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Annual Pink Shrimp Review

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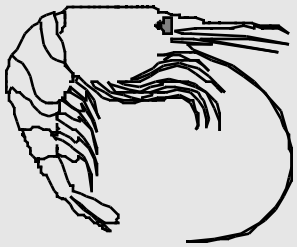

TO: **OREGON SHRIMP INDUSTRY**
FROM: **Bob Hannah and Steve Jones**
Subject: **Opening of 2005 Commercial Fishery**
Date: **16 February 2005**

The 2005 pink shrimp (*Pandalus jordani*) season will begin 1 April and extend through 31 October. This newsletter provides a summary of the 2004 Oregon season for your review, including catch, effort, market sample information, and possible indicators for the 2005 season. Bycatch reduction device (BRD) use trends are highlighted again this year, plus some interesting findings from our October 2004 shrimp research cruise.

Reminders

1. Approved **BRD's are permanently required** in the pink shrimp fishery (see page 4).

2. The National Marine Fisheries Service (NMFS) requires all open access vessels using trawl gear (including shrimpers) to **file a declaration report** before fishing in any Rockfish Conservation Area (RCA). See page 4.

3. Oregon shrimpers are now **required to have observers aboard upon request** as a condition of maintaining an Oregon boat license. See page 4.

4. See page 4 for **groundfish limits** and prohibited species.

2004 Season Summary

Shrimp fishing began fairly quickly in 2004, ramping up sharply after a slow first week. The initial slow start was due to price negotiations, with this being the first year that the Oregon Department of Agriculture assisted in the negotiation process. In general, ex-vessel shrimp prices were up this year and volume landed declined. The reduced landings resulted primarily from a very weak showing of age-1 shrimp in 2004.

The Oregon pink shrimp landing total in 2004 was approximately 12.2 million pounds, about 8.3 million pounds less than in 2003 (Figure 1). It was the lowest landing total since 1998 and the third consecutive year of declining landings. Comparatively, the 15 year average annual landing total is about 25.6 million pounds.

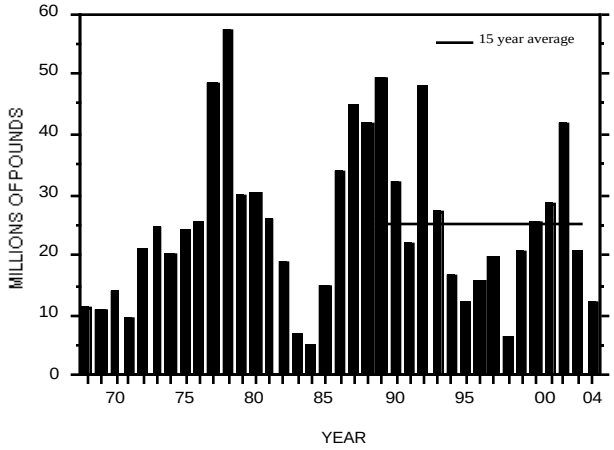

Figure 1. Oregon pink shrimp commercial landings (millions of lbs) 1968-2004. Includes all pink shrimp landed into Oregon ports.

Monthly landings were steady during April and May, then declined through October (Figure 2). In a "typical" season, May and June are often the peak months followed by a mid-season lull and an up-tick during August and September. The atypical pattern this year probably resulted from the lack of age-1 shrimp available as the season progressed.

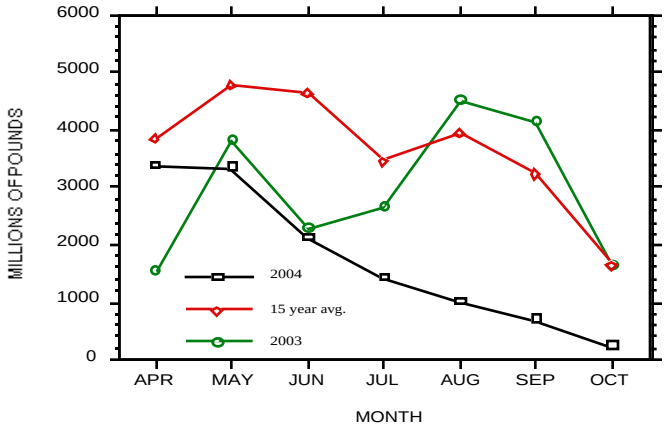

Figure 2. Oregon pink shrimp landings by month during 2003, 2004 and the 15 yr average (1989-2003).

