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Annual Pink Shrimp Review

Oregon Department of Fish and Wildlife

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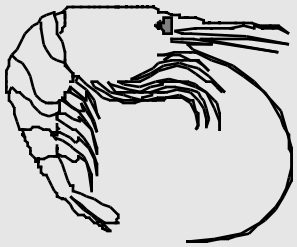

TO: **OREGON SHRIMP INDUSTRY**
FROM: **Bob Hannah and Steve Jones**
Subject: **Opening of 2002 Commercial Fishery**
Date: **18 February 2002**

The 2002 shrimp season will begin 1 April and extend through 31 October. This newsletter includes a traditional summary of the 2001 season for your review, including catch, effort, market sample information and possible indicators for the 2002 season. We also discuss the successes and failures of the BRD (Bycatch Reduction Device) temporary rule requirement that was instituted on August 1, 2001 and possible adjustments for the upcoming season.

The 2001 season was a challenge for all segments of the west coast shrimp industry, especially shrimpers. Foreign competition for similar grade product was severe and ex-vessel prices were at near record lows for west coast shrimp. BRD's were required for the first time in the history of the fishery, which reduced revenue from fish sales and potentially reduced shrimp catch if BRD's were improperly chosen or installed. It was a frustrating scenario, but the Oregon fleet stayed under the harvest goal for canary rockfish and is better prepared to face a BRD requirement in 2002 if necessary.

BRD's a Qualified Success

The Canary Problem Continues:

As determined by the National Marine Fisheries Service (NMFS), canary rockfish will remain on a 60 year rebuilding schedule during 2002. The total allowable canary catch for west coast shrimpers (California, Oregon and Washington) during 2002 will be 5.5 metric tons (12,125 lb), the same amount as in 2001. Historically, about 71% of the canary landed annually by west coast shrimpers were typically landed into Oregon. ODFW used this percentage (71% = 8,608 lb =3.9 mt) as its maximum canary harvest goal in 2001 and will do the same in 2002.

Canary Harvest in 2001:

Canary landings in Oregon during 2001 totaled 4,775 lbs (about 2.2 mt). About 84% of the landings occurred before BRD's were required on August 1, 2000 (Figure 1). Our estimates of canary discard increased the total estimated harvest by shrimpers landing in Oregon to about 7,700 lbs (3.5 mt). So why was Oregons canary "take" well below the 3.9 mt goal? There are several reasons for this. Staff received verbal instruction from the Oregon Fish and Wildlife Commission to be conservative and careful not to exceed the catch allocation, so staff recommendations for an implementation date (August 1) were on the conservative side. Also, our ability to estimate discard accurately, to predict fishing effort forward in the season and to predict canary catch after a BRD requirement was implemented were very poor. The "liberal" approach to BRD requirements (type of BRD) also complicated this last factor (if we had gone "grates only" for example, we could have assumed zero post-implementation catch of canary rockfish). All of these factors led to a conservative approach.

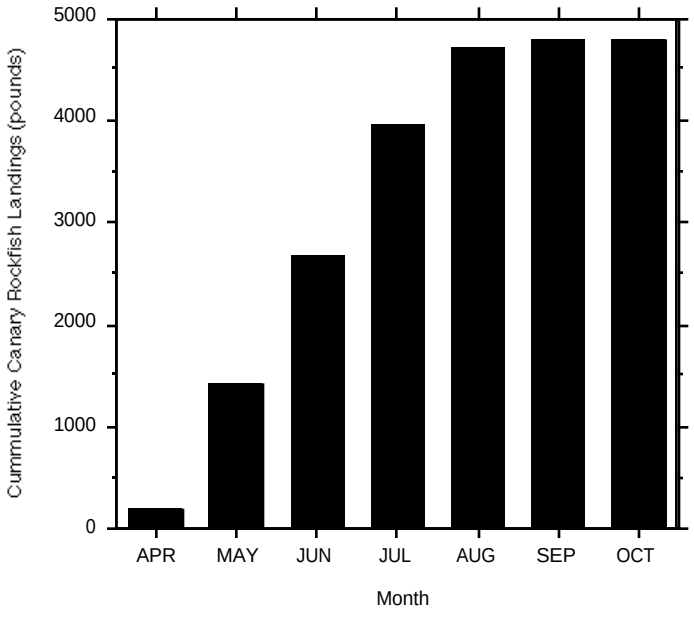

Figure 1. Oregon cummulative canary rockfish landings in the pink shrimp fishery by month during 2001.

