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Annual Pink Shrimp Review

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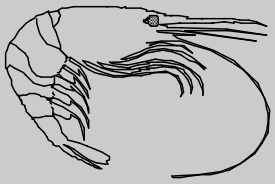


TO: OREGON SHRIMP INDUSTRY
FROM: Bob Hannah and Steve Jones
Subject: Opening of 2008 Commercial Fishery
Date: 1 February 2008

The 2008 pink shrimp (*Pandalus jordani*) season will begin 1 April and extend through 31 October. A summary of the 2007 season is provided for your review, including catch, effort and market sample information. Indicators for the 2008 season, fleet news and new regulations are discussed. Last summer's research results on bottom habitat around Nehalem Bank and the "selective grate" are also presented.

Notices/Reminders

- New ODFW shrimp logbook required (see pg. 4).
- NMFS requires VMS on shrimp vessels (see pg. 4).
- Don't forget to declare! (see pg. 4).
- Nehalem Bank EFH trawl closure (see pg. 5).
- NMFS observers back again in 2008 (see pg. 5).

Oregon Shrimp gains MSC Certification!!

The Oregon pink shrimp fishery received a five-year conditional certification by the Marine Stewardship Council (MSC) in November 2007. It is the first shrimp fishery world-wide to receive the certification. For those unfamiliar with the MSC, it's an international organization that promotes fisheries that are deemed sustainable and well managed. The organization rewards environmentally responsible fisheries and practices with its blue product label, which is valued by many seafood consumers. More information about the MSC is available at http://www.msc.org/, or call Oregon Trawl Commission (OTC) Director Mr. Brad Pettinger at 503-325-3384 for specifics on the certification.

It's been quite a process since the OTC first applied for a pre-assessment in 2003, with Director Brad Pettinger at the helm. The full assessment process, beginning in 2005, was rigorous and took nearly two years. Once processors become certified for MSC "chain of custody", they'll be able to distribute Oregon pink shrimp under the MSC Blue Label. Hopefully, environmentally conscious consumers will be willing to pay more for this responsibly harvested product, and new markets can be developed. Director Pettinger has already fielded many inquiries from several European seafood buyers. Great work OTC and Oregon shrimp industry!

2007 Season Summary

By most measures, the 2007 pink shrimp season was a winner. Volume was up from recent years, shrimp grade was generally fair to excellent, price was up and catch per hour was high. Also, the Oregon pink shrimp fishery became the first shrimp fishery in the world to be certified by the MSC, giving hope for new markets and higher ex-vessel prices in the future. The big down-side in 2007 was high fuel cost. Also, unusually large numbers of juvenile hake (*Merluccius productus*) were a persistent problem for shrimpers throughout the season.

The season began slowly, with a low number of landings during the first two weeks, as shrimpers and processors assessed the grade available and price issues were resolved. Landings picked up sharply during the latter half of April and remained strong through September, when weather limited shrimping. Shrimpers landed about 20.1 million pounds into Oregon during 2007, almost eight million pounds more than in 2006 and approaching the 15 year average (Figure 1). It was the largest season total since 2003.

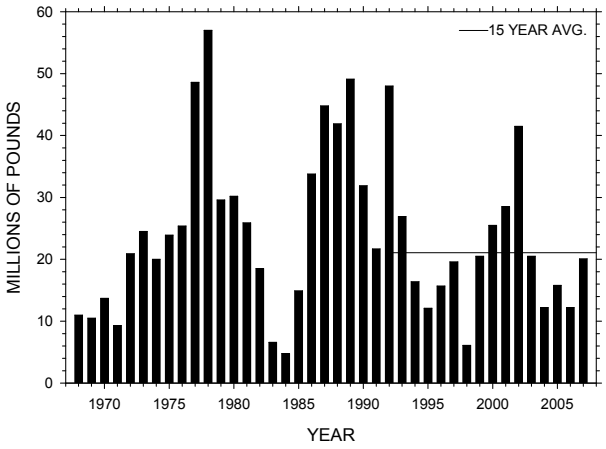


Figure 1. Oregon pink shrimp commercial landings (millions of pounds) 1968-2007. Includes all pink shrimp landed into Oregon ports.

