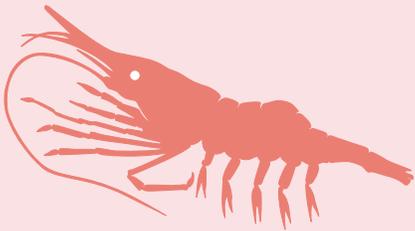


2017 Washington Pink Shrimp Fishery Newsletter



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Region 6 Shellfish Management Program
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2016 Season Summary

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This newsletter provides a summary of the Washington commercial pink shrimp (*Pandalus jordani*) trawl fishery for the 2016 season and information for the 2017 season of interest to industry participants.

For additional fishery information go to:
<http://wdfw.wa.gov/fishing/commercial/shrimp/>

Following Washington's back to back record breaking 2014 and 2015 Coastal Pink Shrimp seasons the 2016 season returned to a more typical season total.

During the 2016 season, which opened as usual on April 1 and ended on October 31, a total of 14.1 million pounds were landed (Figure 1).

Even though this 2016 season total is significantly lower than the 2014 and 2015 totals (of just over 30 and 40 million pounds respectively), it is above the historical seasonal average of 9.8 million pounds (between 2009 and 2013) (Figure 1). The number of limited entry permits dropped to 81 from 83 which had been a consistent level since 2010; the number of actively fished licenses also decreased from a high in 2015 of 40 to 28 in 2016. The total ex-vessel or direct value followed the decrease in total landings to \$8.6 million (from the 2016 high of over \$29 million). (Figure 2). The weighted average price per pound was 57 cents, down from 72 cents in 2015, but still well above the 15 year average of 43 cents. The majority of shrimp (49%) were landed at a price of 65 cents per pound. Similar to the 2016 season,

the majority of the landed catch came from the mid-coast of Washington. Only 12% of the season total came from out-of-state waters (Oregon and California). (Figures 4 and 6). The 2016 season started very slow with only 199,000 pounds landed in April, the slowest season start since 2008. However, as the season progressed the catch improved to more typical levels, peaking in the months of July and August (Figure 5). As directed by permanent regulation, the fishery season closed October 31.

At first glance, the significant decrease of landings in the Washington fishery could be cause for alarm. However when viewed in a more long term historical context it can be attributed to the end of the exceptionally strong 2013 year-class, and the effects of recent warmer ocean temperatures with the recent El Nino conditions. Nevertheless, there are signs that there is a strong 2015 year-class that grew quickly and became evident in catches in late 2016 and should be a significant contributor to the 2017 fishery.

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Fishery Landing Statistics

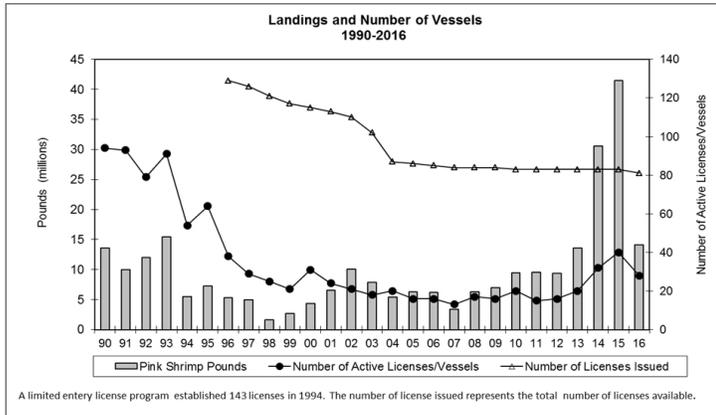


Figure 2. Washington pink shrimp landings, number of active vessels and number of limited entry licenses, 1990-2016.

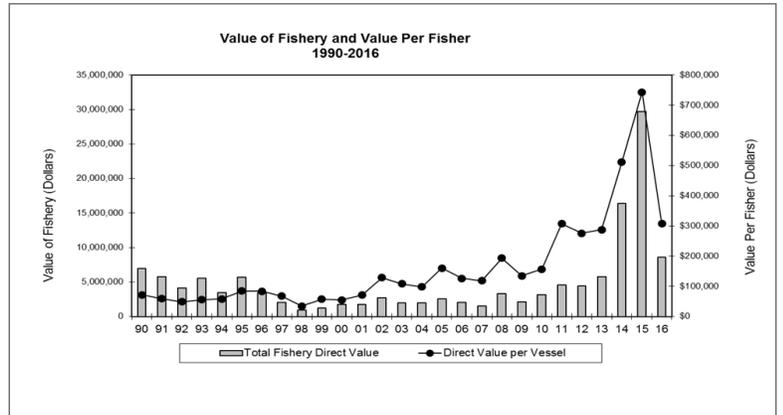


Figure 3. Washington pink shrimp total fishery direct (ex-vessel) value and direct value per fisher, 1990-2016.