Most shrimp were harvested from the Cape Foulweather, Cape Lookout and Tillamook Head beds in 2004, with the Cape Lookout bed being the largest and most consistent producer (Figure 3). The three beds combined produced about 88 percent of the shrimp landed into Oregon. The harvest pattern was similar in 2003, except the Tillamook Head bed was the largest producer.

Oregon landings were heavily concentrated into north and central coast ports in 2004, which received over 91 percent of total landings. Many vessels normally home-ported in southern ports sold their shrimp elsewhere, often having it trucked south. Factors contributing to this scenario included the northern distribution of most shrimp, high fuel costs for vessels and relatively low volumes of shrimp.

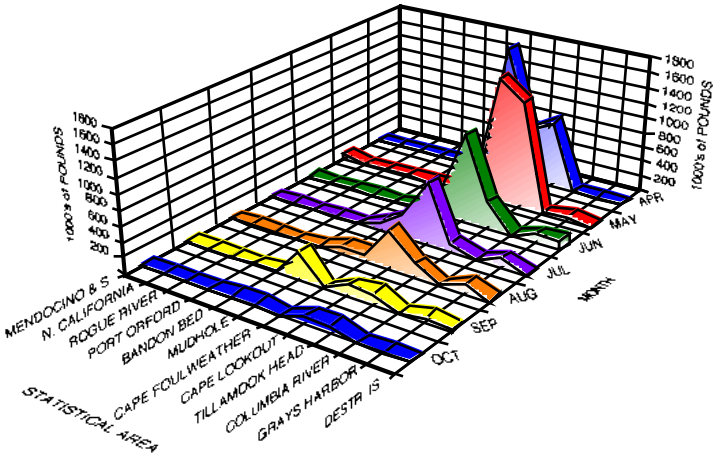

Figure 3. Total 2004 Oregon pink shrimp landings (1000's of pounds) by month and statistical area.

Only 44 vessels landed pink shrimp into Oregon ports during 2004, the lowest number since 1968 (Figure 4). This represents a reduction of 15 vessels from last year, largely due to to the vessel buy-back of 2003, which retired 40 active permits. Several shrimpers commented this year that they thought the reduction has had a positive influence on the fishery. They experienced less competition on the grounds and easier delivery schedules.

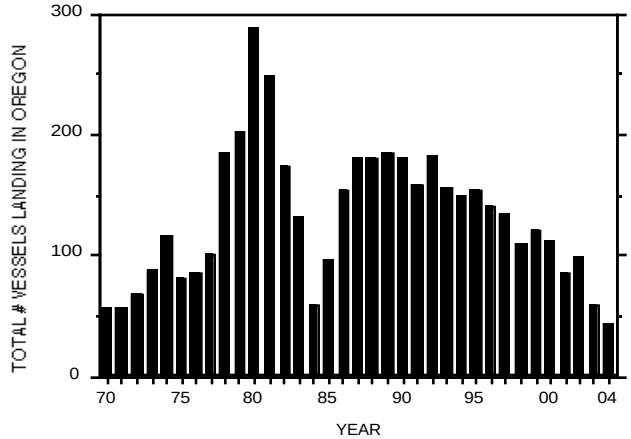

Figure 4. Annual number of vessels landing pink shrimp into Oregon ports: 1970-2004.

Shrimpers made fewer but longer trips during 2004 than in 2003, resulting in a slight increase in the hours actually fished (Figure 5). The overall catch per hour (CPUE) dropped sharply in 2004, down from 645 lb/h in 2003 to 354 lb/h in 2004 (Figure 6). Although the overall CPUE was in the average range seen over the last two decades, monthly CPUE tracked through the season shows a different story (Figure 7). The decline was dramatic from April through June, flattening to low levels through the rest of the season. The early sharp decline probably reflects the depletion of age-2 shrimp as the season progressed and the lack of age-1 shrimp that would normally keep catch rates up.