Monthly landings were below average during April and May, but were near or above average June-October (Figure 2). Below average landings during the first two months probably reflected shrimpers attempts to target larger and older shrimp to maintain good grade. Nearly all of the shrimp landed into Oregon this year were harvested off the Oregon coast, with 93% taken between the

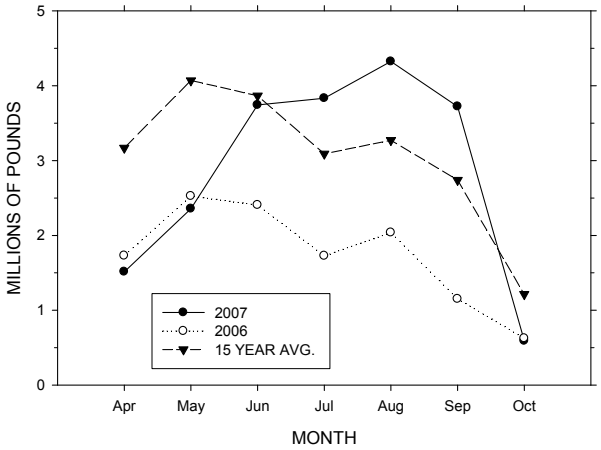


Figure 2. Oregon pink shrimp landings by month during 2006, 2007 and the 15 year average (1991-2006).

Tillamook Head and Port Orford Beds. The Bandon Bed produced the most shrimp during 2007, with over 5.1 million pounds harvested. The Cape Lookout and Cape Foulweather Beds each produced over four million pounds. The largest monthly harvests occurred in the Bandon Bed during August and in the Cape lookout Bed during June (Figure 3).

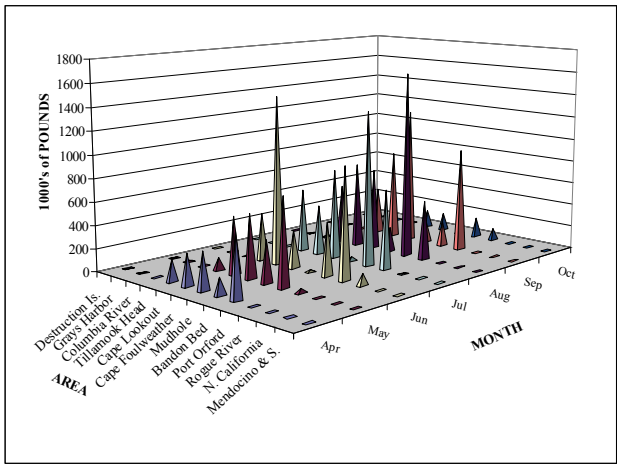


Figure 3. Total 2007 Oregon pink shrimp landings (1000's of pounds) by month and area.

Fishing effort in terms of hours fished increased in 2007 compared to 2006, but remained in the low range seen since 2003 (Figure 4). The number of vessels participating followed the same pattern (Figure 5). In future years however, if ex-vessel shrimp prices continue to improve and if new markets are developed, shrimping effort can probably be expected to increase.

Overall shrimp catch per unit effort (CPUE = lb/SRE hour) for the 2007 season was high, at nearly 600 lb/SRE hour (Figure 6). It was about 60 lb/SRE hour more than last year and was among the highest catch rates documented since the fishery became fully developed during the late 1970's. The highest catch rates by area and month occurred in the Port Orford and Bandon Beds from June through August.

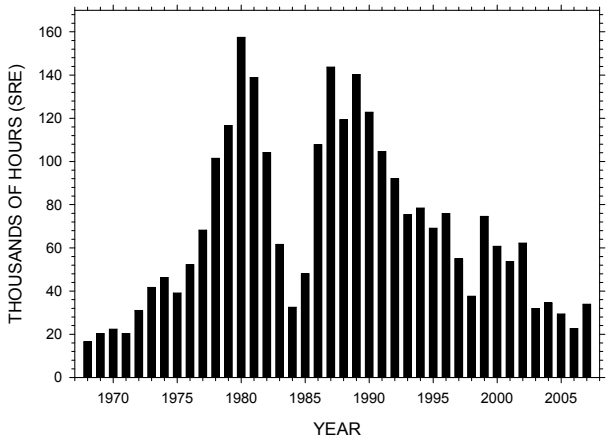


Figure 4. Fishing effort for pink shrimp landed in Oregon, 1968-2007. Note: 1000's of single-rig equivalent hours: 1 SRE = (1 single-rig hour)= (1 double-rig hour X 1.6).