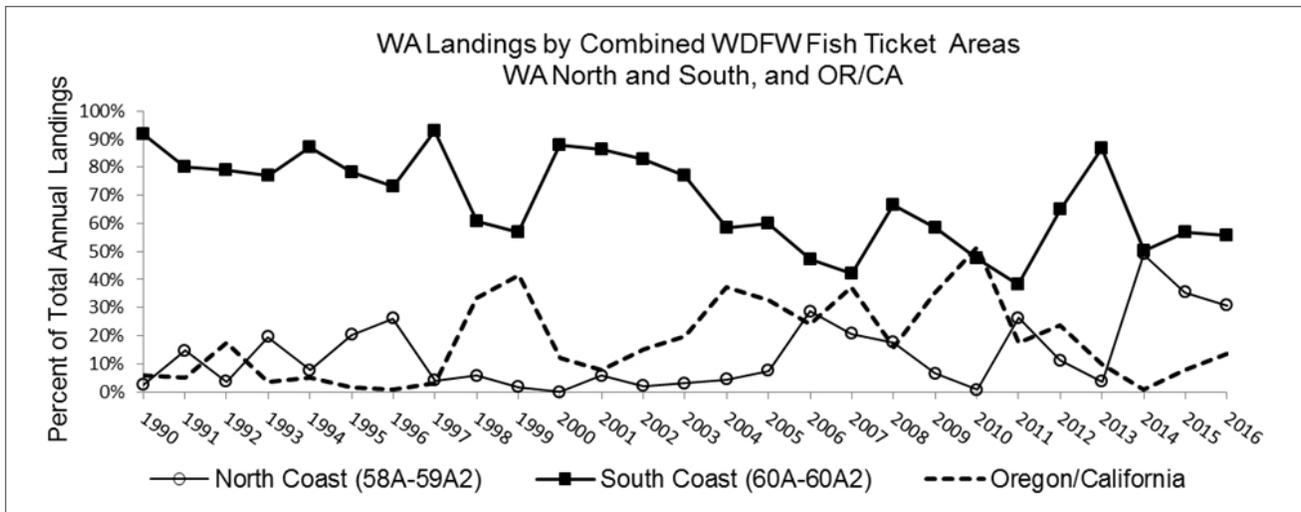


Figure 4. Washington shrimp fishery catch by combined fish ticket areas, 1990-2016.

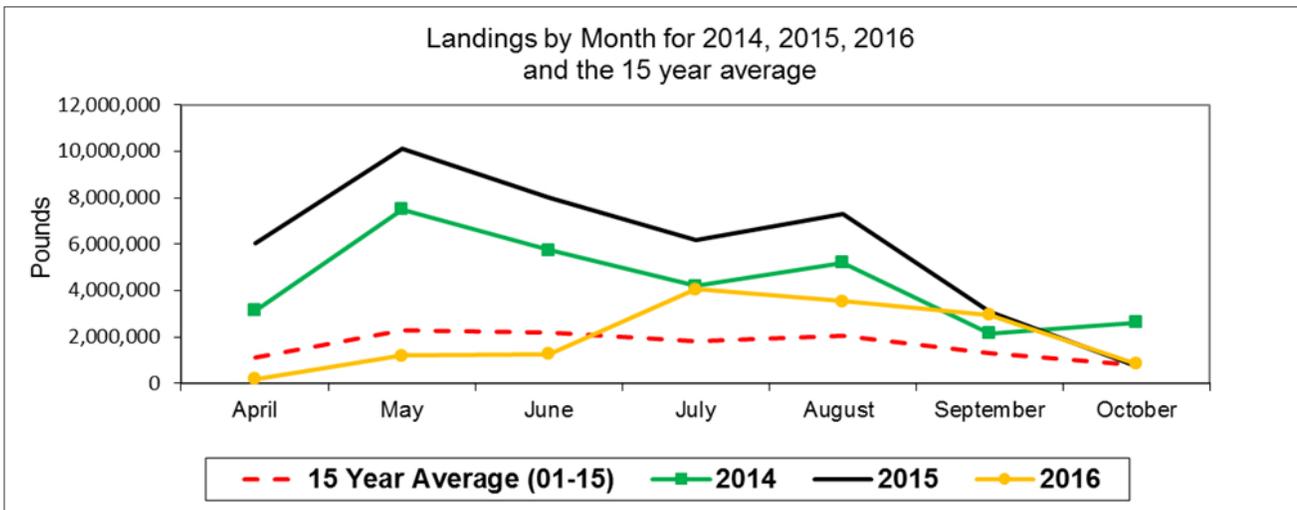


Figure 5. Washington pink shrimp landings by month for 2014, 2015, 2016 and the 15-year average.