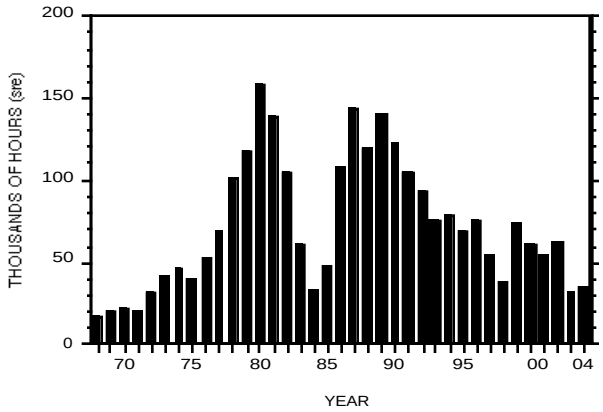

Figure 5. Fishing effort (1000's of single-rig eqivalent hours) for pink shrimp landed in Oregon, 1968-2004.

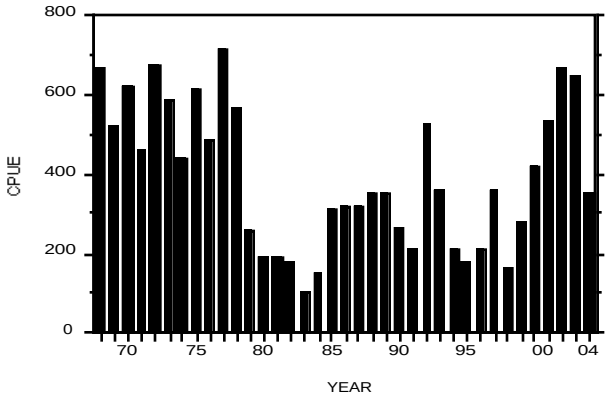

Figure 6. Catch per unit of effort (CPUE=lbs/SREhr.) for vessels landing pink shrimp into Oregon, 1968-2004.

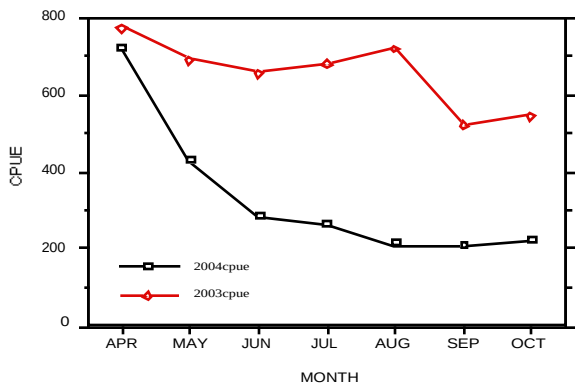

Figure 7. Monthly CPUE (=lbs/SREhr.) for vessels landing pink shrimp into Oregon in 2003 and 2004.

The age composition of the 2004 catch was dominated by older shrimp; 68 percent age-2 and 11 percent age-3 (Figure 8). Although variable from season to season, these age classes combined typically make up less than 40 to 50 percent of the catch. The age-2 shrimp harvested in 2004 were hatched during spring of 2002, and have supplied the "lion's share" of the landed catch since.

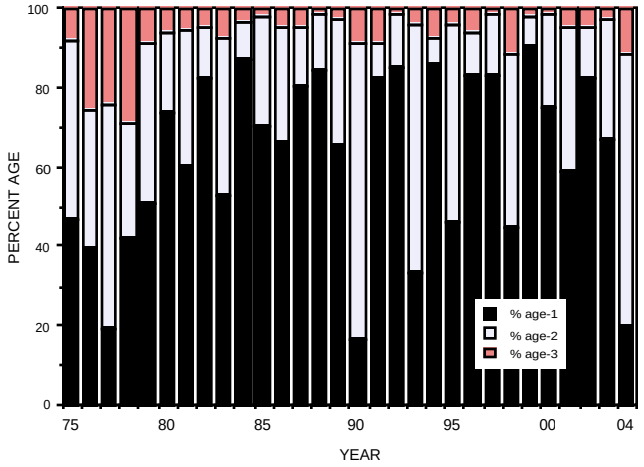

Figure 8. Annual percent age composition of pink shrimp (#'s of shrimp) landed in Oregon, 1975-2004.