BRD Use in 2001:

Voluntary use of BRD's was very low in 2001, which was a disappointment to us and to those shrimpers that did invest time and dollars developing and fine-tuning devices that worked in their nets. Many shrimpers were unprepared when the August excluder requirement was announced during July, despite educational attempts prior to and during the season. If more shrimpers had used BRD's voluntarily in one net during the early season (reducing canary catch), mandatory BRD's might have been implemented later or may not have been required at all. In any case, they would have been better prepared once BRD's were required.

Compliance with the mandatory BRD requirement was generally very good, but there was plenty of grumbling at the beginning. Most shrimpers selected one of the three approved BRD styles, and about 20 others received experimental fishing permits to try devices or alterations to approved BRD's that seemed promising. ODFW commends those shrimpers who experimented and shared their successes with others in the fleet in order to help make Oregon's BRD adventure work!

BRD Effectiveness:

The three BRD's approved for mandatory use in 2001 were the Nordmore Grate, Soft-Panel and Fisheye. Each of these devices has been field tested by ODFW in the past and have varied effectiveness depending on BRD type, net style and installation. The voluntary approach promoted by shrimpers and supported by ODFW was an attempt to let shrimpers find a BRD that worked for them and to identify which excluders would actually work in the fishery, should BRD's become required. Logbook and fishticket analysis from 2001 showed that two of the approved devices, the Nordmore Grate and Soft-Panel, worked quite well at excluding rockfish after August 1 (Figure 2). The fisheye appeared to be much less effective at excluding rockfish, reaffirming our past research results. Based on this finding, ODFW staff and some shrimpers wonder whether the fisheye should be **eliminated as an approved BRD option** in 2002. Not allowing the Fisheye may let ODFW go further through the season without requiring BRD's, because far fewer canary (rockfish in general) would be caught once the requirement was in place. We're interested in your comments and suggestions on this subject! Please call and voice them. Here's some BRD facts that may help with the discussion;

Nordmore Grate
- Most effective at excluding rockfish.
- Initially found cumbersome; gained popularity. through the season among the Newport fleet as bugs were worked out and innovations were tried.
- Cost relatively high: $250-$300 per net.

Soft-Panel
- Used by most shrimpers in 2001, particularly on the north coast.
- Very effective exclusion when properly installed.
- Cost variable depending on installation; directly in net or in extension tube.
- Highly variable shrimp loss.

Fisheye
- Used mostly on the south and north coasts.
- Only moderately effective rockfish exclusion.
- Effectiveness very sensitive to placement on codend.
- Can be disabled easily and very quickly.

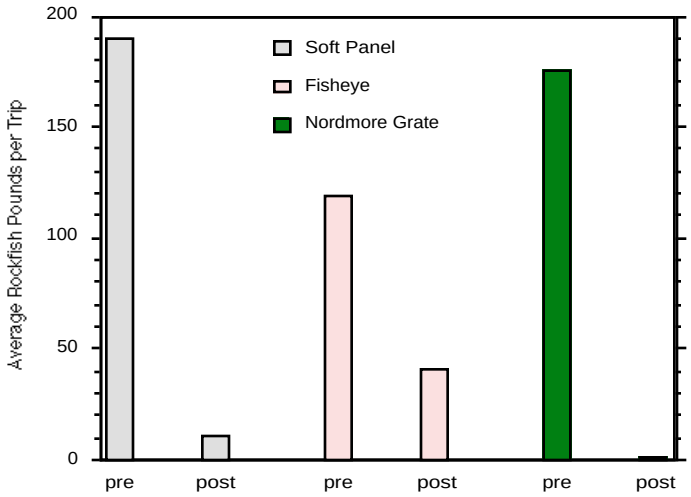

Figure 2. The average pounds of rockfish per trip landed into Oregon for three BRD types, before (pre) and after (post) BRD's were required on 1 August 2001.

Enforcement Problems:

The Oregon State Police (OSP) and the United States Coast Guard (USCG) both participated in BRD enforcement. The OSP conducted BRD inspections at the dock, verified that certain BRD's were within experimental permit parameters, and investigated reports of noncompliance. The USCG conducted excluder inspections at-sea during normal safety boardings. One shrimper was issued a citation for, and plead guilty to, "Failure to Use By-catch Reduction Device". The shrimper was fined and forfeited shrimp caught without a BRD.