2016 Research Plan

Biological and Catch Evaluation



Our primary objective for 2016 was to achieve full implementation of the fishery monitoring and sampling program. Following budget reductions, the WDFW shrimp fishery project was

disbanded in 1993. General fishery management oversight was maintained, but biological sampling and the shrimp fishery logbook program were discontinued. Elements of active management have been reestablished gradually. Routine count-per-pound compliance checks were reinstated beginning in 2008; the logbook program was restored in 2011, and biological sampling was initiated in 2015 and continued in 2016.

Presently, all data are keyed into an Access database. This database is presently up-to-date and much of the data presented here is drawn from this source.

Fishery Logbook Summary

The majority of vessels landing shrimp into Washington are “double-rigged” or tow two nets. However, hours fished are estimated in single-rig equivalents or SRE. Overall, the total hours fished in 2016 decreased markedly from 2015 but continued an apparent increasing trend, in contrast 2016 estimated catch per hour declined.

Using 2016 logbook data collected from landings made into Washington ports we display here reported catch locations. To make comparison with information produced by the Oregon Department of Fish and Wildlife for their newsletter, we are adopting the use of their shrimp fishing catch areas (Figure 6). It is interesting to note that 88% of the 2016 catch came from Washington waters, with just 3% from Oregon waters and 9% from California waters. This is a good indicator of strong stocks off Washington, especially when the reported 30% of landings into Oregon ports also came from Washington waters (Figure 6).

Fishing effort, expressed here as the estimated number of single-rig equivalent hours, like catch was highest off Washington’s mid and north coast (Figure 5). Figure 6 shows catch rates, also referred to as catch per unit of effort or CPUE, estimated as pounds per SRE hour. Spring CPUE was stronger in areas off Oregon but fishing was light. Shrimping off the mid and north coast of Washington

improved into the summer, with the highest catch rates being reported in July in the Destruction Island area. It should be noted, that the October Mudhole catch rate is excluded from Figure 8. Of the vessels fishing in this area in October, one reported an exceedingly high CPUE – almost 4,300 pounds/SRE hour and including this value skewed the figure making all the other bars difficult to see.

Biological Sampling

With an objective for 2016 to achieve full implementation of the fishery monitoring and sampling program, WDFW Fisheries management staff collected 37 routine dockside samples (Table 1). Our staff then analyzed these samples for average count per pound using the standard protocol adopted from the ODFW sampling program. This represents a 65% increase in the number of samples collected in 2015, the first year (since 1993) that we re-instituted this program. Our sampling goal for 2016 was one sample per area per month. Included here is the average count per pound by month by ODFW Management Area. We observed no violations of the minimum 160 count per pound regulation.

Figure 12 shows a plot of the average size of shrimp included in biological samples also summarized by month, but over all areas. This series of plots clearly show the exit of the remaining 2014-year class in April that was replaced by the slowly growing 2015 year class. It is this 2015-year class that is expected to be the main source of catch during the 2017 season. This format can be compared to a set of similar graphics that appear in the 2016 ODFW Pink Shrimp Review.

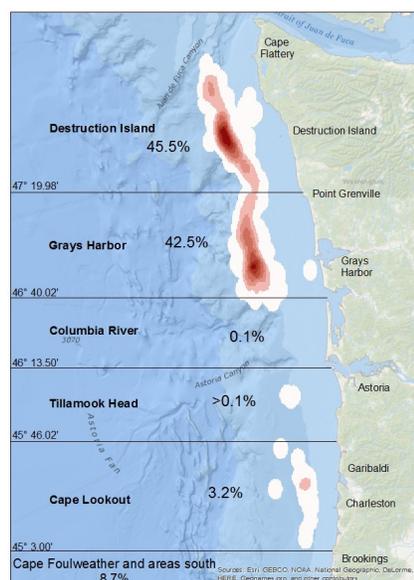


Figure 6. Estimated Total Pounds landed into WA ports by WA licensed shrimpers by ODFW Management Area for 2016.

