



Pacific Whiting Conservation Cooperative

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A Partnership to Promote Responsible Fishing

Mr. Donald K. Hansen, Chairman
Pacific Fishery Management Council
7700 NE Ambassador Place, Suite 200
Portland, OR 97220

February 16, 2005

Re: 2005 Pacific Whiting Fishery Harvest Levels

Dear Chairman Hansen,

The Pacific Whiting Conservation Cooperative (PWCC) offers the following comments for consideration by the Pacific Fishery Management Council (Council) in deciding harvest levels for the 2005 Pacific whiting fishery. The PWCC sees strong evidence that the current Pacific whiting stock is healthy and that, supported by recent recruitment, the resource will remain abundant. The PWCC recognizes the Council decision about whiting harvest levels is also driven by the need to rebuild depleted rockfish species, notably canary rockfish and widow rockfish. In response to this concern, rockfish bycatch caps were established by the Council and National Marine Fisheries Service (NMFS) has authority to close any or all whiting fishery sectors if the bycatch caps are reached. Moreover, the whiting fishery has a proven ability to avoid rockfish bycatch areas. For these reasons, the PWCC recommends the Council consider setting the U.S. portion of the Pacific whiting optimum yield (OY) in line with the medium value analyzed in the 2005-2006 groundfish specifications, that is, above 350,000 mt. This letter and the attached cruise report summary provide detailed information to bolster our recommendation.

Factors that will influence Council decision making are similar to those in 2004: namely, (1) appropriate estimate of acoustic survey selectivity (i.e., “q”), (2) recruitment strength and future stock status, and (3) bycatch of depleted rockfish. Additionally, the Council’s ability to set the 2004 whiting OY was further constrained because harvest levels above 250,000 mt were not analyzed in the federal rulemaking documents. This procedural constraint is not a factor in 2005.

Acoustic Survey Selectivity – q

As in 2004, the 2005 Pacific whiting Stock Assessment Review (STAR) Panel provided two versions of the whiting assessment model: one based on $q = 1.0$ and a second based on $q = 0.6$. The differential q values produce starkly different estimates of acceptable biological catch (ABC). In 2004, the Scientific and Statistical Committee (SSC) noted their concern that –

“emphasis on upper and lower bounds does not take into account the greater likelihood that the true value is in the center of the range.”

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The 2005 STAR Panel discussed at length the appropriateness of the competing q values and the steps necessary to determine a single point estimate for q . To help inform management decision making, the STAR Panel requested the assessment author produce harvest projections based on a $q = 0.8$ model scenario. This mid-range harvest projection was to be provided to the Groundfish Management Team (GMT) and Council prior to the March 2005 Council meeting.

We estimate that harvest projections based on a $q = 0.8$ model would produce a U.S. Pacific whiting OY of approximately 355,298 mt. (This value was obtained by averaging the two ABC values produced by the current $q = 1.0$ and $q = 0.6$ models, i.e., 364,197 mt and 597,625 mt, respectively; which results in an coastwide ABC of 480,911 mt. Finally, the U.S. allocation percentage agreed upon in the Pacific Whiting Treaty, i.e., 73.88%, was applied.)

Recruitment and Stock Status

Pacific whiting recruitment and future stock status must also be considered in the Council's decision. In 2004, based on pessimistic recruitment estimates from the NMFS-Santa Cruz Lab (SCL) surveys for the 2002 and 2003 whiting year classes, the Council believed it was prudent to take a risk-averse course to dampen impacts on what was perceived to be a declining stock. However, cooperative research conducted by NMFS-Northwest Fisheries Science Center and PWCC provides evidence that, in 2002 and 2003, the SCL survey might have underestimated whiting year class strength. It is possible that SCL's low estimates of year class strength resulted from the more northerly distribution of juvenile whiting during those years coupled with the limited geographic range of the SCL survey. (See attached NMFS-PWCC Cruise Report Summary for additional details.)

Moreover, in their report to the Council the 2005 STAR Panel specifically recommended that –

“managers exercise caution in relying on the future year projections presented in the assessment. The Panel concluded that, as new data are added from future surveys, the PWCC index (with greater spatial coverage than the Santa Cruz juvenile rockfish survey) should be evaluated for use in future stock assessments.”

