

OLYMPIC COAST NATIONAL MARINE SANCTUARY

Olympic Coast National Marine Sanctuary
NOAA Office of National Marine Sanctuaries
115 E. Railroad Avenue, Suite 301
Port Angeles, WA 98362-2925

OCNMS Advisory Council In person meeting

**Friday, September 13, 2024
Meeting Notes**



**SANCTUARY
ADVISORY
COUNCIL**

Reviewed by OCNMS Superintendent and AC Chair:

A handwritten signature in blue ink, appearing to read "Kevin Grant", is written over a horizontal line.

Kevin Grant, Superintendent

A handwritten signature in black ink, appearing to read "Steve Shively", is written over a horizontal line.

Steve Shively, Chair

Advisory Council (AC) Members/Alternates:

Steve Shively (Tourism and Economic Development, Chair), John Shaw (Grays Harbor Marine Resource Committee, Vice-Chair), Lorna Wargo (Washington Department of Fish and Wildlife), Liz Schotman (Conservation), Patrick Gallagher (Marine Industry), Casey Dennehy (Washington Department of Ecology), John Hunter (Education), Brittany Poirson (Washington Department of Natural Resources), Mark Ozias (Clallam County Commissioner), Kevin Decker (Tourism and Economic Development), Mike Doherty (Citizen at Large), Heidi Eisenhour (Jefferson County Commissioner), Stephanie Sleeman (US Navy), Travis McNeely (US Coast Guard), Larry Phillips and Charlie Shelton (Fishing)

Presenters and Others in Attendance:

Sean McAllister (Pacific Marine Environmental Laboratory), Cleve Jackson (Quinault Indian Nation Fisheries Policy Spokesperson), Scott Mazzone (Quinault Indian Nation Shellfish/Marine Fish Biologist), Drew (Quinault Indian Nation Citizen), and Cheryl Bumgarner (Quinault Indian Nation Forestry Tech)

NOAA/OCNMS Staff in Attendance:

Dwayne Hawes (NOAA Fisheries, Office of Law Enforcement), Hélène Scalliet and Chris Butler-Minor (Olympic Coast National Marine Sanctuary (OCNMS))

Call to Order & Welcome

Steve Shively, Chair, called the meeting to order. The council was given a greeting song from Cleve Jackson, Quinault Indian Nation Fisheries Policy Spokesperson to welcome them to the traditional lands of the Quinault Indian Nation.

Internal Affairs:

- Agenda: The agenda was adopted with none opposed
- Approval of Meeting Notes: A motion to approve the July 2024 meeting notes with an amendment to the conservation member report was put forward by Casey Dennehy and Brittany Poirson seconded. None opposed.
- Liz Schotman was nominated as the new Secretary. She accepted the nomination and the council's unanimous approval.

Superintendent Report:

Hélène Scalliet, Deputy Superintendent for OCNMS stood in for superintendent Kevin Grant. She thanked Cleve Jackson and the Quinault Indian Nation for their welcome and for allowing us to hold the meeting at the Community Center in Taholah. She also thanked AC members who joined the Sanctuary's 30th Anniversary celebrations in Port Angeles following the July meeting.

Hélène shared news of former Research Coordinator for OCNMS, Jenny Waddell's retirement at the end of August. Hélène and Katie Wrubel will be standing in for time being until the detail assignment for current NOAA staff is filled during the hiring process for Jenny's replacement. She announced that OCNMS had hired a Marine Scientist, Alexandra Avila, PhD, and that two education and outreach AmeriCorps service members would start next week, including returning member Stori Smith and

new member, Saige Thompson.

She reported that the NOAA Dive team successfully recovered lost mooring equipment in August. Amazingly, the instruments had continued to record, thus providing a year-round data set.

Hélène also reported that a 62-foot fishing vessel caught fire approximately 3 miles off Cape Flattery. All the crew were rescued and there were efforts underway to tow it, but when the towing vessel arrived, she had already sunk. There were approximately 1,000 gallons of diesel on board and the trajectory estimate is expecting any sheen to move north toward Canada

In regional news, a new microplastics report entitled “[Plastic Litter in National Marine Sanctuaries in the West Coast Region and Monitoring Solutions](#)”. The report synthesizes resources pertaining to plastic debris in National Marine Sanctuaries in the U.S. West Coast region. Discussions include (1) the status of marine debris in each National Marine Sanctuary in the West Coast region, (2) research and monitoring efforts in National Marine Sanctuaries in the West Coast region, and (3) monitoring gaps and potential solutions.