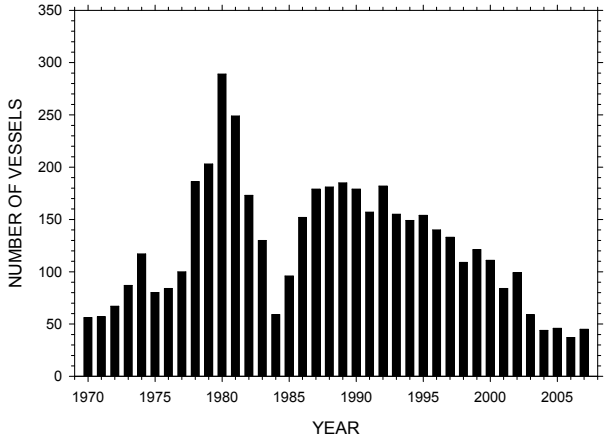


Figure 5. Annual number of vessels landing pink shrimp into Oregon ports: 1970-2007.

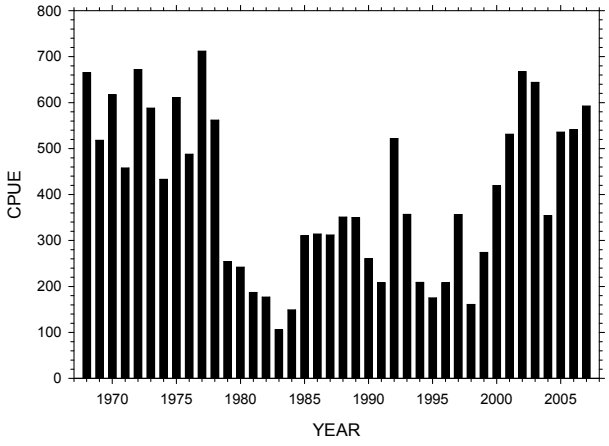


Figure 6. Catch per unit of effort (CPUE = lbs/SRE hour) for vessels landing pink shrimp into Oregon; 1968-2007.

The shrimp catch during 2007 was heavily dominated by age-1 shrimp, unlike 2006 when the catch was predominantly age-2 shrimp (Figure 7). As anticipated, age-3 shrimp also made a relatively strong showing in 2007 (about 10% of total catch), which helped to ease count problems early in the season and allowed time for age-1 shrimp to grow. Age-2 shrimp were scarce, further confirming that the 2005 year class (hatched during spring 2005) was very weak.

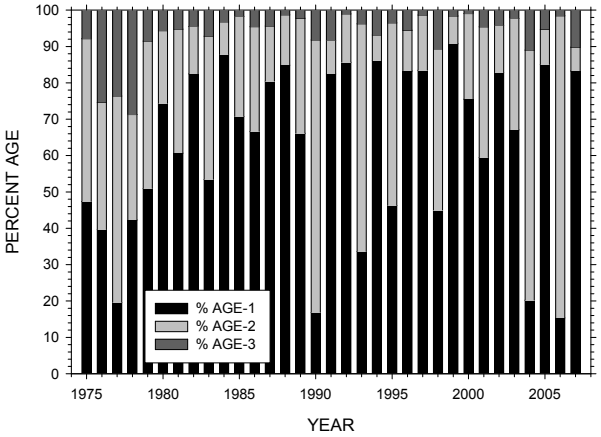


Figure 7. Annual percent age composition of pink shrimp (#'s of shrimp) landed in Oregon, 1975-2007.

The weighted average count per pound (count) for 2007 was 140, sharply higher than the average count of 106 shrimp per pound seen in 2006 (Figure 8). It was the third highest average count documented in the shrimp fishery. The high average count resulted from the dominance of age-1 shrimp in the catch (shrimp hatched during spring 2006), which was apparently a fairly strong year-class.

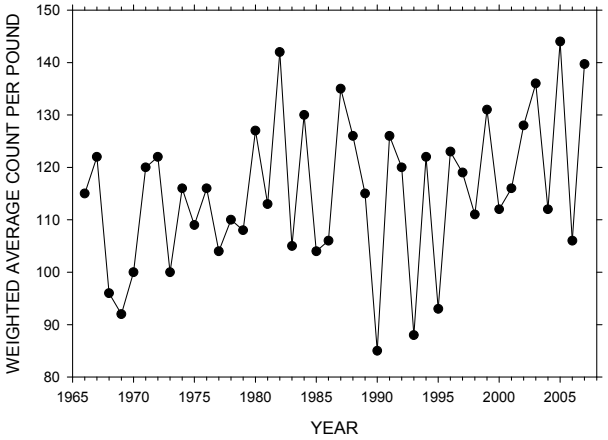


Figure 8. Average (catch weighted) count per pound of pink shrimp landed into Oregon; 1966-2007.