In 2004, both the SCL and NMFS-PWCC surveys estimated 2004 year class strength that was above average, potentially equal to the large 1999 year class (see Table 1 in attached summary report). Based on this research, PWCC believes recent Pacific whiting recruitment has been at least average (possibly well above average in 2004) and that the whiting stock will remain well above the precautionary 40-10 policy threshold.

Bycatch Avoidance

In 2004, (in addition to those factors discussed above) the Pacific whiting OY was set well below ABC because of the Council's concern about minimizing impacts on depleted rockfish species. Completed catch statistics for the 2004 fishery are not currently available to compare the actual impacts to those projected by the GMT. However, data from the PWCC fleet of vessels (each of which carry two observers and all hauls are observed) documents very low bycatch of canary rockfish, widow rockfish, and other overfished species. Less than 0.5 mt of canary rockfish and

approximately 8.25 mt of widow rockfish were caught by PWCC vessels during the 2004 whiting fishery. In addition to this demonstrated ability to avoid rockfish bycatch, the Council has established hard caps on bycatch for the 2005 whiting fishery (7.3 mt of canary rockfish and 238.1 mt of widow rockfish). If these caps are reached NMFS has the authority to close any or all sectors of the whiting fishery.

Therefore, given the fleets demonstrated ability to avoid rockfish bycatch, the established hard caps on canary rockfish and widow rockfish, and NMFS authority to close any or all sectors of the whiting fishery, PWCC believes rockfish bycatch concerns have been addressed and should not be the basis for further reductions of 2005 whiting harvest levels.

Summary

The new Pacific whiting assessment shows an abundant whiting biomass, new information lends credence to moving away from the assumed $q = 1.0$ acoustic survey selectivity, recruitment information from the NMFS-PWCC pre-recruit survey shows several strong year classes entering the fishery, and concerns about rockfish bycatch should be allayed because of the hard caps on canary rockfish and widow rockfish. Moreover, NMFS has authority to close the whiting fishery if the bycatch caps are approached. Finally, the whiting fishery has a demonstrated ability to fish cleanly by avoiding areas of high bycatch concentrations. For these reasons, the PWCC recommends the Council consider setting the U.S. portion of the Pacific whiting optimum yield (OY) in line with the medium value analyzed in the 2005-2006 groundfish specifications, that is, above 350,000 mt.

Thank you for your consideration of this information and our recommendations.

Sincerely,

A handwritten signature in blue ink, appearing to read "Daniel A. Waldeck", written over a light blue grid background.

Daniel A. Waldeck
Executive Director

Enclosures
NMFS-PWCC Cruise Report Summary



Pacific Whiting Recruitment Trends Based on the NMFS-PWCC and NMFS Santa Cruz Lab Juvenile Pre-Recruit Surveys

Vidar G. Wespestad, Chief Scientist
 Pacific Whiting Conservation Cooperative

The National Marine Fisheries Service (NMFS)-Northwest Fisheries Science Center and Pacific Whiting Conservation Cooperative (PWCC) and NMFS-Southwest Fisheries Science Center-Santa Cruz Laboratory (SCL) conduct surveys of juvenile (termed “young-of-the-year” or YOY) Pacific whiting and rockfish relative abundance and distribution off Oregon and California. The NMFS-PWCC survey, which started in 1998, is an expansion of the SCL juvenile rockfish survey. Prior to 2001, results between the PWCC survey and the SCL survey were not comparable because of trawl gear differences. Since 2001, the gear has been comparable and side-by-side comparisons have been made between the NMFS-PWCC vessel *Excalibur* and the SCL vessel *D.S. Jordan*.

Results from NMFS-PWCC and SCL surveys indicate a strong 2004 Pacific whiting year class.

Pacific Whiting Year Class Strength and Recruitment

In 2004, estimates of year class strength in the PWCC-NMFS survey were similar to the SCL survey. Both indicated that the 2004 year class is an above average year class (Table 1). Based on the SCL survey results, it may be equal to the large 1999 year class. The surveys also achieved similar results in 2001, which (based on the SCL survey) appears to have been an average year class. However, for 2002 and 2003 the two surveys had markedly different results. That is, the SCL survey exhibited a declining trend from 2001 to 2003, while the NMFS-PWCC survey showed an increasing trend.