On Sept. 6, 2024, NOAA announced the release of the final environmental impact statement for the designation of the proposed [Chumash Heritage National Marine Sanctuary](#). This is a significant step in the sanctuary designation process, with a final agency decision expected in October 2024.

Information Items:

Aquaculture and Fisheries Career Pathways: Meeting Future Demand in Coastal Washington

John Hunter, Pacific Education Institute (PEI) Coastal Region [FieldSTEM](#) Coordinator and AC Education seat alternate shared information on a newly developed aquaculture and fisheries career pathway designed for Washington State education teams. The Fisheries/Aquaculture Career & Technical Education (CTE) Program framework provides a curriculum designed to fill gaps in real-world career training using an integrated learning model focused on community-centered learning experiences. This CTE was collaboratively developed in response to natural resource job trends, including expected strong growth rate in the sector, average employee age, and the industry’s top “pain points” of misrepresentation of the sector, along with lack of awareness of jobs and K-12 outreach. John invited members to explore the [framework](#) and Youth Engaged in Sustainable Systems ([YESS](#)).

Using non-destructive molecular probing (eDNA) to understand ecosystem health and identify species-specific responses to hypoxia within the Olympic Coast National Marine Sanctuary

Sean McAllister, Research Scientist, PMEL Ocean Molecular Ecology Group provided a view into environmental DNA (eDNA) research taking place with OCNMS. This methodology aims to address the challenges of traditional marine ecosystem monitoring

such as the amount of time, funding, and labor required, the need for taxonomic expertise and manageable weather conditions, along with a bias toward conspicuous species focus. Sean described eDNA as a “concentration of cellular/extracellular material from a body of water on an appropriate-sized filter.” DNA sequences act as metabarcoding, allowing for the identification of communities within a sample, including rare and cryptic species. Other strengths include the ease of sampling with minimal environmental impact, reduction in biases, low cost, and fast turnaround times, plus extensive archives are possible. He noted that eDNA sampling has limitations related to quantification, incomplete DNA libraries, and false positives/negatives.

PMEL worked with OCNMS and tribal partners to create a preliminary list of 64 commercial, recreation, subsistence, and culturally important species of interest. Community assemblages inside and outside OCNMS showed little variability in overall structure during spatial sampling in 2021. Species distribution correlated with dissolved oxygen levels. Other significant covariates, such as temperature and depth, also contribute to these patterns. Temporal sampling of 24 samples every 36 hours included multiple, month-long deployments at Teahwhit Head (most successful) and Cape Elizabeth (patchy sampling). Twenty four of the 64 species were detected, including Pacific sanddab, Gregarious jellyfish, several types of southern and northern copepods, as well as diatoms and other types of plankton. In comparing samples to hypoxia conditions in OCNMS, Pacific herring do not appear to be strongly affected by hypoxic events, with a similar pattern found in copepods. HAB diatoms were less common in hypoxic conditions. Pacific sanddab and gregarious jellyfish were more common in hypoxic conditions.

Next steps include”

- Increasing sampling capacity;
- Combining spatial/temporal sampling on multiple oceanographic expeditions to develop ecosystem health indices and identify indicator species for quantitative tool development;
- Filling gaps in the reference database; and
- Developing integrated ecosystem databases that link biodiversity observations with hydrographic data and make eDNA data accessible for rapid data sharing

Quinault Indian Nation projects, priorities, and collaborations

Cleve Jackson, Quinault Indian Nation Fisheries Policy Spokesperson spoke about marine spatial planning interests and the benefits of sanctuary moorings for harvest management. They plan to deploy three of their own mooring buoys in the next month. He noted even though the year was not as plentiful as the prior year, there are still good numbers of bottom fish, razor clams, and Dungeness crab, with a surprise boon of Black cod aka sablefish. He also shared that this year’s market rate for shrimp was set too high and sellers priced themselves out.

He shared that they are planning several beach cleanups, including at the mouth and south of the Queets River. Two European Green Crab (EGC) grants have been awarded allowing the placement of traps in the Copalis River and Raft River. Although no EGC

have been found there, record numbers been caught in Grays Harbor.

Public Comment:

No public comment was received.