Dealing with Excluders in 2002:

The voluntary excluder approach in 2001 didn't work as hoped. With few exceptions, shrimpers didn't attempt to use excluders until they were required. The result was a higher than hoped for canary catch through July, and a fleet that was generally ill-prepared to use BRD's effectively on August 1, 2001. All Oregon shrimpers that

fished after July 2001 now have some experience using an excluder and can better choose what they will use in the future. If shrimpers feel that the BRD they used caused unacceptable shrimp loss, we strongly recommend looking closely at using something similar to a Nordmore grate. Judging by reports from shrimpers, the most resounding success has been with modified versions of the Nordmore Grate. The basic successful design is a circular aluminum grate with up to 2 inch bar spacing (the maximum spacing allowed). Figure 3 shows one variation of an aluminum grate that has been reported to be very successful. The version incorporates a tubular ring within a ring, with 2" spaced bars. The distance between the rings is 2", which meets the criteria for an approved grate. The grate is placed roughly at a 45º angle and the aperture is a large triangular opening. The idea behind the inter-ring space is that it promotes water flow back into the codend and makes the grate more stable under tow and while running. Another option for modifying the grate is to reduce the bar spacing, which would exclude progressively smaller fish. Several shrimpers that used grates in 2001 said that small hake went through 2" bars readily. Many grate designs have been combined with a "down panel", a web panel installed in front of the grate that forces any catch to the bottom of the grate, keeping shrimp away from the escape hole.

We also support the use of the soft-panel BRD, but we've found that shrimp loss may be higher than with a properly installed grate. Many shrimpers reported success with the soft-panel BRD, with acceptable shrimp loss. Other shrimpers initially had high shrimp loss and consequently incorporated innovations such as a rigid aluminum ring overlaid by the soft-panel, and/or a mesh hood forward facing over the BRD aperture. Some modifications required an experimental fishing permit because the device didn't meet the specifications of an approved BRD design. Soft-panel performance seems to vary dramatically between net styles, perhaps working best in shorter nets. Here again, we encourage shrimpers to consider using a grate as a viable alternative to the soft-panel.

The Bottom Line

To be realistic, shrimpers should be prepared for a BRD requirement to be implemented sometime during the 2002 season. The canary problem is going to be with us for some time and may get more or less restrictive depending on Council action in the future. The Oregon canary harvest goal is not to exceed 3.9 mt in the 2002 fishery (landings plus estimated discard). Shrimpers have the ability to slow the canary harvest as the season progresses by using excluders before they are required. Another option we are considering is to try to delay rule implementation by planning to not allow fisheyes as an approved BRD, thus sharply reducing post-implementation canary catch. We welcome your comments on this concept.

Figure 3. A photograph of one version of the Nordmore grate that was developed by Jeff Boardman and used successfully on the F/V Miss Yvonne during 2001.

2001 Season Summary

Approximately 28.5 million pounds of pink shrimp were landed into Oregon ports during 2001, about three million pounds more than during 2000 (Figure 4). The landing total was slightly higher than the 15 year average and was the highest since 1993. Unlike the 2000 season, shrimp fishing began during the first week of April, but not all processors were buying until May. Monthly landings during 2001 followed a pattern similar to the 15 year average monthly landings (Figure 5).

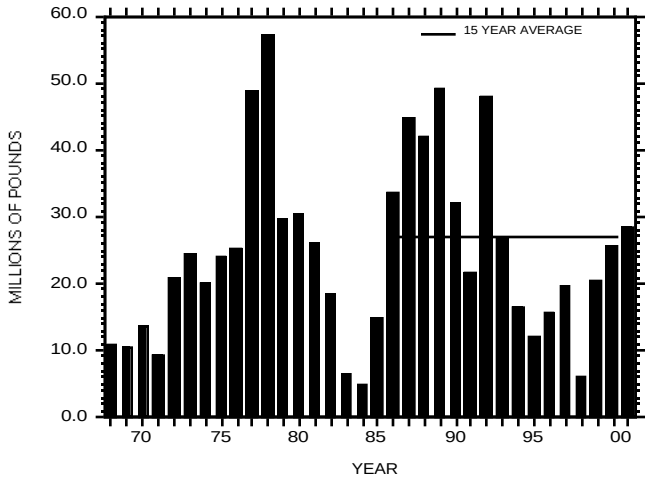

Figure 4. Oregon pink shrimp commercial landings (millions of pounds) 1968-2001. Includes all pink shrimp landed into Oregon ports.