Year	NMFS-Santa Cruz	PWCC-NMFS
1999	558.7	No Survey
2000	75.2	No Survey
2001	172.8	100.2
2002	45.8	102.8
2003	9.4	376.4
2004	535.6	1,211.70

Table 1. Mean number of YOY Pacific whiting per haul in the NMFS Santa Cruz survey and the NMFS-PWCC survey, 1999-2004.

This difference is likely due to the geographical distribution of YOY whiting coupled with the different geographic scope of the two surveys. In 2001 and 2004, there was overlap in the distribution of whiting between the two survey areas. In 2002 and 2003, whiting YOY appear to have been distributed north of the SCL survey area (Figure 1).

From 2001-2003, the NMFS-PWCC survey was conducted at stations across the continental shelf between Newport, Oregon (44° 30' N latitude) and Point Arguello, California (34° 30' N latitude). For 2004, the survey was expanded to the north to 46° 30' N latitude (approximately Willapa Bay, Washington).

Through 2003, the SCL survey was conducted between Cypress Point, California and Point Reyes, California. In 2004, the survey was expanded farther south and north, running from San Clemente Island, California to Delgada, California.

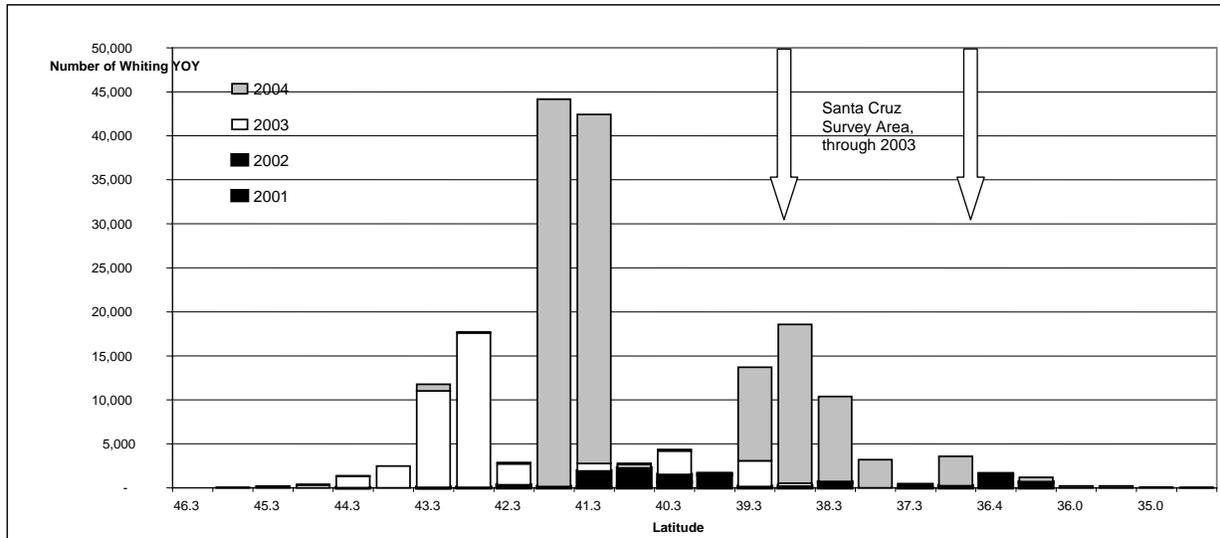


Figure 1. Distribution of YOY whiting by latitude in the 2001-2004 NMFS-PWCC prerecruit survey.

Pacific Whiting Length Frequency

Samples from the NMFS-PWCC survey show that the length frequency of YOY whiting trended slightly smaller in 2004 than in previous years. Modal length was similar to the 2003 survey (3 cm), but the mean length was less because of a greater proportion of 2 cm fish in the 2004 survey. The modal length was greater in 2002 at 4 cm. Mean length showed a slight increase from 2.6 cm in 2001, to 2.9 cm in 2002, and to 3.2 in 2003; but a decrease to 3.0 cm in 2004. In the 2001 NMFS-PWCC survey, YOY whiting were present up to 14 cm, but in subsequent years there were no YOY larger than 7 cm. It is not clear if YOY length distributions are a result of density dependence or environmental factors. However, the size decrease in correspondence with high abundance of YOY whiting could be indicative of density dependence.