The catch weighted count-per-pound (count) was approximately 111 shrimp/lb in 2004, down sharply from 135 shrimp/lb in 2003 (Figure 9). Consistently good counts were noticed by shrimpers and processors all season. The relative abundance of age-2 shrimp brought the counts down, even though our market sample information shows that shrimp growth was quite slow in 2004. The reason for small size at-age observed in 2004 is unexplained, but cannot be attributed to high shrimp densities of the grounds.

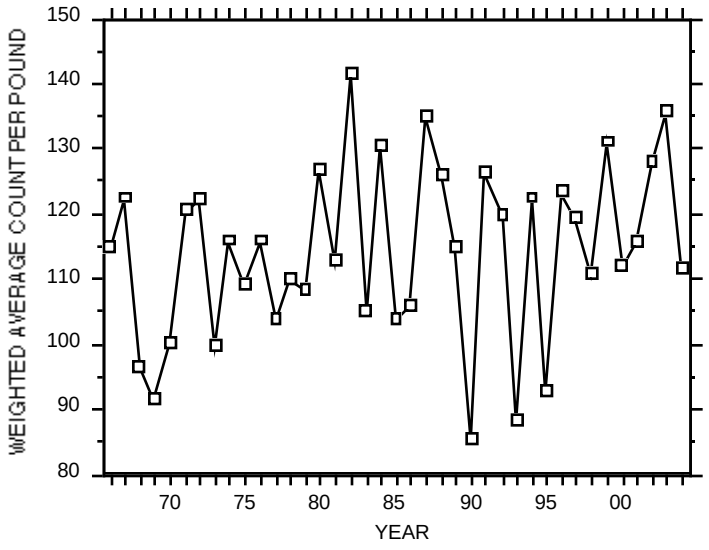

Figure 9. Average (catch weighted) count-per-pound of pink shrimp landed into Oregon, 1966-2004.

Ex-vessel shrimp prices took a welcome upturn during 2004, after three years at near record low levels. The 2004 average price was about 39¢/lb, up about 14¢/lb over the 2003 average price (Figure 10). A split price structure was in effect, with prices during April and May at about 31¢, 36¢ and 38¢/lb based on finished meat counts. Most shrimp sold during these high volume months went for 36¢ and 38¢/lb. The price per pound increased slowly through the rest of the season, to a high of 50¢/lb, but volume also decreased sharply as the season progressed.

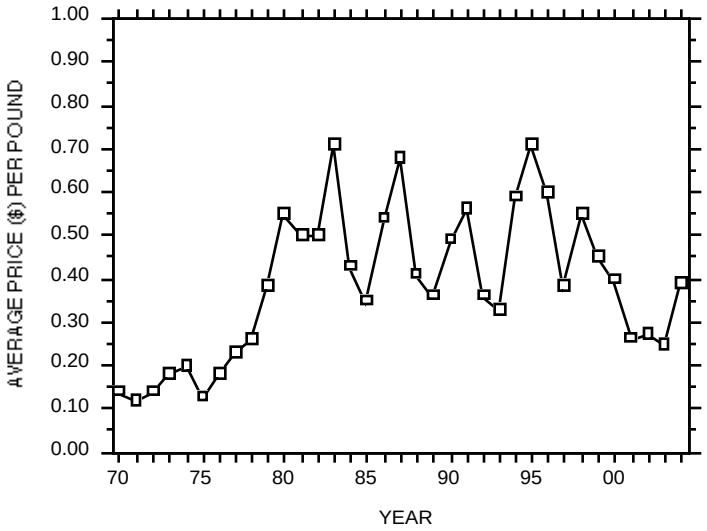

Figure 10. Average ex-vessel price per pound paid for pink shrimp landed in Oregon, 1970-2004.