Member Reports:

Mark Ozias, Clallam County Government

Our biggest update is to announce that the North Olympic Recompete Coalition has been named as one of five finalists (out of more than 500 applications; we are the only awardee on the West Coast) for the "Recompete" program, which means our region will see an infusion of about \$35 million over the next few years to support a variety of projects intended to create new family wage jobs and reduce barriers to employment.

The theme is “connecting people and resources on land and sea.” Connections and disconnections were really what our plan was all about – most of our challenges exist because of disconnections, whether it’s institutional disconnections, where one government or agency isn’t paying attention to what the other is doing, or geographic disconnections due to our isolation and transportation infrastructure, and of course, the disconnection of our workforce which is at the heart of what the Recompete Pilot Project was trying to solve.

Projects range from investments in new barging capacity, to new workforce development programs, to improved access to child care, to new staff resources at the North Olympic Development Council that will provide additional bandwidth to Tribal Governments as they pursue programming and resources to support the unique needs of their constituencies.

Also of potential interest to this group will be our region's third Energy Futures Conference scheduled for October 29-30 in Blyn. Day one will be focused on current and future resilience projects (ranging from micro-grids to new transmission lines) while day two will focus on the nexus between planning for climate resilience and planning for energy resilience. For more information visit: <https://www.noprcd.org/events>

Liz Schotman, Conservation

September is disaster preparedness month! No better time to get your go bags ready. Here's a checklist for Clallam and Jefferson counties:

<https://mil.wa.gov/asset/5ba420b2b3d8f> - and some tsunami evac resources:

<https://www.clallamcountywa.gov/244/Tsunami-Evacuation-Inundation-Maps>.

Sharing the invite for "the inaugural six-year Washington Marine Debris Action Plan (WAMDAP) providing a comprehensive framework for strategic action to prevent and reduce marine debris throughout Washington, including the Puget Sound, the Northwest Straits, Washington’s Pacific Coast, the Columbia River estuary, and inland sources. The goal of this two-day workshop is to bring our marine debris community together to reflect on the 2018-2024 WAMDAP, strategically update collaborative actions that address the marine debris problem throughout the state, and begin drafting

the next interaction of the Washington Marine Debris Action Plan to be published in 2025.

Date: October 22-23, 2024

Venue: Red Lion Hotel, Port Angeles, WA"

Registration:

<https://docs.google.com/forms/d/e/1FAIpQLSdVU4uoPeVt8PLLOi-EuHgYuI33g9l2N2Iyre73zhnu957dZw/viewform>

John Shaw, Grays Harbor Marine Resource Committee

Grays Harbor MRC participated in this year's County Fair as the featured agricultural exhibit highlighting the importance of our marine resources and sharing with the public. We developed a large booth that featured Big Mama, signage and info relating to OCNMS, "Fin" the big salmon from NOSC, information tables, signage, and handouts for the visiting fair-goers. In addition to MRC members, we were joined by area salmon experts, WDFW staff, members of the Seafood industry, and the Maritime Museum. It was a great opportunity to share about the Sanctuary and its Mission and interact with the general public. The booth won the commercial exhibit first prize and was very much appreciated by the Fair Board. Members of the State Fair Commission who reviewed the presentation and engagement applauded the effort to highlight the importance of the coastal environment and resources. It was a great opportunity for public engagement and we thank the Sanctuary staff for helping make this happen for Grays Harbor.

Grays Harbor MRC has also been participating in the request for additional state funding and staff for all five Coastal MRCs with the production of a legislative ask for the upcoming session.

Grays Harbor MRC has also engaged in the discussion to end fireworks on state beaches under the jurisdiction of the Seashore Conservation Area. State Parks administers the SCA, and Westport brings focus to the discussion since it banned fireworks sales and use long ago. Working with Parks created the no driving and no fireworks area that has become a good news story for local businesses, tourism, and our beach environment.
[GH MRC report Taholah meeting 9 13 2024 - John Shaw.pdf - Google Drive](#)

John Hunter, Education

Dani DeMarco, a science teacher at Lake Quinault High School, taught a 6-week summer Forestry class through PEI's YESS (Youth Engaged in Sustainable Systems) program.

Kim Kearns at Forks Middle School ran a successful Salmon Camp as a summer school program for middle school students.

ONRC will be hosting four fascinating Rosmond Evening Talks this Fall. Tune in to hear about everything from locating western red cedar across the Olympic Peninsula to preparing for earthquakes and much more. Join us in person in the Hemlock Forest Room at the Olympic Natural Resources Center at 1455 S. Forks Ave, Forks, WA. Or, listen via zoom using this link: <https://washington.zoom.us/j/3834334539>.. If you can't

make it to the talks, you can always watch the recorded presentation later on the ONRC website here.