Relative to past years, the 2004 length frequency of whiting indicated a greater number of 15-28 cm fish, which represent lengths typical for age 1 and age 2 whiting (Figure 2). As these age classes would correspond to 2002 and 2003 YOY fish, respectively, this could also be an indication that the 2002 and 2003 year classes are greater than previously estimated in the SCL survey.

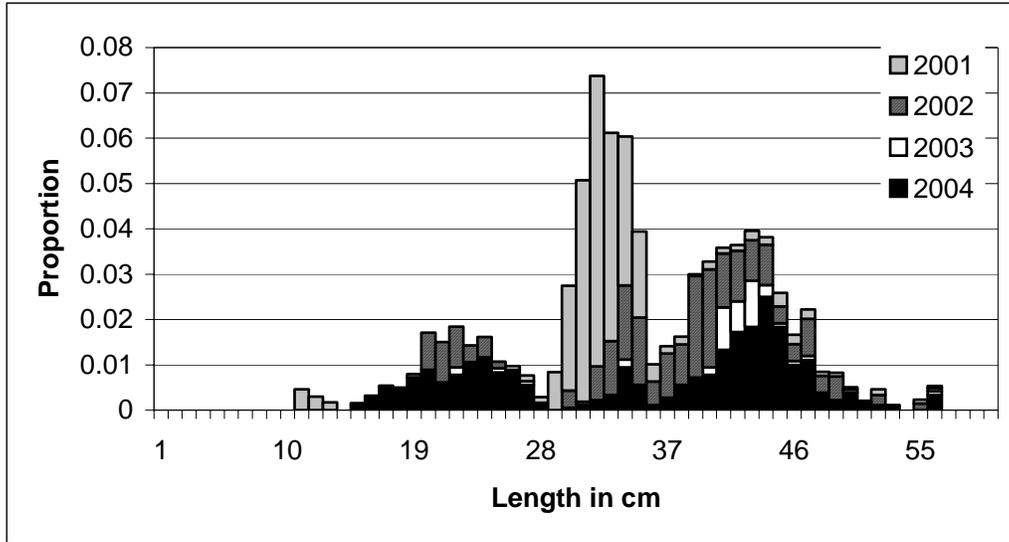


Figure 2. Comparison of juvenile and adult whiting length frequency in 2001-2004 in the NMFS-PWCC cooperative whiting prerecruit survey.

Comparative trawling between the RV *D.S. Jordan* and the FV *Excalibur*

In 2004, comparative trawling was conducted for four nights between the FV *Excalibur* used in the NMFS-PWCC whiting prerecruit survey and the RV *D.S. Jordan* used by SCL for its juvenile rockfish survey. The vessels occupied the same stations and covered the same course at approximately 0.25-0.5 nm distance separation. Trawls were set simultaneously and each hauled back after 15 minutes. The nets, trawl doors, and trawl warps were similar. In prior years, comparative trawls were conducted, generally for two nights, but results were unclear due to problems with trawl monitoring devices aboard the *D.S. Jordan*.

Generally, the number of juvenile rockfish has been greater in *D.S. Jordan* hauls compared to *Excalibur* hauls (Table 2). For whiting, between vessel catch has been variable. For example, in 2002, one large haul by the *D.S. Jordan* had about five times more whiting than the *Excalibur*, otherwise the capture of whiting were similar in the remaining hauls in 2002. Rockfish captures by the *D.S. Jordan* are about twice that of the *Excalibur* in 2001-2003, but were more similar in 2004.

Year	YOY Whiting		YOY Rockfish	
	<i>D.S. Jordan</i>	<i>Excalibur</i>	<i>D.S. Jordan</i>	<i>Excalibur</i>
2001	415	773	332	150
2002	1,118	355	165	72
2003	20	40	131	75
2004	6,609	4,167	544	443

Table 2. Number of YOY whiting and rockfish captured by the RV *D.S. Jordan* and FV *Excalibur* during side-by-side comparative tows off central California, 2001-2004. *Excalibur* – mean number per haul for all PWCC hauls; *D.S. Jordan* – mean number per haul for SCL within their hake strata.