Indicators for 2005

So how's the shrimp stock likely to shape up in 2005? There are a lot of "ifs" this year, but one conclusion seems fairly sound: holdover of shrimp from 2004 is likely to be low, since age-2 shrimp were harvested heavily last year and the age-1 shrimp abundance was low. Under this premise, the size of the incoming age-1 class will determine what volume of shrimp is available to shrimpers in 2005. The grade of shrimp available also stands to be strongly affected by the strength of the age-1 year class.

We regard our market sample data on the abundance of zero-age shrimp during fall 2004 as a very weak indicator of the incoming year class; these shrimp being the age-1 shrimp for 2005. In general, it is unlikely that zero-age abundance in a market sample accurately reflects the true zero abundance in a trawled area, because of their very small size and poor retention by the shrimp nets. That said, the number of samples collected during September and October was low and those samples from the highest producing areas (Cape Lookout and Tillamook Head beds) contained only 0.5 percent or less zero-age shrimp. Unfortunately, there wasn't much fishing effort in beds south of Cascade Head during October, so few samples were

available to give us much of a picture of what age-1 southern abundance might be in 2005. However, single samples from the Cascade Head bed, the Mudhole and the Port Orford bed contained fairly high percentages of zero's.

Conversely, shrimpers reported seeing zero's in their catch from many areas, north and south, during September and October. However, we received no reports of large numbers of zeros and heard many comments that they seemed sparce. Here again, beds from the Mudhole and south are the biggest questionmark. The beds were lightly fished for most of the season due to poor shrimp catch rates or heavy concentrations of "jellies" (i.e. true jellyfish, ctenophores or salps). The bottom line is that we don't have any information to suggest that shrimp abundance will be high in 2005.

Regulation Information

Declaration News;

DON'T FORGET; NMFS requires all open access vessels using trawl gear to file a declaration report before the vessel is used to fish in any Rockfish Conservation Area (RCA) or a Cowcod Conservation Area (CCA). Shrimpers need to remember to declare before leaving for their first shrimp trip. Only one declaration is necessary each season unless the vessel engages in another fishery. For details and declaration procedures, contact the NOAA Fisheries Groundfish Team in Seattle about NMFS policies and regulations at (206) 526-6150, or visit the Northwest Region website (http:www.nwr.noaa.gov/1sustfsh/gdfsh01.htm).

Observer Requirement;

Oregon shrimpers should be prepared to accommodate observers again this year. During December 2003, the Oregon Fish and Wildlife Commission adopted a modified OAR (635-006-0140) concerning conditions for maintaining a boat license, which is required for any vessel taking food fish or shellfish for commercial purposes. The OAR states that vessel owners or operators must cooperate with Federal or ODFW fishery observers and accommodate observers, when asked, or face potential boat license sanctions including loss of the boat license. Please check the ODFW web site for specific details (http://www.dfw.state.or.us/OARs/OARs.html#Fish). Just download the "Division 006" PDF and scroll down to Oregon Administrative Rule 635-006-0140, section 7.

BRD's Permanently Required;

Approved grate or soft-panel BRD's are permanently required in the Oregon pink shrimp fishery. Shrimpers are reminded that for a grate to meet approved requirements, it must not exceed 2 inches between bars or between the outer and inner ring if a double-ring configuration is used (Figure 11). Soft-Panels may have no more than a 5.5 inch mesh size (stretched; between knots) in any portion and the mesh must be continuous with no zippers or broken meshes. More detailed specifications are available on the ODFW web site at "http://www.dfw.state.or.us/OARs/OARs.html#Fish". Just download the commercial shellfish fishery PDF and look under the Pink Shrimp Fishery (Oregon Administrative Rule 635-005-0190).

Figure 11. A typical double-ring "Oregon" grate. Note that the space between rings is greater than the bar spacing.

Groundfish Limits;

The current groundfish limits for shrimpers as proposed by NMFS are listed below: PLEASE NOTE! groundfish limits may be changed in-season. Be sure to check on the current regulations frequently again this year!