The average ex-vessel price of Oregon pink shrimp in 2007 was 47¢ per pound, up 10¢/lb over the 2006 average (Figure 9). It was the highest average price since 1998. A split price structure prevailed coast-wide, with prices ranging from 25¢ to 55¢ per pound based on finished meat counts. The average monthly price climbed slowly but steadily throughout the season to 49¢/lb in October, except for a slight average price decline during June (Figure 10). The price dip occurred as age-3 shrimp became less available, causing higher counts. Prices continued to rise after June as age-1 shrimp grew, particularly off the central and south coasts.

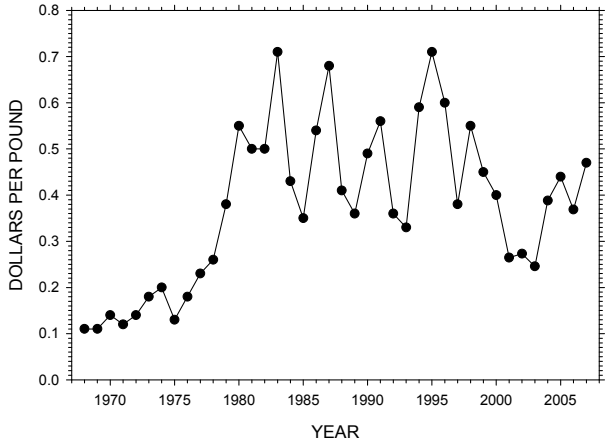


Figure 9. Annual average ex-vessel price per pound paid for pink shrimp landed in Oregon; 1970-2007. Prices not adjusted for inflation.

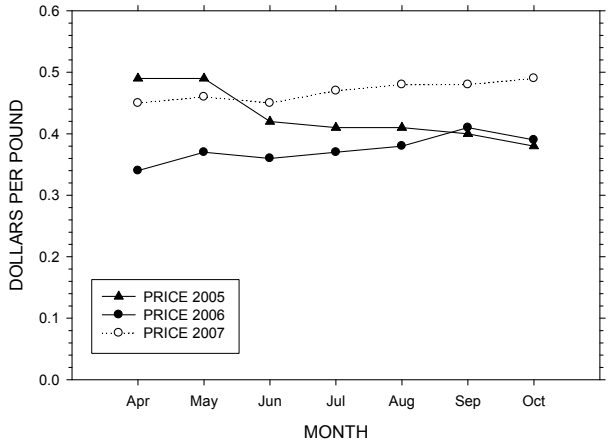


Figure 10. Monthly average ex-vessel price per pound paid for pink shrimp landed in Oregon during 2005, '06 and '07.

Indicators for 2008

The prospects for shrimp harvest in 2008 seem good, but as is often the case, the strength of the in-coming year-class (age-1 in 2008) is in question. The best news is that CPUE was high for most of the 2007 season, ending in October at about 570/lb SRE hour (Figure 11). It remained high in most heavily shrimped areas. The high CPUE seen late in the season (mostly age-1 shrimp by then) suggests that hold-over to age-2 shrimp in 2008 should be very good. Barring unforeseen natural mortality or redistribution, age-2 shrimp should be fairly abundant in most areas ranging from the Tillamook Head bed to the Port Orford bed. Hopefully, shrimpers will locate good volume of age-2 shrimp early in the season, while new recruits are growing.

Market sample information suggests that shrimp recruitment (age-1 shrimp in 2008) may be about average in 2008, at least in southern areas. Market sample coverage was good during fall 2007 and showed moderate percentages of age-0 shrimp from the Bandon and Port Orford beds. However, no age-0 shrimp were seen in samples

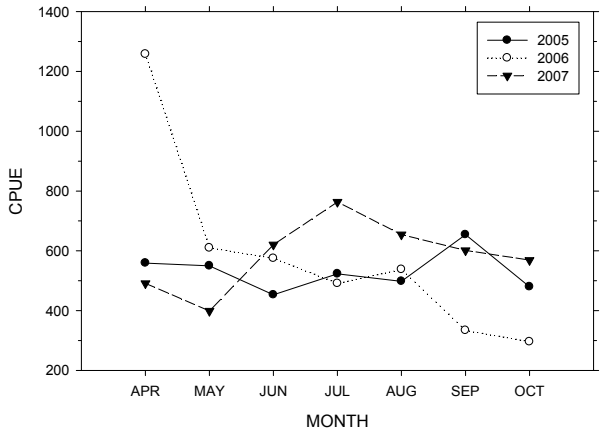


Figure 11. Monthly CPUE (=lbs/SRE hour) for vessels landing pink shrimp into Oregon in 2005, 2006 and 2007.

from the Mudhole north to the Tillamook Head bed. No samples were collected from areas below the Port Orford Bed or north of the Tillamook Head Bed. Please note that we regard age-0 percentages in market samples as a weak indicator because commercial shrimp gear is not designed to retain them.