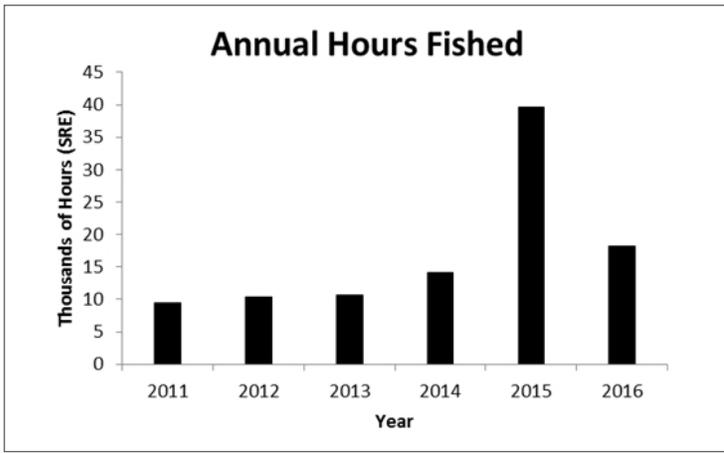


Figure 7. Annual hours fished by WA Licensed Pink Shrimp fishers by season.

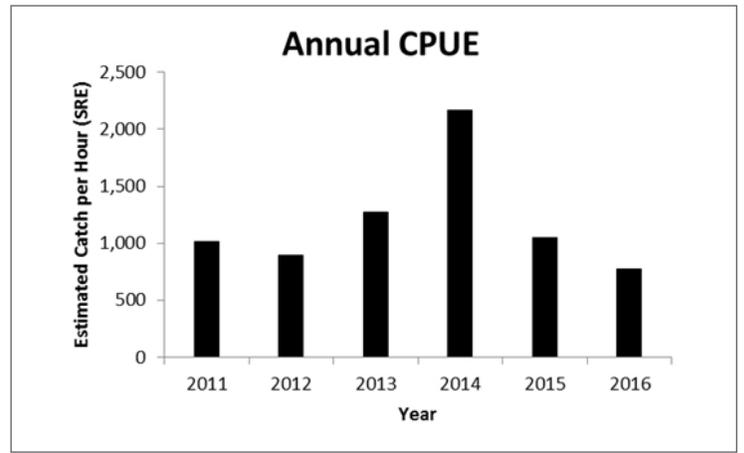


Figure 8. Annual catch per SRE hour fished by WA Licensed Pink Shrimp fishers by season.

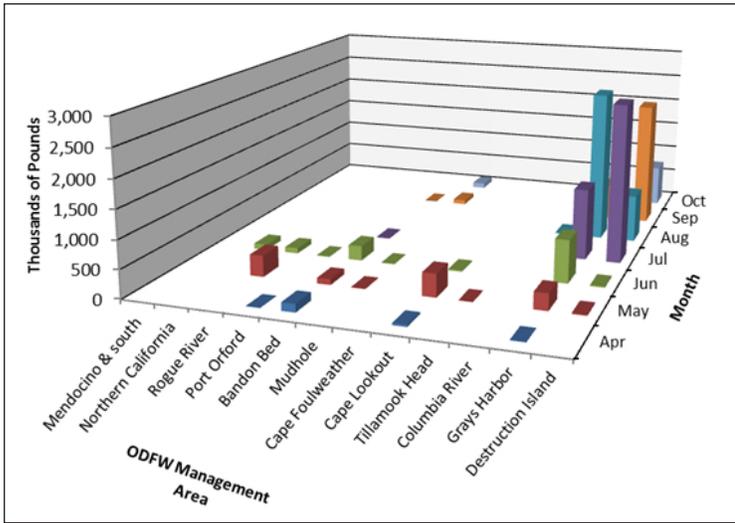


Figure 9. Estimated Total Pounds Landed into WA Ports by WA Licensed Shrimpers by ODFW Management Area for 2016.

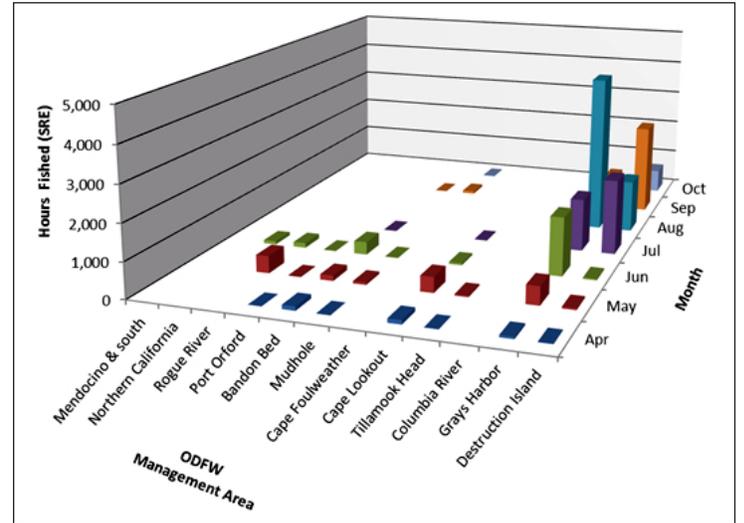


Figure 10. Estimated Catch per SRE Hour Fished by WA Licensed Shrimpers by ODFW Management Area for 2016.