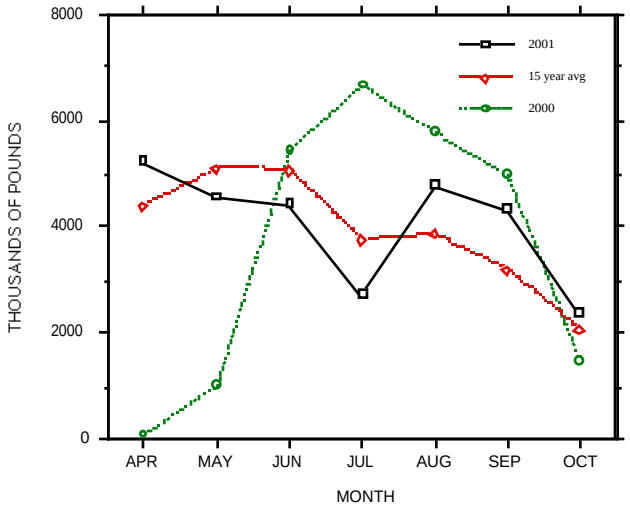

Figure 5. Oregon pink shrimp landings by month during 2000, 2001 and the 15 yr average (1986- 2000).

Shrimp harvest was highest on the north coast, with the Tillamook Head bed producing about 10.6 million pounds alone (Figure 6). The Cape Foulweather and Mudhole beds each produced about 5.4 million pounds. Catch declined dramatically proceeding north of Tillamook Head and south of Coos Bay.

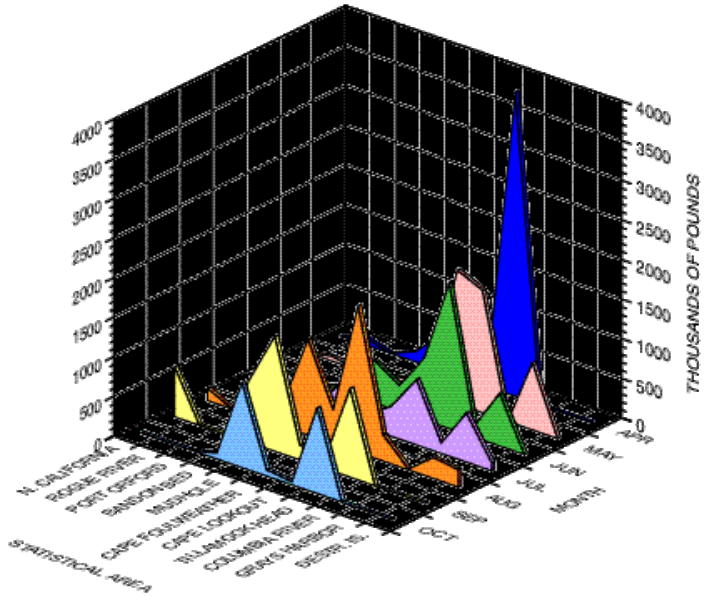

Figure 6. Total Oregon pink shrimp landings (1000's of pounds) by month and area.

Shrimpers expended about 53,600 single-rig equivalent (SRE) hours catching the shrimp landed in Oregon during 2001 (Figure 7), about 7,000 hours less than during 2000. The decline in effort can be attributed to several related factors such as delayed buying by some processors at the beginning of the season, low ex-vessel prices, trip limits and a sharp decline in the number of vessels making at least one landing into Oregon. Only 84 vessels landed shrimp this year (74 double-rig; 10 single-rig) compared to 108 in 2000 and 121 in 1999. Since there is no longer a shrimp landing requirement to maintain a shrimp permit, several vessels didn't land shrimp that normally would have. Others, simply did not shrimp due to the low ex-vessel price. Landings by out of state vessels were also down.