Reports from shrimpers this fall also suggested that recruitment may be strongest toward the southern and central Oregon shrimp beds in 2008. During September and October, shrimpers reported seeing good numbers of age-0 shrimp regularly in their catch when shrimping south of about Coos Bay, Oregon. The reported observations square fairly well with what we documented from samples. Also, very small age-0 shrimp were frequently seen by shrimpers during mid-August while shrimping in the Cape Foulweather Bed and southern Cape Lookout Bed. Since no age-0's were seen in market samples from these two areas, it's unclear whether they remain in these areas or were transported south.

Regulation Information

New ODFW Logbook Required;
The ODFW will permanently change to a new logbook (log) format beginning in 2008. The new log is intended to capture the same information as the current log, plus estimates of discarded shrimp and fish. The over-all format is similar to our old logbook, but the skipper is asked to estimate the weight of fish sorted from retained shrimp, and/or to estimate the percent weight of shrimp and fish if one or more bags are dumped. New shrimp logs will be available at any ODFW coastal office during March 2008. ODFW personnel will also be canvassing shrimpers during March to make sure they have the new log and to answer questions about filling them out. Please take time to read the new instructions located on the inside cover of the new logbook.

Why does ODFW need more log information? As far as catch, ODFW has traditionally quantified the pounds of shrimp and fish landed into Oregon ports, assuming that dumping due to small grade or bycatch was inconsequential in most years. The current log provides no information on what is discarded by shrimpers. Documenting the weight of dumped shrimp will provide a much more accurate measure of how much shrimp is actually taken (we assume all shrimp dumped are killed). Also, implementing a means of recording discarded fish and shrimp is required to maintain MSC certification.

Declarations Required;
DON'T FORGET; The National Marine Fisheries Service (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). Shrimpers need to declare before leaving for their first shrimp trip of the season. Only one declaration is required for the season, providing that the vessel doesn't engage in another fishery during the season. For details about declaration procedures, please visit the NOAA Fisheries Office for Law Enforcement website (http://www.nmfs.noaa.gov/ole/nw_declarationreqs.html). Declarations may be made via phone by calling 1-888-585-5518.

Some Oregon shrimp vessels were reportedly issued "warning tickets" for trawling within the Rockfish Conservation Area (RCA) without declaring during 2007, after being spotted by the Coast Guard. Please remind your fellow shrimpers to file a declaration before they leave on their first trip! With the Vessel Monitoring System (VMS) in place during 2008, vessels that haven't declared could be easily identified and cited.

VMS Required in 2008;
The National Marine Fisheries Service (NMFS) Office for Law Enforcement held public meetings at numerous West coast ports during November and December 2007 to announce and describe upcoming Vessel Monitoring System (VMS) requirements for vessels participating in the Open Access Fishery, which includes shrimpers. Shrimpers will be required to have an approved and operating VMS system on-board before shrimping in 2008, in addition to filing a declaration (see above). The regulation becomes effective on 4 February 2008. A VMS Reimbursement Program is in place to offset much of the purchase cost of certain approved VMS units. For more VMS-related information, please consult the NMFS "Compliance Guide for the Pacific Coast Groundfish Fishery Vessel Monitoring Program" at the following website: (http://www.nwr.noaa.gov/Groundfish-Halibut/Groundfish-Fishery-Management/Vessel-Monitoring-System/Index.cfm), or call a NMFS VMS technician at 1-888-585-5518.

NMFS Observers in 2008;
The NMFS will be deploying fishery observers on selected shrimpers again during the 2008 shrimp season. Observer coverage of the shrimp fishery is now an important aspect for maintaining MSC certification. Observer bycatch data, plus new ODFW logbook data on discards, will help demonstrate the low bycatch rates that define this clean fishery. For more information on the NMFS observer program and coverage plans for this year, please contact Mr. Allen Cramer (NMFS Northwest Fisheries Science Center, Newport, OR) at 541 867-0527.

EFH No-Trawl Zones;
The Pacific Fisheries Management Council (PFMC) has designated several Essential Fish Habitat (EFH) areas off the Oregon coast as no-trawl zones. The areas are set aside to protect hard-bottom habitats and associated species. The Nehalem Bank/Shalepile EFH became permanently closed to trawling during June 2006 (Figure 14, page 6). Shrimpers are cautioned NOT to trawl within the area. The NMFS will enforce the EFH no-trawl areas via the Vessel Monitoring System which is required on shrimp vessels in 2008. Other EFH no-trawl areas near commonly shrimped grounds are Daisy Bank, Stonewall Bank, Heceta Bank and Coquille Bank. The coordinates delineating the Nehalem Bank and other EFH areas are listed on the PMFC web page at http://www.pcouncil.org/groundfish/gffmp/gfa19.html, under Appendix C #3: Coordinates for EFH Conservation Areas.

