Utilize threshold bycatch rates to stop fishing an area of high bycatch.
3. Improve communication between the fleet on bycatch avoidance.
4. Continue research on potential bycatch reducing gear modifications and physical factors associated with bycatch.

**Identification of areas of yellowtail and widow rockfish concentrations, and other areas of special concern.**

The at-sea sector met with Washington and Oregon coastal fishermen to identify areas of high yellowtail and widow rockfish concentrations. The identified areas were marked on charts, and the boundaries delineated. Copies of these charts will be provided to all at-sea vessels along with a list of the latitude and longitude of the areas (Figure 2, Table 2.).

At-sea whiting vessels will avoid these areas while engaged in whiting trawling.

**Concentrate whiting fishing to areas deeper than 100 fa.**

The highest incidence of rockfish bycatch is in waters shallower than 100 fa. Concentrating fishing effort in areas deeper than 100 fathoms will also avoid most of the areas identified as areas of potentially high rockfish bycatch. Vessels fishing over deeper water have generally experienced a lower bycatch of pelagic rockfish. However, as pointed out previously, this was not as effective in 1999.

**Establishment of Threshold bycatch rates**

Threshold bycatch rates have been established to provide guidance to at-sea whiting vessel masters. These values, based on past performance, are intended to alert them to being in an area of potentially high bycatch and to relocate to an area of lower bycatch.

The various sectors of the at-sea fleet have different operational characteristics and experience differing rockfish bycatch rates. To establish a threshold bycatch rate the mean bycatch rates for each sector are used as preliminary guidelines.

<table>
<thead>
<tr>
<th>SECTOR</th>
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<tr>
<td>Yellowtail rockfish kg/t</td>
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<tr>
<td>Widow rockfish kg/t</td>
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<td>3.1</td>
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</table>

The goal is to maintain bycatch at or below the historic average. If the overall bycatch in 2000 is at the threshold level, the yellowtail bycatch in the at-sea whiting fishery will be about half of what it was in 1999.

**Improve communications within the fleet.**

The Mothership fleet has agreed to institute daily communication among the fleet of bycatch rates and location of high bycatch areas. The Catcher-processor fleet communicates on a regular basis to inform vessels of areas of high levels of bycatch, which has helped to control bycatch.
Also to improve communication with other fishing vessels the at-sea whiting fleet is providing contact information to other fishers on the grounds. The contact information consists of the vessel name, call sign, bridge cell phone, company contact and their phone number. This will allow any vessel that wishes to communicate in-season problems on the grounds directly to the vessel or company.

Bycatch Research

Research is ongoing to devise methods or gear to reduce bycatch. This year five vessels will be equipped with recording conductivity, temperature and depth (CTD) meters to determine if there are relationships between bycatch rates and oceanographic conditions. Morphometric data will be collected from whiting and yellowtail and widow rockfish to determine if there are significant differences in body forms that would allow for the use of in trawl bycatch reduction devices. Lastly, some research will be conducted to determine if yellowtail rockfish are located above whiting schools and taken as the net is deployed.

Catch data indicate that early morning hours before dawn may be a period of higher than average bycatch. It may be possible to curtail fishing for a 2 to 3 hour period without disrupting factory operations. This option will be analyzed to assess its feasibility as a potential additional bycatch control mechanism.

Operational Plans

The above summarizes the bycatch problem in the at-sea whiting fishery and means of controlling bycatch. The at-sea fishery is composed of three sectors: catcher-processors, motherships, and the Tribal mothership fishery. It is apparent that there is a great deal of variability in bycatch, both spatially and temporally, and it is difficult to predetermine means of bycatch control.

Each sector has unique operational characteristics. Due to the differences in circumstances, it is not possible to develop a unified bycatch reduction plan for all sectors. It is likely that each sector will use different bycatch control methodologies to achieve the lowest bycatch level attainable.

The control of bycatch rests with each individual vessel. What we have set forth in this plan is a guideline threshold and a suite of tools that may be used to hold bycatch to the lowest level possible.

In discussions among catcher-processors and non-tribal motherships it was agreed that the identified “rockfish avoidance areas” are areas that vessels would only fish if it is demonstrated that whiting can be harvested without exceeding bycatch thresholds. The Tribal mothership sector may not be able to avoid these areas due to spatial limitations in the fishery.

Catcher-processors, as in passed years, will confine their operations to areas outside of 100 fa. to the greatest degree possible. The mothership sector will also attempt to fish to the greatest degree possible outside of 100 fa.

The agreement to communicate bycatch information among motherships is a major step for this sector, which will likely improve bycatch control in the coming year.

The at-sea sector is committed to bycatch control, and will actively monitor fleet performance in the whiting fishery to initiate measures to insure that rockfish bycatch does not exceed acceptable levels.
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<th>Longitude Deg. Min. Sec.</th>
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<td>125° 12' 20&quot;</td>
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<td>125° 12' 17&quot;</td>
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<tr>
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<td>125° 12' 20&quot;</td>
</tr>
<tr>
<td>widowed</td>
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<td>125° 12' 28&quot;</td>
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<tr>
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Table 2. Positions of rockfish bycatch avoidance areas.
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At-sea vessel contacts for each catcher-processor and mothership.

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<th>IMAR</th>
<th>Company Contact</th>
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<td>American Ocean</td>
<td>KRCT</td>
<td>206-915-3491</td>
<td></td>
<td>Mike Atterberry or Rod Hendricks</td>
<td>360-293-4677</td>
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<td>American Triumph</td>
<td>KTHZ</td>
<td>206-910-1533</td>
<td>888-908-1716</td>
<td>Frank Vargas, or Jan Jacobs</td>
<td>206-448-0300</td>
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<tr>
<td>Island Enterprise</td>
<td>KEOM</td>
<td>206-604-0822</td>
<td></td>
<td>Mike Luchino or Dave Benson</td>
<td>206-783-3818</td>
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<td>Kodiak Enterprise</td>
<td>WCZ4176</td>
<td>888-908-1569</td>
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<tr>
<td>Northern Jeager</td>
<td>WNBG</td>
<td>206-399-3317</td>
<td>888-908-1720</td>
<td>Brett Vielbig or Jan Jacobs</td>
<td>206-448-0300</td>
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<td>Pacific Glacier</td>
<td>WRYH</td>
<td>206-849-2386</td>
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<td>Marie Windrow</td>
<td>206-298-1200</td>
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<td>WTQ-5896</td>
<td>206-310-9066</td>
<td>872-150-0475</td>
<td>Dale Myer</td>
<td>206-783-8040</td>
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<td>Excellence</td>
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<td>Ocean Rover</td>
<td>KRLM</td>
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<td>888-908-1717</td>
<td>Jan Jacobs</td>
<td>206-448-0300</td>
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Figure 1. Distribution of hauls with high (> 50 kg/t) yellowtail rockfish bycatch in the at-sea whiting fishery.
Figure 2. Distribution of high bycatch hauls of widow rockfish in the at-sea whiting fishery.
Figure 3. Distribution of rockfish avoidance areas.