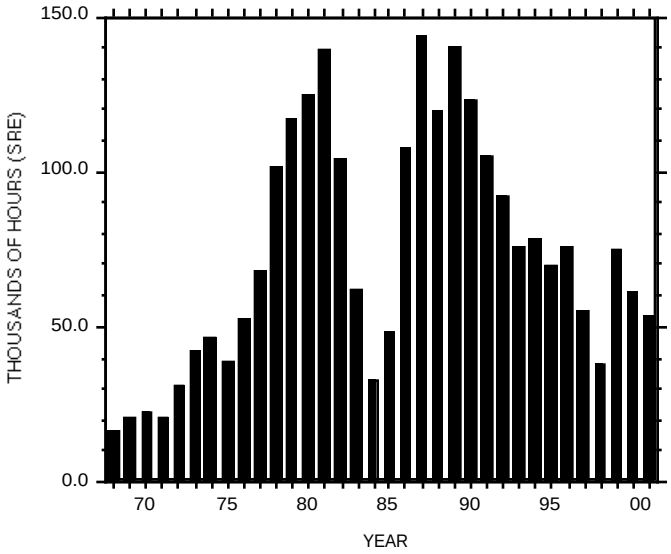

Figure 7. Fishing effort (1000's of single-rig equivalent hours) for pink shrimp landed in Oregon, 1968-2001.

Overall catch per unit effort (CPUE) in 2001 was the highest seen since 1979, more like the average rate between 1969-1978, before the fishery was fully exploited (Figure 8). CPUE was technically highest off northern California, but the exceptionally high rate there was anomalous, reflecting very little effort with a large catch. In general, CPUE was very high during April and May along the central and north Oregon coast and declined through the season to moderate season-ending rates (Figure 9). The high average CPUE and moderate season-end rate indicate that shrimp were abundant off central and north Oregon. The high rate may also have been caused in part by having fewer vessels on the grounds this year.

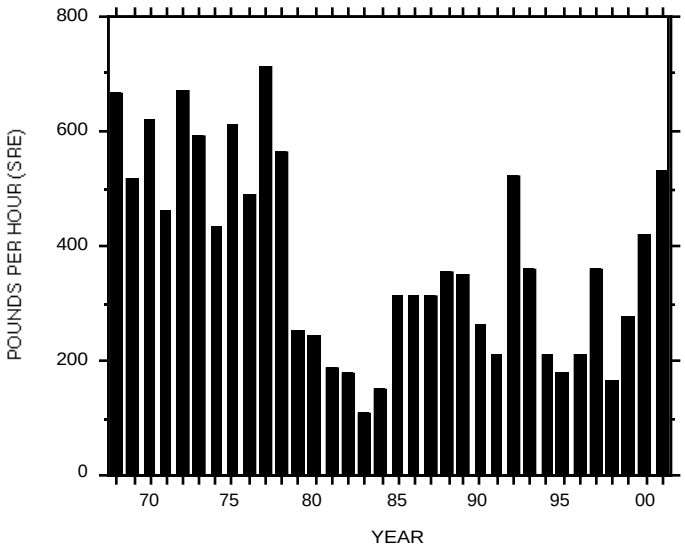

Figure 8. Catch per unit of effort (CPUE=lbs/SRE hr.) for vessels landing pink shrimp into Oregon, 1968-2001.

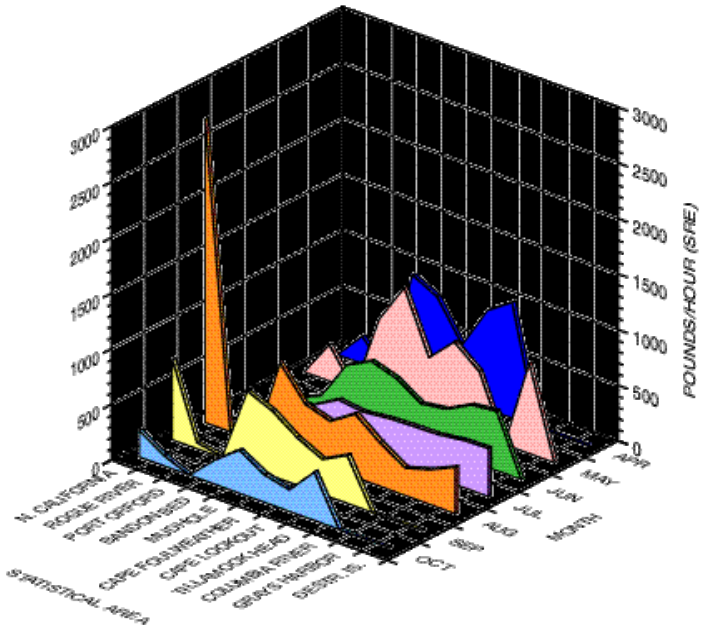

Figure 9. Catch per unit of effort by statistical area and month for the 2001 Oregon pink shrimp fishery.