Tuesday, September 17, 2024 @ 7pm

- West Fork Environmental: A Small Business with Big Ties to the Olympic Peninsula. Presented by Phil Peterson from West Fork Environmental, Inc

Thursday, October 24, 2024 @ 7pm

- Where's Waldo Western Redcedar Edition: Locating Cedar Using UAV LiDAR and Multispectral Imagery. Presented by Ally Kruper from the University of Washington

Tuesday, November 12, 2024 @ 7pm

- What Are Earthquakes, How Do We Monitor Them, and How Do We Receive Forewarning? Presented by Mickey Cassar from the Pacific Northwest Seismic Network

Wednesday, December 11, 2024 @ 7pm

- Coastal Watershed Assessment Project: eDNA as a freshwater habitat assessment tool and its potential for tribal fisheries management. Presented by John Hagan from the Northwest Indian Fisheries Commission

Stephanie Sleeman, US Navy

The Navy is currently working on pre-planning and data collection for NWTT Phase 4 to renew current authorizations that expire in November of 2027. The Navy anticipates formally kicking off the Supplemental EIS and regulatory consultation process in ~ Sept. 2025. No major changes to Navy activities are planned at this point. Any new studies or data that SAC members are aware of that the Navy should consider in pre-planning and during future EIS updates can be forwarded to stephanie.l.sleeman.civ@us.navy.mil.

Research

No report.

Lorna Wargo, WA Fish and Wildlife

I am sharing three staff reports in full (see in appendices).

Page 10. Sept OCNMS Dungeness crab-season-summary-public

Page 13 Sept OCNMS Razor-clam-stock-assessment-summary-public

Page 14 Sept. OCNMS_2024 WDFW Rockfish Survey Spring Appendix

Kevin Decker, Tourism and Economic Development

The River & Ocean Film Festival returns on October 18, 2024 to celebrate the freshwater and marine environments of the west side of the Olympic Peninsula and the people who love them. Audiences will enjoy film explorations of Olympic Peninsula rivers and shores and learn about the issues facing its habitats and human communities.

<https://wsg.washington.edu/announcing-the-8th-annual-river-ocean-film-festival-in->

[forks/](#)

Washington Sea Grant (WSG) and the Climate Impacts Group (CIG) — both based at the University of Washington College of the Environment — collectively received \$8.1 million in federal funding to strengthen local capacity in responding to climate hazards on the Washington coast. The partners will do this by implementing a new Resilience Fellowship and training programs, a small grants program for coastal Tribes in Washington, and coordinating partnerships to ensure that lessons learned translate into actionable knowledge. <https://wsg.washington.edu/federal-funding-will-build-capacity-in-washington-coastal-tribes-and-communities-to-address-hazards-due-to-climate-change/>

Washington Sea Grant (WSG) is excited to have a project selected for funding through the Climate and Fisheries Adaptation (CAFA) program, a partnership between NOAA Research Climate Program Office and the NOAA Fisheries Office of Science and Technology. The WSG project aims to build on the foundation laid by the Willapa-Grays Harbor Estuary Collaborative (Collaborative). Launched in April 2022 and facilitated by WSG, the Collaborative holds the long-term mission of increasing the resilience of coastal communities and ecosystems in the face of environmental change and other stressors. Leveraging this existing partnership and initial work completed during the first years of the Collaborative, the CAFA-funded project will work with coastal communities on the southwest Washington Coast to develop tools that inform scenario planning, management strategies, and adaptation pathways in response to the challenges facing the region. <https://wsg.washington.edu/washington-sea-grant-will-lead-collaborative-research-to-model-southwest-estuaries-and-advance-climate-resilience-in-coastal-communities/>

Heidi Eisenhour – Jefferson County Commissioner

Jefferson County is coordinating the Shoreline Master Plan update process with the Department of Ecology, with the expectation that it will be complete by the end of summer. The date has been moved forward to November with the public comment remaining open.

Heidi noted a successful Wooden Boat Festival this year, increased funding from WDNR for the vessel turn-in program, and an anticipated second generation of Olympia oysters due to shell spreading.