In 2004, the *D.S. Jordan's* gear mensuration equipment was functional; thus, the operational depth of the net could be observed and the net maintained at depth. The *D.S. Jordan* continued to have a 20% higher overall catch of rockfish. However, on a haul-by-haul basis the results were generally comparable. For juvenile rockfish, **catch per haul** was nearly equal between vessels (Figure 3), as was the number of rockfish **species per haul**. (Figure 4).

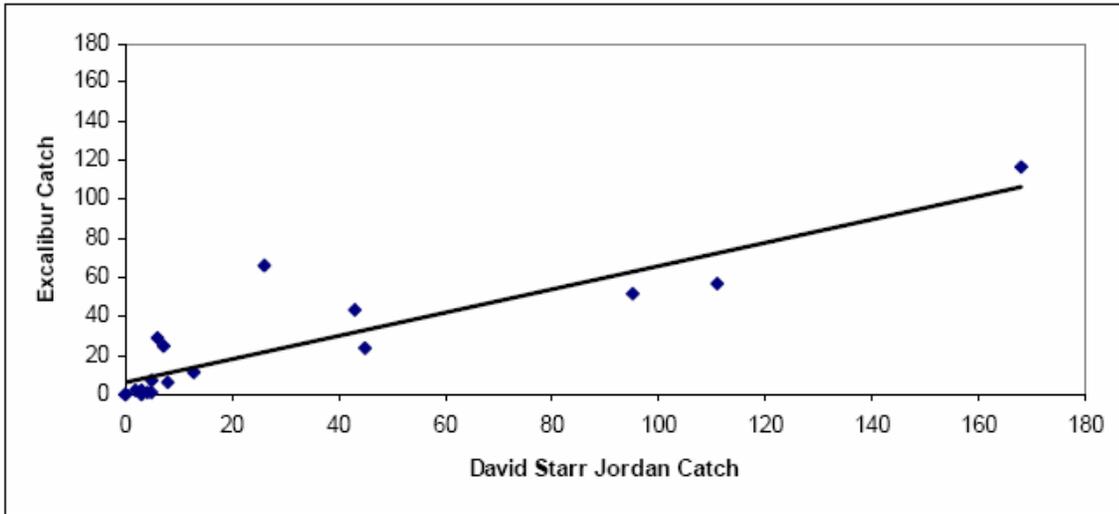


Figure 3. Comparison of the **catch** of juvenile rockfish in 18 side-by-side comparative hauls made by the RV *D.S. Jordan* and the FV *Excalibur* in 2004 using comparable gear and methods.

Thirteen species of rockfish were captured during comparative trawls (Figure 4). The predominate species of rockfish were chilipepper and shortbelly rockfish. The remaining species were present in fewer numbers. Species composition was similar between *D.S. Jordan* and *Excalibur* hauls, with similar high and low species diversity hauls between vessels.