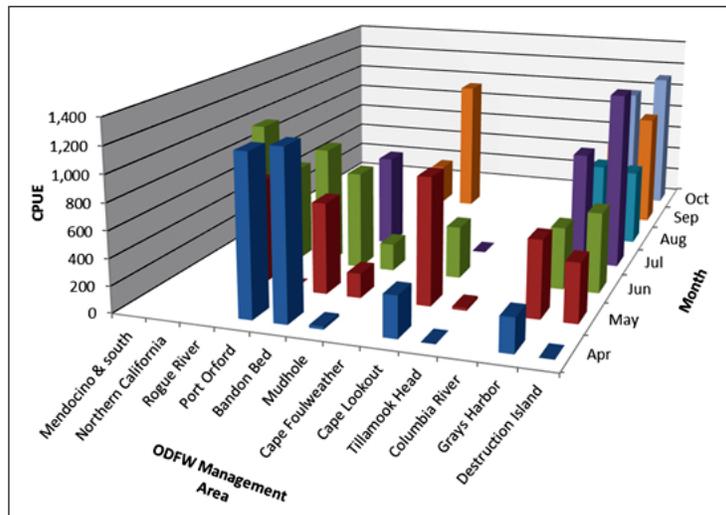


Figure 11. Estimated Total Hours Fished by WA Licensed Shrimpers by ODFW Management Area for 2016.

Month	ODFW Management Area	Samples (100 shrimp each)	Average Count per Pound	Total Samples
April	20	1	103.9	1
May	19	4	132.6	7
	26	2	149.4	
	30	1	120.3	
June	19	1	130.6	7
	21	1	121.0	
	28	2	149.7	
	30	2	150.5	
	32	1	160.4	
July	30	5	155.7	10
	32	5	155.8	
August	30	7	151.2	7
Sept	21	1	118.8	5
	30	1	143.2	
	32	3	137.0	
Total				37

Table 1. 2016 WDFW biological samples by Month and by ODFW Management Area.

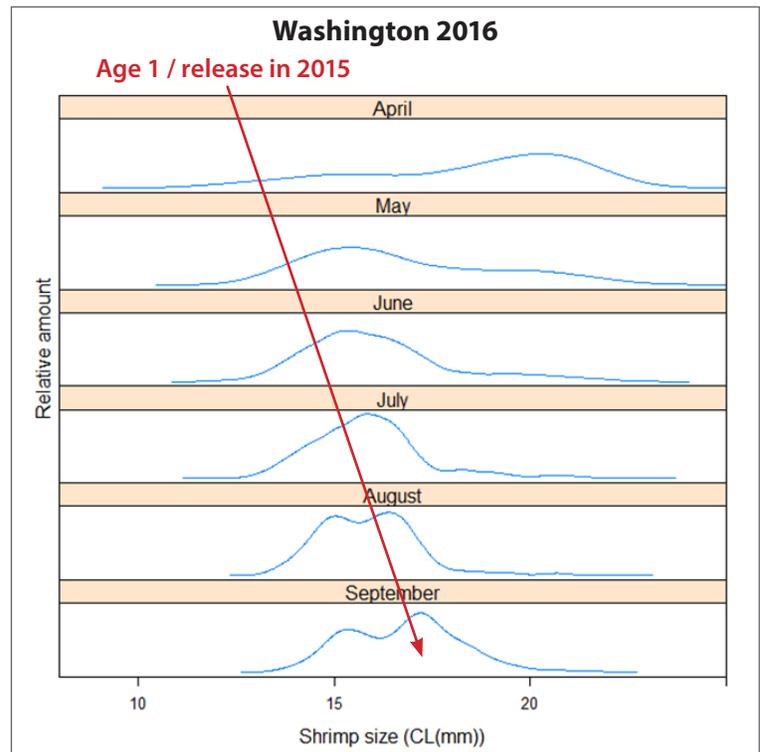


Figure 12. Length frequency by month from WDFW biological samples over all areas.