Groundfish Limits;
The NMFS proposed 2008 groundfish limits for shrimpers 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.
- The weight of groundfish landed may not exceed the weight of shrimp landed.
- No Canary Rockfish, Thornyheads or Yelloweye Rockfish may be landed.
- Lingcod, 300 lb/month with a 24" minimum size limit.
- Sablefish; 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 pink shrimp permits and harvesting pink 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.

BRD Use Update

Use of the most efficient approved Bycatch Reduction Device (BRD), the rigid-grate, declined again slightly during 2007 to about 93% (Figure 12). It was the second consecutive year showing a decline, down from a high of about 97% seen during 2005. The decline in 2007 appears to have stemmed from a combination of a few vessels being unwilling to switch from soft-panel BRD's and a few vessels reentering the fishery after a few years, still being in the habit of using soft-panel BRD's. While the decline in grate use is small and may not clearly constitute a trend, we believe that it's important for all Oregon shrimp vessels to use rigid-grate BRD's. It's simply the most efficient BRD available. Since the Oregon shrimp fishery is now recognized internationally for being a very "clean" fishery, it just makes sense to reduce bycatch as much as possible to help enhance this reputation.

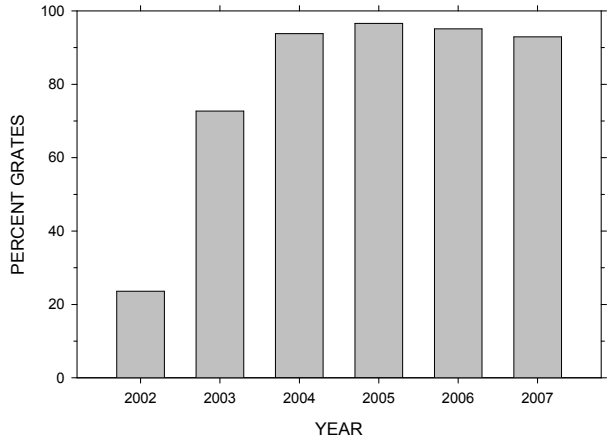


Figure 12. The estimated percentage of shrimp trips landing into Oregon ports that used grates during the last six pink shrimp seasons. Note: the 2002 estimate includes only trips from July through October, when BRD's became required.

The average bar spacing of grates used by the Oregon shrimp fleet was about 1.25 inches during 2007, very similar to what we've seen for the last few years. Bar spacing ranged from 1.0 to 2.0 inches, with 1.25 inch grate spacing declared for about 60% of the trips. More full-time shrimpers are using 1.0" spacing now. We anticipate an increased use of narrower spaced grates as shrimpers replace damaged grates and as vessels returning to the fleet up-grade the BRD's they fished in prior years. The 1.0 inch grates definitely work well and this is another way that Oregon shrimpers can bolster the fishery's "clean" reputation.

Research Activity

Size-Selective Grate Test Results;
We field-tested a prototype size-selective grate during May 2007 on the F.V. Miss Yvonne. The grate was designed to allow small shrimp to escape through narrowly-

spaced bars (11mm) in the bottom half of the grate, while allowing larger shrimp to pass upward and back into the codend through the upper half of the grate (32mm spacing = 1.25 in) (Figure 13). The grates tested were constructed to our specifications by Mr. Dave Pettinger of Brookings, Oregon.

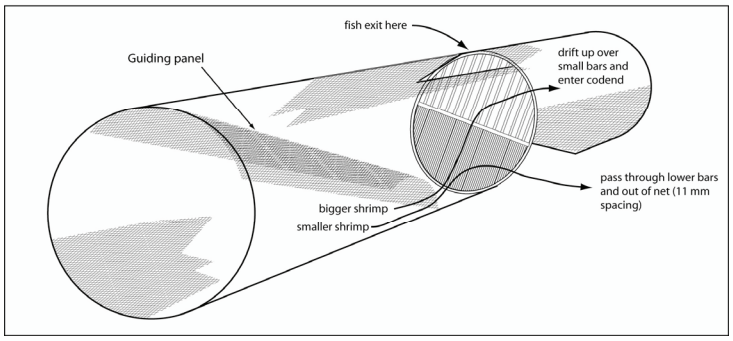


Figure 13. A schematic drawing of a modified Oregon grate assembly and codend showing the narrow spaced bars in the bottom half of the grate and the escape route for excluded small shrimp.