The weighted average count-per-pound (count) was 116 shrimp/lb during 2001, a slight increase over the average count in 2000 and the 15 year average count (Figure 10). An increased count normally indicates that age-1 shrimp were more abundant in the catch, but the age-1 shrimp component actually decreased from 75% of the 2000 catch to 59% in 2001 (Figure 11). The most likely explanation is that the age-1 shrimp harvested during 2000 were generally larger because of added growth due to the lack of fishing during April and May 2000. During 2001, younger and smaller age-1 shrimp were harvested in April and May.

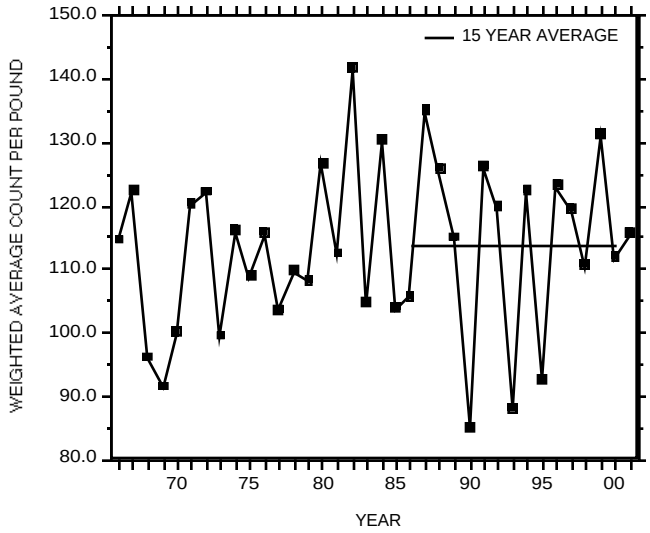

Figure 10. Average (catch weighted) count per pound of pink shrimp landed into Oregon, 1966-2001.

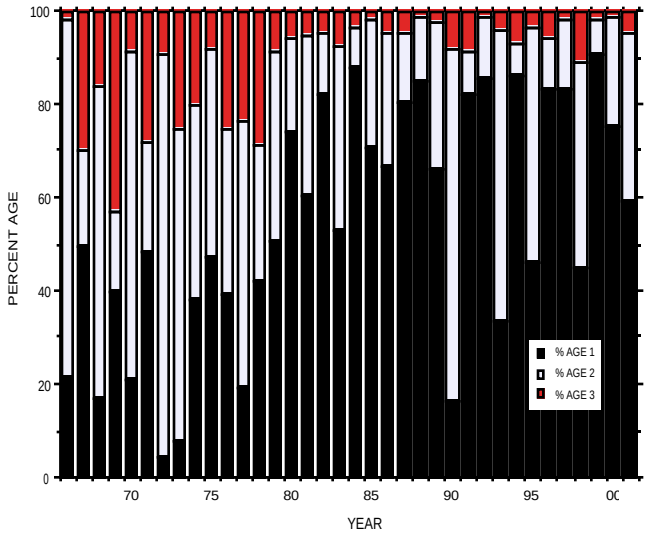

Figure 11. Annual percent age composition of pink shrimp (#'s of shrimp) landed in Oregon, 1966-2001.

The 2001 average ex-vessel shrimp price was $.26/lb, the lowest unadjusted average price in Oregon since 1979 (Figure 12). The opening price was $.25/lb, which held until late July when the price rose to $.30/lb for larger grade shrimp. A split price structure prevailed into September at $.25 and $.30/lb. Most shrimp sold for $.30/lb for the remainder of the season. The range of prices seen in 2001 was $.15/lb to just over $.30/lb and the total ex-vessel value of the catch was about 7.5 million dollars.