Use of LED Lights

A 2016 update of the 2015 survey of all vessels holding a Washington Trawl Licenses regarding the use LED as a method of reducing by-catch. Of the 28 License holders that reported landings in 2016, 24 or 86% responded to the survey and 100% of those respondents reported regularly using LED lights. Approximately 32% reported first use of LED beginning in 2014. This confirms the results found in our 2015 survey. A variety of spacing configurations were described, with the number of lights ranging from 6 to 12 per net. Respondents reported using only green lights.

As we discussed in our 2015 newsletter, the use of LED lights is likely to be required under still forthcoming National Marine Fisheries Service recovery plans for eulachon (i.e. the ESA listed southern distinct population segment). We anticipated that regulations would be in place prior to the 2017 season to require the use of lights and specify the configuration of lights in nets. However, after consultation with our counterparts at ODFW we have decided to join them in waiting to write these regulations. ODFW has plans to conduct some additional research during the summer of 2017 that will help inform the formulation of regulation language. The expectation is that new rules will be implemented in 2018.

Eulachon Management and Research

The WDFW eulachon management and research program is based at the agency's Vancouver regional office. Program managers provided the following to highlight WDFW accomplishments in 2016 to better understand eulachon population abundance and dynamics:

- Conducted presence/absence surveys in various coastal river systems and tributaries of the Columbia River to better understand the distribution of the species.
- Continued annual spawning stock biomass estimation for the mainstem Columbia River eulachon population (upstream from the estuary). The SSB estimate for the Grays River (a tributary that enters the estuary) was discontinued.
- Continued spawning stock biomass estimations for the Naselle River and Chehalis River for the purpose of understanding the role that neighboring estuaries may play in stabilizing the total population and influencing the run to the Columbia River
- Compared the patterns of SSB estimations for the Columbia River eulachon populations with those from other populations, such as the Fraser River.
- Continued collaboration with the Cowlitz Indian Tribe to develop SSB estimations for the Cowlitz River, in order to better understand the distribution of spawning in the Columbia River mainstem and its tributaries.
- Having determined from genetic analysis that some of the larvae visually identified as eulachon were not

actually eulachon, WDFW has launched a more thorough examination of the whole larval outflow period, and will develop genetic markers for longfin smelt that can be used to determine if these non-eulachon are the result of spawning period and location overlaps between the two species. Completion of this genetic analysis is dependent on securing federal funding in 2018.

- WDFW is working with Oregon State University Department of Fisheries and Wildlife to test eDNA methods to assess relative abundance of Eulachon and Longfin smelt in the Chehalis River.
- WDFW fills the only non-NMFS position on the Eulachon Recovery Team.

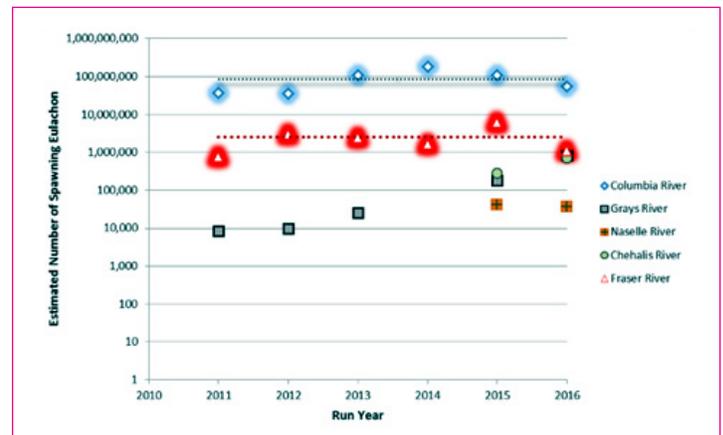


Figure 13. Comparison of estimated number of eulachon spawning in the Columbia River, Grays, Naselle, Chehalis and Fraser Rivers