Video observations and catch analysis revealed several problems with the prototype design, but also showed the device did exclude small shrimp and showed promise. The most obvious design problem was that the 11mm portion of the grate caused an upward current shear to develop that led to significant shrimp loss out the fish escape hole. It also became obvious that there wasn't enough water flow through the upper half of the grate to move larger shrimp back into the codend. Clogging of the 11mm portion was also a frequent problem, with small fish (primarily juvenile hake) lying against the narrow spaced bars. Inclinometer measurements showed that the grates were mounted at too steep an angle, which probably contributed to clogging and may have facilitated the upward current shear. Unfortunately, the grate angle couldn't be adjusted at-sea to investigate these aspects.

We've got some modifications in mind that could improve on our prototype design. First and foremost, the grate needs to be mounted at a shallower angle. Beyond that, one relatively simple change would be to reduce the size of the 11mm portion of the grate, from the bottom half to the bottom quarter for example. The reduction should reduce the upward water flow that led to shrimp loss in the original design and water flow back into the codend should increase. A potential down-side could be less opportunity for small shrimp to exit through the 11mm section.

A better solution may be to mount an 11mm half-section behind a standard grate. The idea would be to allow all shrimp to pass through a standard fish-sorting grate and into the codend, with small shrimp then allowed to exit the net as they encountered the 11mm grate located one foot(?) behind. The design would help ensure water flow back into the codend. Any upward current shear caused by the 11mm section would occur behind the standard grate and the fish escape hole, preventing shrimp loss in this manner.

What's next? We plan to put further selective grate developmental research on hold until we get a better feeling for how important/practical this device is to the fleet. If an efficient selective grate was perfected through more research effort, would some or all of the fleet use it? Please share your thoughts with us on this matter, either by phone (541-867-4741) or at the docks.

Nehalem Bank Shrimp Trawl Impact Study;
During June 2007, we conducted a base-line video survey of the sea floor within and adjacent to the Nehalem Bank Essential Fish Habitat (EFH) no-trawl zone (Figure 14). The immediate task was to get assessment-quality video footage of transects within four selected one-mile square quadrats; two within the EFH and two nearby. Shrimp trawling has occurred in each of the four quadrats in the recent past, but the two within the EFH have been closed to trawling since June 2006. The four areas also differ in how much trawling they have received historically. The goal of the project is to evaluate shrimp trawl impacts on the bottom and associated macro-invertebrates. Later, we plan to compare results of the initial survey with those of a future survey to be conducted in several years and also to compare between the four areas. The results will be useful when addressing potential concerns from the public at-large and of the MSC when considering recertification of the Oregon shrimp fishery.

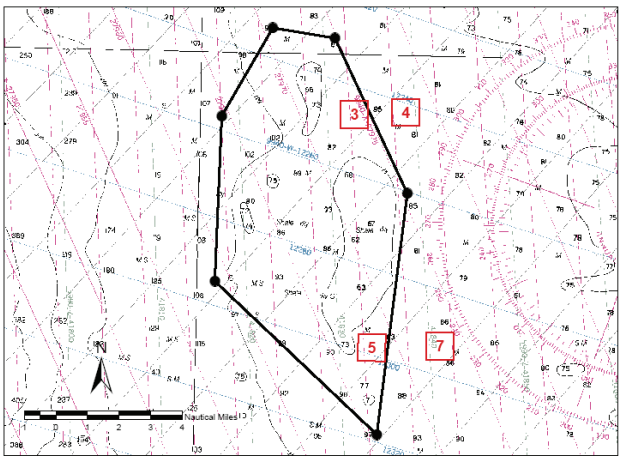
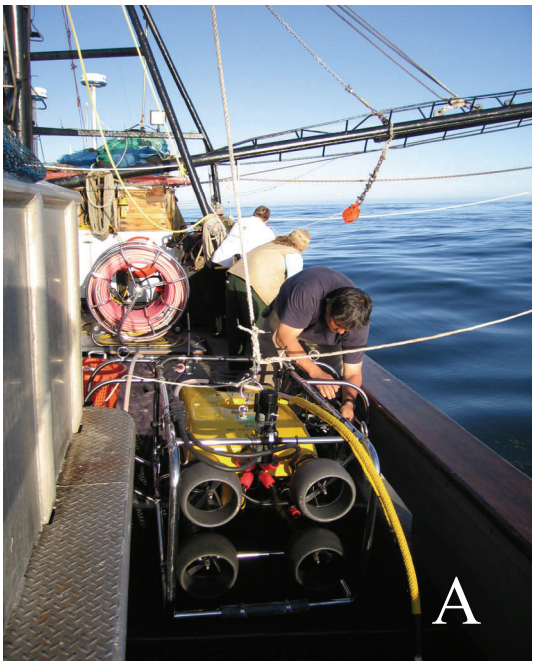