- The groundfish TRIP LIMIT for shrimpers is 1500 lb./trip, not to exceed 500 lb./day.
- For any delivery, the weight of groundfish must not exceed the weight of pink shrimp.
- No Canary Rockfish, Thornyheads or Yelloweye Rockfish may be landed.
- Lingcod; 300 lb./month April through October. 24 inch minimum total length.
- The limit for Sablefish is 2000 lb./month.
- All other groundfish: Landings of these species count toward the per day and per-trip groundfish limits and do not have species specific limits.
- Limited entry groundfish vessels possessing shrimp permits and harvesting shrimp must stay within the daily/monthly limits established for the shrimp fishery. They must also include any fish catch taken while shrimping toward their monthly species limits for the limited entry groundfish fishery.

Logbooks;

Overall, we commend the shrimp fleet for their continuing logbook compliance! The data that the fleet provides is essential to managing the fishery properly and to furthering future research into topics like BRD use and future sustainability of the fishery. We still need some help improving in a couple of areas though. Please make sure to record the type of BRD used on each trip, and the bar spacing or mesh size of the BRD. Also, if ODFW personnel have not picked up your logs at the end of the 2005 season, please mail them to us, turn them in to the nearest ODFW office, or give us a call to arrange a pick-up. At times, we simply have trouble catching up with some vessels at the end of the season.

BRD Use Update

The popularity of rigid-grates continued to increase during the 2004 season. Grates were used on approximately 94 percent of trips landed into Oregon, with the remainder using Soft-Panel BRD's (Figure 12). We didn't summarize BRD use by port this year because many south coast vessels landed away from their typical home ports. Most of the vessels still using Soft-Panels are normaly home-ported on the south coast. However, grate useage did increase in south coast ports.

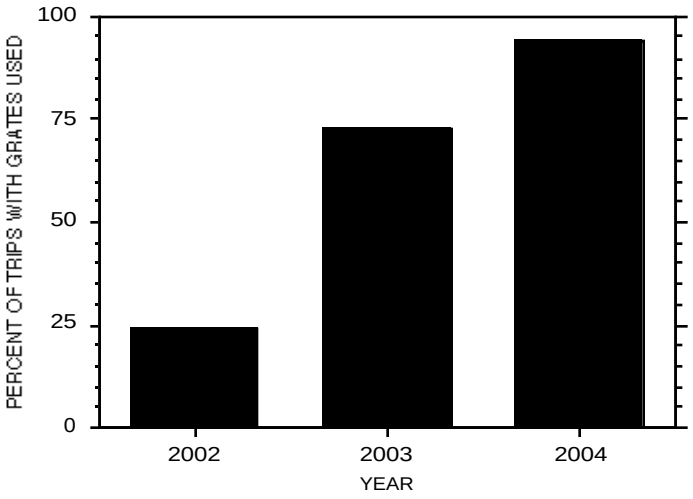

Figure 12. The estimated percentage of shrimp trips landing into Oregon ports that used grates during the last three pink shrimp seasons. (Note: 2002 estimate includes only trips from July through October, when BRD's were required)

The average stated bar spacing of grates in 2004 was about 1.3 inches; nearly the same as in 2003. The range of bar spacings was the same; from 1.0 to 2.0 inches. We encourage shrimpers that are planning a switch to grates, or those replacing grates, to try a 1.0 inch bar spacing. They work! Set up right, shrimp loss is minimal and bycatch of small rockfish and other species is reduced. We also encourage going with a single-ring grate. From what we've observed and heard from shrimpers, the space between rings is not necessary to promote water flow into the codend, and this space is often larger than the space between bars thus allowing more bycatch through. As grate technology has improved and installation has become better understood, the ability to change bar spacing by switching out inner rings seems unnecessary.

If you're using a Soft-Panel BRD, please check the condition of the panel frequently. The panels are much more susceptible to wear than a rigid grate and function poorly when meshes are broken. In conversations with shrimpers last year, some indicated that their soft-panels were in pretty poor shape. The OSP will be asking to inspect BRD's at the docks this year to encourage compliance.

For the first time, NMFS observers will be collecting detailed BRD information during the 2005 shrimp season, coastwide. They'll be noting the BRD type (grate or soft-panel), measuring bar spacing or mesh size, and noting if grates are of single- or double-ring construction. The data collected should give us more data on how bycatch varies between BRD types and styles, and how it varies with grate bar spacing. Judging from our previous work, there should be less bycatch when grates are used, less with single-ring grates, and less with narrower bar spacing. We'll report on the NMFS data next year.