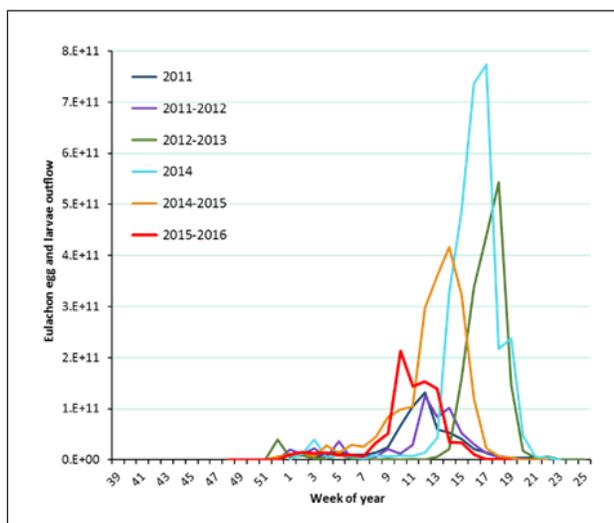


Figure 14. Comparison of estimated weekly outflow (passive outmigration) of eulachon smelt plankton (eggs and larvae) into the Columbia River estuary at the Clifton Channel – Price Island transect for 2011 (weeks 3 through 22), 2011-2012 (weeks 50 through 21), 2012-2013 (weeks 48 through 25), 2014 (weeks 1 through 23), 2014-2015 (weeks 39 through 21), and 2015-2016 (weeks 43 through 19).River, Naselle River, and Grays River.

Research Plans for 2017

Bycatch Evaluation

To fully assess fleet utilization of lights and characterize ground-gear configurations, WDFW will again attempt to survey fishers at the time of unloading to try to capture any vessel that did not respond to the 2015 or 2016 mailed survey or are newly participating in the Washington fishery. Results of the survey will help managers compare proposed rules for LED lights with current usage and the degree to which adoption of those rules will impact participants in the fishery. As in past years, fishery managers will share new findings or research with skippers to facilitate and expedite adoption of best-practices in reducing bycatch.

In March, the National Marine Fisheries Service published results from the Westcoast Groundfish Observer Program (WCGOP) reporting specifically on eulachon bycatch. Recall, the WCGOP primarily focuses on observing groundfish trawl vessels but also covers shrimp trawlers. Estimates of eulachon bycatch are presented in the report. In general, total bycatch of eulachon in the pink shrimp fishery has been increasing which is mostly an indication of an increase in eulachon abundance. This is not entirely surprising, although somewhat unexpected since increases were reported in the years during and after the excluder minimum bar spacing was reduced to $\frac{3}{4}$ inches. What perhaps is a bit more puzzling, is that in some cases the rate of bycatch was also found to increase. The rate increase was noticed in years when LED lights were being used by

many shrimp vessels. Since this report was just released, we have not had an opportunity to fully review it or seek more information from its authors. We anticipate sharing more information in a supplemental notice later this year. If you are interested in a copy, you may contact any one of us. The title of the report is “Observed and Estimated Bycatch of Eulachon in 2002–2015 US West Coast Groundfish Fisheries” and shrimp fishery results are presented in Appendix A.

The report can be found online at: <http://www.pcouncil.org/resources/archives/briefing-books/april-2017-briefing-book/#gfApr2017>.

Expanded Collaboration with ODFW Shrimp Project

For many years, Washington shrimp management has substantially benefited from the extensive research and fishery monitoring conducted by the ODFW Shrimp Project. Now that the WDFW logbook and biological sampling programs are fully underway, we have the opportunity to contribute by providing additional catch and biological data. An important objective for us is to collect and summarize data consistent with Oregon’s approaches. We will be working to hone our sampling techniques and improve data analyses through ongoing training and collaboration with ODFW shrimp biologists. We extend our appreciation to the Shrimp Project staff for their past and ongoing support.

Prospects for 2017

WDFW does not have the data to estimate trends in abundance similar to the Oregon model; we refer readers to the ODFW Pink Shrimp Review. ODFW modelling indicates catch during the first part of 2017 catch will be heavily influenced by the surprising strong 2015-year class which will be comprised of 2-year old shrimp that should be “even larger come spring.” Overall, ODFW projects moderate abundance.

MSC Certification



You will recall that in 2015 the coastal pink shrimp trawl fishery became the first state managed fishery in Washington to achieve the Marine Stewardship Council (MSC) certification for sustainable wild-caught seafood. This certification was accomplished as a “scope extension” of the already certified OR shrimp trawl fishery.

Certification was successful, in large part, due to strong similarity of the two state’s fisheries. The coastal shrimp stock is viewed as one stock and regulations are nearly identical in both states. WDFW management responsiveness to changing circumstances and new information also contributed to the positive rating.

Certification is not a one-time deal; in order to maintain certification, the MSC process sets conditions and conducts annual audits to review progress. The next audit is April 2017 and will consider agency progress on fishery monitoring, a fishery management plan and consideration of new gear regulations.