Figure 14. A chart of the Nehalem Bank/Shalepile area showing the EFH no-trawl zone boundaries established in June 2006. The squares labeled #'s 3, 4, 5 and 7 are the areas surveyed during the June 2007 charter on the F.V. Miss Yvonne.

The research charter was conducted on the F.V. Miss Yvonne, using ODFW's Remotely Operated Vehicle (ROV: Figure 15). The ROV was successfully deployed in 80-90 fathoms (our first time at these depths) and five one-mile transects were completed within each of the four quadrats, over a period of four days. The video footage is remarkably good and the ROV deployment/retrieval process was remarkably smooth, demonstrating the potential utility of ROV work at continental shelf depths and the use of trawl vessels as working platforms. ODFW personnel are currently evaluating the video footage, documenting the abundance, size and distribution of selected features encountered along each transect. The features include trawl door tracks, burrows, sea whips (Figure 16), sea pens, urchins and fish. Analysis of the 2007 survey will be time consuming and complex, but we hope to have complete results and analysis completed during 2008. As each tape is viewed, we're saving video-clips of many highlights that we'll make available on DVD. This is an unusual opportunity for shrimpers (and others) to see what it's actually like down there where shrimp nets are fishing. And yes, there is footage of shrimp!

Figure 15. The sequence of photos above progressively shows the ROV launching process aboard the F.V. Miss Yvonne. Photo A: In the foreground, our master pilot Bill Miller makes adjustments prior to launch while skipper Jeff Boardman (in background)prepares to lower the 500 lb clump weight. Photo B: Releasing the ROV after it's hoisted into the water. Photo C: The umbilical cable reel and the clump weight cable (vertical passing over small hanging block). The umbilical cable is played out and clipped to the clump weight cable as it's lowered while the ROV maintains depth with the clump weight.



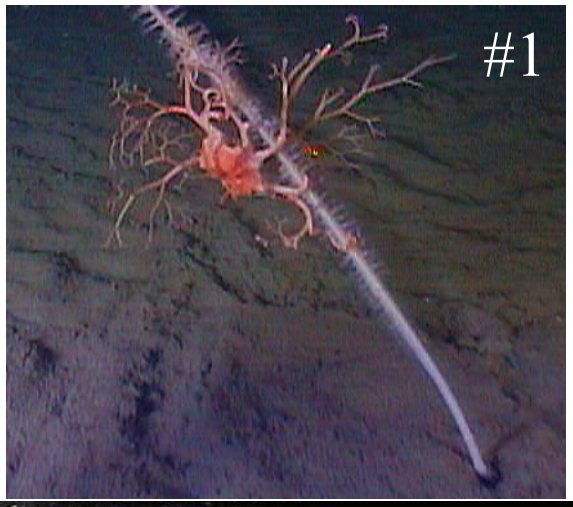


Figure 16. Photo #1: A typical view of a sea whip protruding from the soft mud bottom (depth about 85 fathoms), with a basket star clinging to its upper axis. The curved "tracks" in the mud were probably made by heart urchins. Photo #2: Another sea whip with a greenstripe rockfish, about five inches long, nearby. Please note: The video highlights that we'll be putting out later this year on DVD are much more clear.

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Count per Pound Issues

Count per pound (count) enforcement was a challenge during the first few months of the 2007 season. The Oregon State Police (OSP) and ODFW received many complaints that loads of small shrimp were being landed unchecked, particularly into south coast ports. The OSP thoroughly checked several loads in multiple ports. All of the loads checked proved to be legal, although some average counts were fairly high. No citations were issued, but some warnings were given.

Shrimpers should be prepared for an abundance of small age-1 shrimp during the first few months of the 2008 season. Hopefully, age-2 shrimp will be abundant enough to supply good catches early in the season, but shrimpers should be prepared to take frequent counts. The Oregon State Police are aware of the possibility of abundant small shrimp in 2008 and will be actively monitoring landings in all Oregon ports. 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 to ask any other questions about count issues (541 867-4741).

Acknowledgments

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Good Luck Shrimping in 2008!