Mike Doherty – Citizen at Large

Mike offered congratulations to Ed Johnstone of the Quinault Indian Nation, who has been reelected chair of the Northwest Indian Fisheries Commission. He also shared information on the Pacific States/British Columbia Oil Spill Task Force [2024 Annual Meeting](#) to be held on Dec. 5 in Salem, OR and virtually via Zoom.

Pat Gallagher – Marine Industry

Area to be Avoided (ATBA) monitoring shows an increase in incursions into the zone

particularly by tanker ships. USCG conducted a waterways study at 10 sites including offshore and in traffic separation schemes noting outbound tanker traffic concerns. Quiet Sound is targeting commercial vessels from Port Townsend southward for slowdowns as Southern Resident Killer Whales show up.

Standing Items:

AC members provide reports in the meeting package

Members will continue to frontload the meeting report package.

Upcoming recruitment

The AC is looking for an alternative seat for Conservation and a primary for Marine Industry.

Call for future agenda topics

Submit any future agenda topics and speakers on those topics to Chris Butler-Minor.

Adjourn:

Steve Shively thanked the members and speakers for joining the meeting. He also thanked Cheryl Bumgarner for providing refreshments and lunch. Steve invited members to join the guided Quinault Pride Seafood tour after lunch and adjourned the meeting.

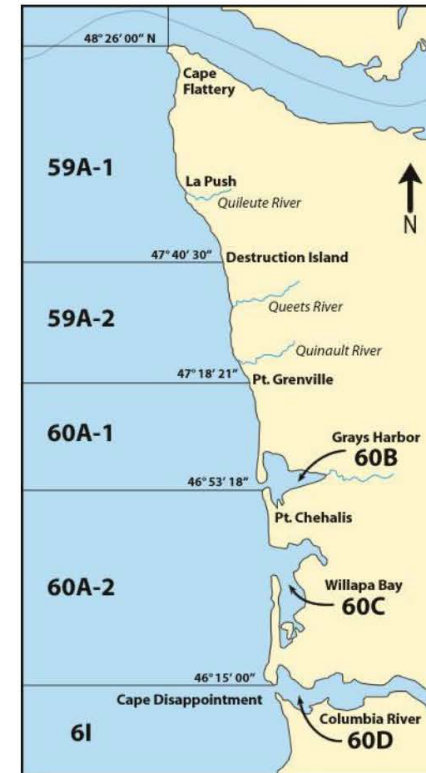
Commercial Dungeness Crab 23-24 Catch Update - All Areas

Catch (lbs) by state and tribal fleets through 9/5/2024

Area	State Landings (lbs)	Tribal Landings (lbs)
59A1	131,082	42,495
59A2	384,845	237,949
60A1	2,136,024	3,140,221
60A2*	10,443,281	
60B	581,206	25,137
60C	986,884	
61	2,840,523	
Total (tribal sharing areas**)	3,233,157 (48.4%)	3,445,802 (51.6%)
Total (entity)	17,503,845	3,445,802
Total (coastwide)	20,949,647	

*Includes catch from area 60D

** Tribal usual and accustomed fishing areas included catch reporting areas 59A-1, 59A-2, 60A-1, and 60B.



Commercial Crab Fishing
WDFW Catch Reporting Areas

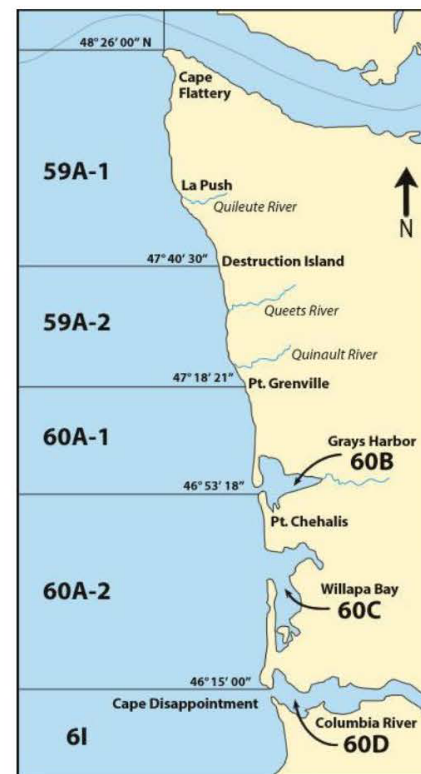


23-24 Catch Update - All Areas

Catch (lbs) by state and tribal fleets through 9/5/2024

Area	22-23 Coastwide Landings (lbs)	23-24 Coastwide Landings (lbs)	Percent Change
59A1	803,322	173,577	-78.4%
59A2	1,271,177	622,794	-51.0%
60A1	8,527,063	5,276,245	-38.1%
60A2*	13,031,451	10,443,281	-19.9%
60B	295,731	606,343	+105.0%
60C	1,950,843	986,884	-49.4%
61	2,863,908	2,840,523	-0.8%
Total	28,743,495	20,949,647	-27.1%