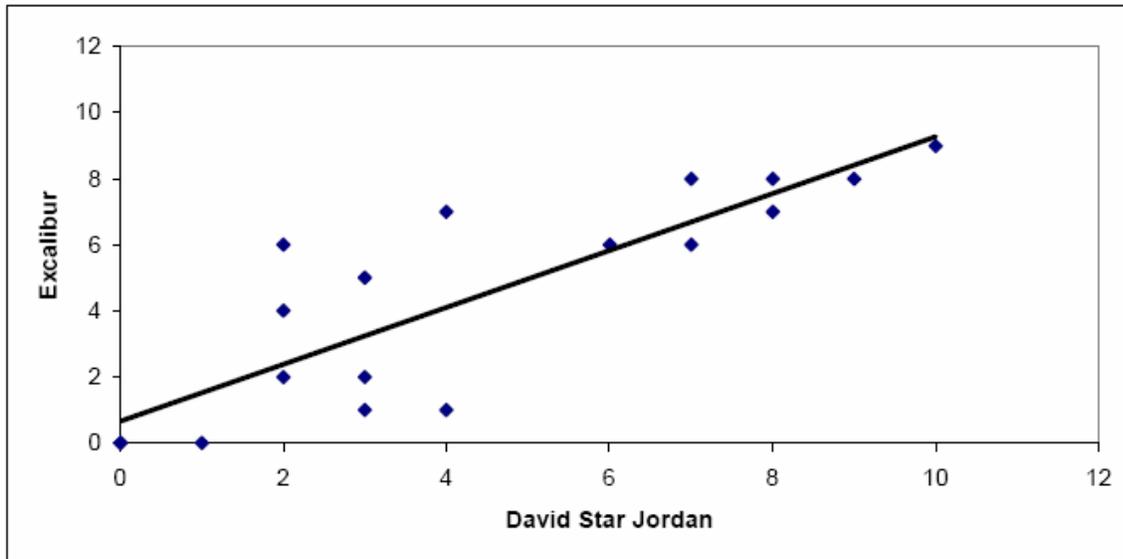


Figure 4. Comparison of the number of juvenile rockfish **species** in 18 side-by-side comparative hauls made between the RV *D.S. Jordan* and the FV *Excalibur* in 2004 using comparable gear and methods.

The accumulation of comparative results between the NMFS-PWCC and SCL surveys are starting to provide data that suggest transport of larvae may vary spatially, with larvae reaching the outer shelf north of the Monterey index area in some years, but not others. For example, the distribution of YOY whiting by latitude indicates a northward distributional shift from 2001 to 2004. In 2001, YOY whiting distribution was concentrated between 40° and 36° 30' N latitude. In 2003, catch was similar to 2001, but most of the YOY whiting captured in the NMFS-PWCC survey were north of the SCL survey area. In 2003, whiting were farther north, i.e., between 43° and 43° 30' N latitude in the area of Cape Blanco, California. In 2004, whiting were the most widespread of all the years. Whiting YOY were captured throughout the NMFS-PWCC survey area, but very large concentrations occurred from the Monterey Bay area northward to the California-Oregon border. In all years, very few YOY whiting were captured south of Monterey Bay. It is possible that Pacific whiting larvae follow a set transport pattern, but that migration varies temporally. With additional data, it may be possible to model and predict the distribution of YOY, and better deploy survey effort.

The relative accuracy of the surveys results is pending verification by the 2005 coastwide Pacific whiting acoustic survey.

Discussion

Results from both the NMFS-PWCC and SCL surveys indicate that the Pacific whiting stock produced a strong 2004 year class. Similarly, results from 2001 suggest a, generally, average year class. However, for 2002 and 2003 there is a significant difference in the indices of year class abundance between the two surveys. The SCL survey exhibits a declining trend from 2001 to 2003, while the NMFS-PWCC survey shows an increasing trend. Thus, for the 2002 and 2003 year classes estimates range from above average (NMFS-PWCC) to below average (SCL). This is most likely due to differences in the geographic range of the surveys combined with the variable geographic distribution of YOY whiting. In 2001 and 2004, there was overlap in the distribution of whiting between the two surveys. However, in 2002 and 2003, whiting YOY appear to have been distributed north of the SCL survey area. The relative accuracy of the two surveys is pending the results of the 2005 coast wide acoustic survey. However, as illustrated in Figure 2 (above), it is interesting to observe that the amount of whiting in the size range corresponding to the 2002-2003 year classes was greater in the 2004 NMFS-PWCC survey than for similar sized fish in prior years. This suggests greater numbers of 2002 and 2003 year class fish and, thus, stronger recruitment than estimated by the SCL survey.

Based on comparative hauls the *D.S. Jordan* appears to have a higher catchability for juvenile rockfish than the *Excalibur*, but overall the two surveys are highly comparable. For several species the trend shows an increase in rockfish production in 2002 and 2004. Three of the rockfish species listed as overfished (widow, canary and darkblotched rockfish) all showed increased numbers in 2002 and 2004 *Excalibur* samples. Similar results were observed in the *D.S. Jordan* samples (Dr. Steve Ralston, NMFS-Santa Cruz, Pers. Comm.). This suggests that the 2002 and 2004 year classes may be above average for these species and stock rebuilding may be occurring at a more rapid rate than model estimates suggest.