Fishery Management

Guiding principles for fishery management are founded in the agency mandate to protect the resource and enhance commercial opportunity. In addition, expanding from this general directive, specific policy for the coastal pink shrimp fishery includes maintaining regulatory consistency with the states of Oregon and California. A commitment to pursue similar management derives from the 1980 Pacific Fishery Management Council (Council) preliminary fishery management plan (FMP); the FMP was not adopted due to budgetary constraints, rather its objective was achieved through the states pursuing complementary regulations. For example, following formal and informal tri-state consultation, WDFW adopted regulations for mandatory excluders in the Washington coastal shrimp fishery

concurrently with Oregon and California in 2003. Similarly, in 2012, WDFW moved to adopt regulations for maximum bar spacing on excluder panels to coincide with ODFW implementation that same year. The justification for this action was based in part on ODFW research.

Fishery specific policy is not presently captured in any formal agency document. In response to the listing of eulachon as a threatened species and Marine Stewardship Council (MSC) certification of the Washington fishery, the need for a formal, written fishery management plan has been recognized. Due to competing work-loads, WDFW staff members have not completed a formal management plan for this fishery.

WDFW Observer Report

In 2011 and 2012, WDFW placed at-sea observers onboard WA licensed shrimp trawlers. The primary purpose of the observer project was to evaluate bycatch of eulachon smelt. An initial report submitted to NMFS in 2014 summarized eulachon bycatch information. In addition, bycatch data was also collected for rockfish and flatfish (as categories) and are included in an expanded version. Key findings from the project include:

- Increasing the size in escape-hole may have a positive effect in reducing by-catch.
- By-catch is overall highest in the spring.
- Spatial distribution results point to the co-occurrence of eulachon and pink shrimp.
- Analysis showed between-vessel differences in bycatch rates indicating the potential for improved fleet-wide performance.

- Possible future regulatory actions to reduce bycatch might include time and/or area closures.
 - Reduced season length would be easiest to monitor.
- The fishery and various bycatch species will benefit if early adopters of successful gears and or strategies are in a position to share information and if others in the fleet are willing and/or able to follow their advice or guidance.



A copy of the expanded report was mailed to each skipper that participated in the project. Both versions can be found at: http://wdfw.wa.gov/fishing/commercial/shrimp/monitoring_research.html

2016 Enforcement Report



In 2016, WDFW detachments report the following coverage specific to the pink shrimp fishery:

- Enforcement Hours: 26
- Number of Contacts: 17
- Violations: No violations observed (A WDFW Office did assist OSP with issuing Citations to a Washington resident who was cited for no valid Oregon Shrimp permit and no Non-Resident Boat Registration.

Fishing Regulations

Coordination with Oregon

While most regulations are similar, when fishing offshore another state shrimpers are reminded to confirm that their operations conform to that state's regulations. For example, Oregon law does not authorize the landing of frozen shrimp, whereas this activity is permissible via permit in Washington. Also Oregon licensed shrimpers can trawl in that state's territorial waters; conversely, Washington does not allow any trawling in its coastal territorial waters (0-3 miles).

Shrimp trawl logbooks are required by both WDFW and ODFW, and each agency will accept the other state's logbook.

Freezing at Sea

As mentioned above, Washington regulations do not explicitly prohibit freezing catch at sea. However, to address fishery specific needs, the pink shrimp trawl fishery permit now has provisions to support monitoring and sampling of frozen landed catch. The permit now requires those who intend to process shrimp at sea off Washington by freezing their catch to:

- notify the WDFW their intent to do so;
- notify WDFW personnel 24 hours in advance of landing;
- provide (upon request) WDFW a sample of 25 pounds of whole shrimp processed at sea by freezing and a sample of 25 pounds of fresh shrimp.



Figure 15. Pink shrimp, *Pandalus jordani*

Vessel Monitoring System (VMS)

The National Marine Fisheries Service requires any vessel using non-groundfish trawl gear in federal waters to have VMS installed. Declaration reports are also mandated prior to fishing. Specific compliance information can be found at the NMFS Vessel Monitoring System website at: <http://www.westcoast.fisheries.noaa.gov/fisheries/management/vms.html> or contact the NMFS Office of Law Enforcement (OLE) at 206.526.6140

Groundfish Limits

Shrimp trawlers are limited to 1,500 pounds of groundfish per TRIP with a daily limit of 500 pounds. Included are sub-limits for: lingcod at 300 pounds per month with a 24" minimum size, and sablefish at 2000 pounds per month. Canary rockfish, yelloweye rockfish and thornyheads are all prohibited. All other groundfish species taken count towards the 500 per day or 1,500-pound trip limits and do not have species-specific limits. A complete copy of Pacific Coast Groundfish Fishery management measures for 2017 can be found under "Public Notices, Inseason Updates and Trip Limit Tables" here: <http://www.westcoast.fisheries.noaa.gov/fisheries/groundfish/index.html>

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