Marine Stewardship Council (MSC) Update

The Oregon Trawl Commission (OTC) has apparently decided to move forward with the application process for MSC certification. The MSC is an international organization that promotes fisheries that are deemed sustainable under their criteria. ODFW staff met in December 2004 with Mr. Brad Pettinger (OTC Chair), and with an intermediary contractor to the MSC, to discuss what the MSC might require and what ODFW would be able to contribute in the process. The discussion focused on what the shrimp industry and ODFW could do to convince the MSC that the shimp fishery is sustainable and to identify actions that would make progress toward improving the likelihood of sustainability. For current information on this process, please contact Brad Pettinger at 503 325-3384.

Research Charter Survey

We completed a four day shrimp trawl survey of selected shrimp grounds in early October 2004, on the F.V. Miss Yvonne. The survey included three transects across the shrimp beds near Cape Lookout and one transect off Cape

Foulweather. Transects consisted of short tows spaced evenly across commercially fished shrimp beds, from well inside the known beds (approximately 50 fathoms) to the depth limitations of the vessel (approx. 160 fm).

The goals of the survey were to: 1) define pink shrimp distribution and density across the shelf for comparison with 2004 logbook data from the area. 2) describe how the sex composition of shrimp from discrete tows varied with age composition for each tow, in an effort to determine if sex change of shrimp is triggered by localized population cues rather than wide-ranging environmental cues. 3) confirm the species identification of juvenile rockfish in the catch.

We found that shrimp distribution along the transects was much the same as what is shown from 2004 logbook data. In all transects, there was a sharp eastern boundary at about 75 fathoms with no shrimp caught shallower. What caused this sharp boundary is unknown, but nearshore current or water mass boundaries seem likely. Shrimp were most abundant between about 75 to 100 fathoms, with densities declining quickly to low levels outside 100 fathoms. Shrimp were far less common and were patchy in deeper water, but were present in small quantities out to about 160 fathoms.

Our analysis of age and sex data on a tow by tow basis led to some surprises. We had expected shrimp sex change to vary predictably with age composition from discrete areas covered by short tows (i.e. more age-1 females expected when age-2 and older shrimp are scarce). The individual tow data didn't support this premise though, indicating that sex change may be driven by factors on a much broader scale. Such a broad scale hypothesis is supported by the combined sex and age data from all tows in the survey, but the mechanism is not understood. We hope to continue this aspect of the survey for several years to verify this years findings and to get a better understanding of what triggers shrimp sex change.

Bycatch of juvenile rockfish in the shrimp fishery has been sharply reduced since shrimpers began using BRD's, especially with grates. However, juvenile rockfish are still a component of the catch. In the past, we'd looked at juvenile rockfish as a general group, due to the difficulty of making positive identifications in the field. For this survey, we collected all juvenile rockfish caught on our survey (1.3 inch double-ring grates were in use) and brought them back for positive species identification and removal of otoliths for aging. We found that juvenile rockfish catch between 75 to 90 fathoms was dominated by darkblothched rockfish, ranging from one to four years old. Splitnose rockfish dominated the juvenile rockfish in deeper water. Other rockfish species caught, in much smaller numbers, were sharpchin, Pacific ocean perch, greenstriped, redbanded, stripetail and rougheye.

We will publish our survey findings as an ODFW Information Report later this year (Hannah and Jones, in press). Although we plan to repeat the survey for several years, funding is uncertain in these times and we wanted to document our findings to date. For a copy of the report, just come by the Newport office or call Steve Jones or Bob Hannah at 541 867-4741.

Squid Sightings

Shrimpers reported seeing lots of large squid on the shrimp grounds during the 2004 season. Most sightings occurred at night while drifting, often with several hundred individuals visible at one time. ODFW staff got to see this phenomenon first-hand on our October charter. The squid we saw were *Dosidicus gigas*, commonly known as the "Humboldt" or "Jumbo Flying" squid (Figure 13).