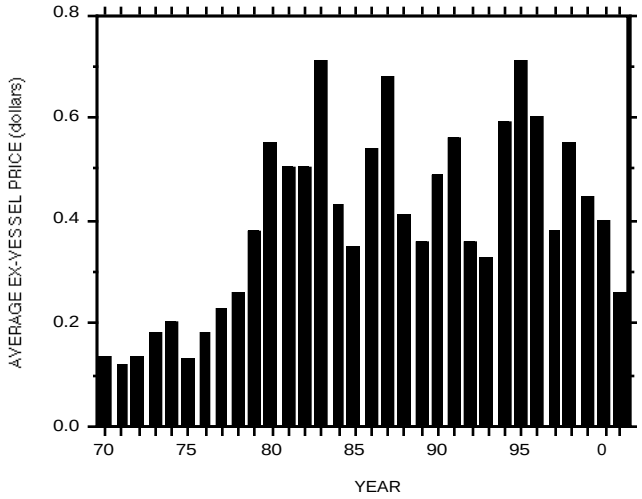

Figure 12. Average ex-vessel price per pound paid for pink shrimp landed in Oregon, 1970-2001.

Indicators For 2002

So what's in store for shrimp harvest in the upcoming season? Indicators are so spotty and mixed that we can only say that we expect an average to above average abundance in 2002. Our shrimp recruitment model (still being tested) indicates that ocean conditions were conducive to a recruitment event that's well above average (Figure 13). The model successfully predicted an average recruitment during 2001. If the model is correct for 2002, a strong showing of age-1 shrimp is a possibility in 2002. Other indicators for recruitment success are difficult to interpret this year. To begin with, our market sample coverage was limited to only four state areas during September and October, focused on the central and northern Oregon coast. The samples showed a relatively low percentage of 0-age shrimp, which will be age-1 shrimp this year. The percentage was higher than last year (2000) though, which produced an average year class in 2001.

At the same time, shrimpers reported that 0-age shrimp were much more wide-spread and abundant than the market samples showed, at least from beds off Coos Bay to the Columbia River. Oregon catch and effort were fairly low below and above these beds, making it difficult to gain much reliable information about these areas.

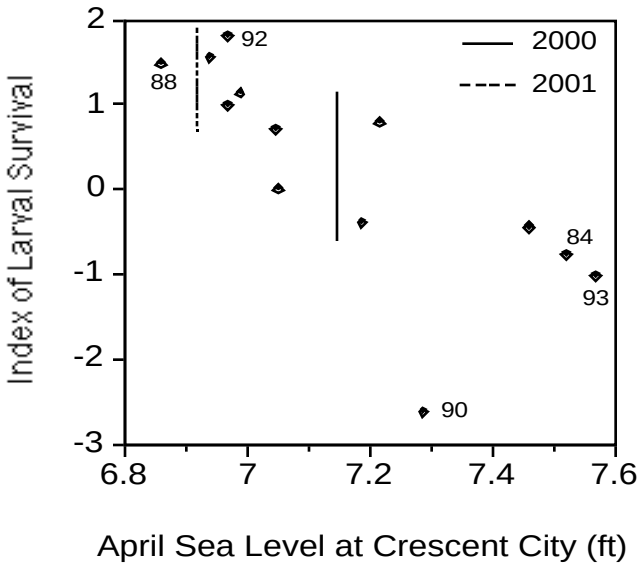

Figure 13. Index of larval survival vs. April sea level on year prior at Crescent City, CA. Points shown indicate year at age-1 catch. For example, 1990 (90) refers to the shrimp recruited to the fishery in 1990 at age-1. The dashed vertical line shows the survival range expected for 2002 1-year olds. The solid vertical line shows the comparable range from 2001.

Based on relatively high season-end CPUE, shrimp abundance was highest in beds from Coos Bay north to the Columbia River at the end of the season. We suspect that holdover of shrimp from 2001 may be fairly good from Coos Bay north to the Columbia River. Early in the season, shrimpers may find the best overall grade of shrimp in areas with high season-end CPUE, such as off Tillamook Head and in the Mudhole.

Regulation Changes & Related Issues

BRD's:

Fish excluders (BRD's) **WILL NOT** be required at the beginning of the 2002 shrimp season for vessels fishing for shrimp in Oregon waters or landing into Oregon ports. However, BRD's may be required anytime within the season, via temporary emergency rule by the Director of ODFW, if and when staff determine that it's needed. Such a rule would apply to the remainder of the 2002 season. If required, only approved BRD's will be allowed, except ODFW staff may issue temporary experimental fishing permits for use of devices that staff deem likely to work. **SHRIMPERS SHOULD NOTE** that as of this time, **BRD's are required in California** waters or for vessels landing into California ports. For more information please call Bob Hannah or Steve Jones at (541) 867-4741.