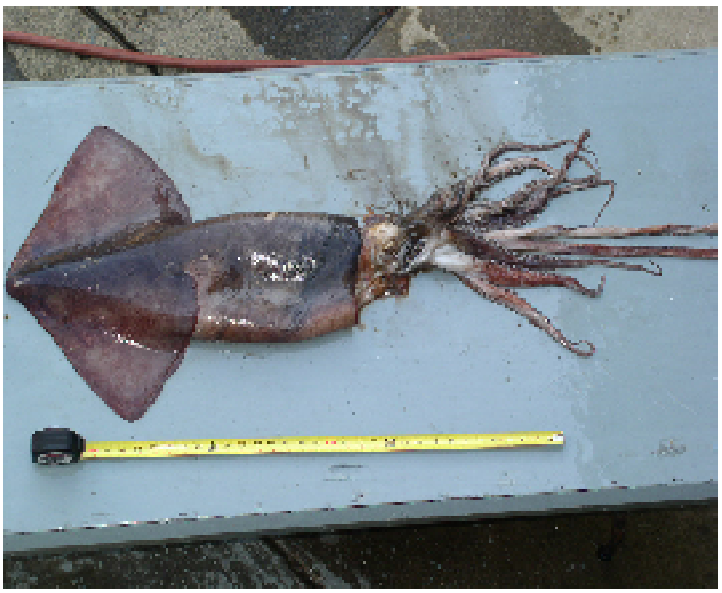

Figure 13. The "Humboldt" or "Jumbo Flying" squid, pictured above, was a common sight to shrimpers at night off Oregon and Washington. The mantle length of this typical specimen was about 24 inches and probably weighed 15 to 20 pounds round.

The Humboldt squid was abnormally abundant off northern California, Oregon,Washington and even Alaska this year. There were widespread reports of catches by groundfish trawlers, and of Humboldt squid strandings on beaches. Its normal range is typically from southern California to Chile, and is usually most abundant off Central and South America. What caused this apparent northward distribution shift is unclear, but the species has been known to invade areas north of its normal range perhaps in response to current changes off South America (Anderson and Rodhouse, 2001).

This highly edible squid can get quite large, despite its fairly short lifespan of about 12 months. Mantle lengths of nearly five feet have been recorded, though the size-class commonly seen on the shrimp grounds this year was typically much smaller. It's an opportunistic predator that consumes a wide variety of fish, molluscs, crustaceans and plankton (and yes, pink shrimp could be potential prey). A good web site to visit for more information about the Humboldt squid can be found at http://www.cephbase.utmb.edu/spdb/speciesc.cfm?CephID=395.

Count-per-pound Issues

The weak showing of age-1 shrimp in 2004 generally made count-per-pound a non-issue for enforcement personnel during 2004. The Oregon State Police (OSP) reported no count violations, but looked closely at some landings caught off Washington where counts were highest. Buyers also provided strong incentive by offering sharply higher prices for larger shrimp.

The count situation may be quite different in 2005, depending on the strength of the incoming age-1 class. With shrimp stocks apparently on the low side, even a modest recruitment could make it harder to catch decent grade shrimp. The OSP are well aware of the possibility of count problems during April and May, and will be monitoring landings frequently.

We encourage shrimpers to take counts frequently and with reliable scales. Most shrimpers have these (or had them in the past), but it's been a number of years since we've had count problems. For anyone who is unsure about which type of scales work best at sea, or how much the average weight of retained shrimp is likely to change, we have two reports available which detail our research in these areas. Just call us for copies, or for any other questions about count-per-pound (541 867-4741).

Reports Available/ Literature Cited

Hannah, R.W. and S.A. Jones. (in press). A Survey Evaluating Shrimp Abundance, Sex Composition, Bycatch and Trawl Gear Performance on the Northern Oregon Shrimp Grounds - Fall 2004. Oregon Dept. Fish. Wildl., Information Rept. Ser., Fish. No. 2005-1 33pp.

Anderson, C.I.H and P.G. Rodhouse. 2001. Life cycles, oceanography and variability: ommastrephid squid in variable oceanographic environments. Fisheries Research 54 (2001) 133-143.

Acknowledgments

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Good Luck Shrimping in 2005!

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