Some shrimpers have suggested that the current BRD

testing period (3:00pm to 6:00pm Pacific Time) be changed to 4:00pm to dark each day. The change would eliminate the need to re-enable a BRD before the end of the day, saving fishing time. The proposed change makes sense to us. **Please let us know what you think of this possible emergency rule change.**

Groundfish Limits:

The National Marine Fisheries Service (NMFS) has **altered groundfish retention limits** in the pink shrimp fishery for 2002. We strongly encourage fishermen to check the **CURRENT** regulations in late March. Any questions: please give us a call at (541) 867-4741.

The current groundfish limits for shrimpers as proposed by NMFS are listed below: (PLEASE NOTE! groundfish limits may be changed in season and are scheduled for review at the March Pacific Fishery Management Council (PMFC) meeting. Be sure to check on the current regulations frequently 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.

- The **Canary Rockfish** limit is 50 lb./month in April and 200 lb./month from May through Oct.

- **Lingcod**; 400 lb./month April through October. 24 inch minimum total length.

- The limit for **Sablefish** is 2000 lb./month.

- **No Thornyheads** may be landed

- **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:

ODFW will continue to use and issue the enhanced logbook that was used last season. The logbook requires the same information as older versions, plus information on excluder use. Logbook compliance was generally good in 2001, but could have been better. It is very important that complete and accurate excluder use information is provided, such as excluder type and tow by tow use. Documentation of compliance with the BRD rule helps support our approach to bycatch management, preventing more draconian actions by NMFS, such as implementing federal management of shrimp.

Research & Projects

Staff (with the aid of NMFS personnel) have designed and developed a recording inclinometer that can be used to measure the height above bottom of a shrimp trawl fishing line. The small device helps to refine our ability to mensurate trawls for comparative trawl fishing experiments. We used the device in June to evaluate the effects of fishing line height on the catch of certain bycatch species. We found that the catch of small flatfish and juvenile rockfish varies inversely to fishing line height. We also documented that fishing line height is fairly stable within a tow, for a given gear configuration. The effect of footrope gear changes can be readily measured and height is easily adjusted. The results suggest that restrictions on footrope design could reduce bycatch of juvenile rockfish and small flatfish, and that shrimp trawls without continuous groundlines are feasible.

Voluntary BRD experimentation by a few shrimpers early in the 2001 season led to some promising designs and exposed problems with some new ideas. ODFW strongly encourages these efforts and provided limited financial support for building one promising design. Staff were invited aboard the F.V. Miss Yvonne to evaluate this device using our underwater video equipment. The device was a variant of the Soft-Panel that incorporated a rigid aluminum hoop overlaid with a tightly stretched mesh panel. It was an effort to keep the net from collapsing near the device so shrimp wouldn't be forced out the excluder aperture. The device didn't work as intended as installed in these nets. A variety of modifications were made (including a "hood" over the aperture), but good performance wasn't achieved. However, other shrimpers used the device successfully in their nets after BRD's were required. The experience shows again that BRD performance may vary depending on net design. It points out that shrimpers may be well served by experimenting with their BRD's in one net before BRD's are required and taking advantage of what other shrimpers have learned.

Count-Per-Pound Issues

No count per pound citations were issued in Oregon during the 2001 season. However, several loads were scrutinized

closely by OSP but no further action was taken. With good ocean conditions providing the possibility of above average recruitment, the potential exists for some higher than average counts in 2002. If a good recruitment event has occurred, small age-1 shrimp will predominate early in the season, especially in areas with low shrimp abundance last fall. The OSP will be actively monitoring count-per-pound again in 2001. 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.

Reports Available

Hannah, R.W. and S. A. Jones. (submitted-Fisheries Research). Measuring the height of the fishing line and its effect on shrimp catch and bycatch in an ocean shrimp (*Pandalus jordani*) Trawl.

Hannah, R.W. and S. A. Jones. 2000. Bycatch reduction in an ocean shrimp (*Pandalus jordani*) trawl from a simple modification to the trawl footrope. J. North. At. Fish. Sci. 27: 227-223.

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Good Luck Shrimping in 2002!