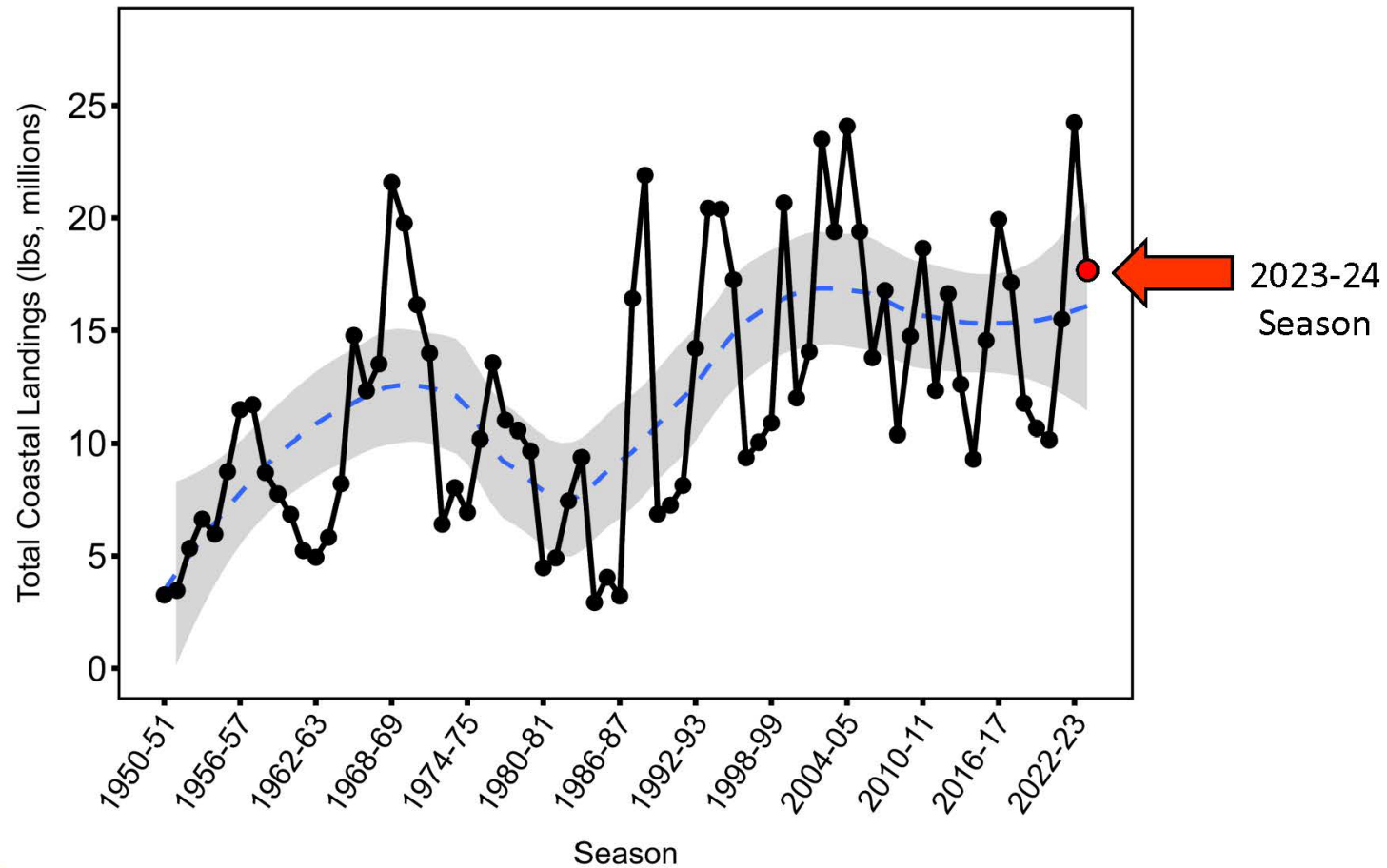
*Includes catch from area 60D



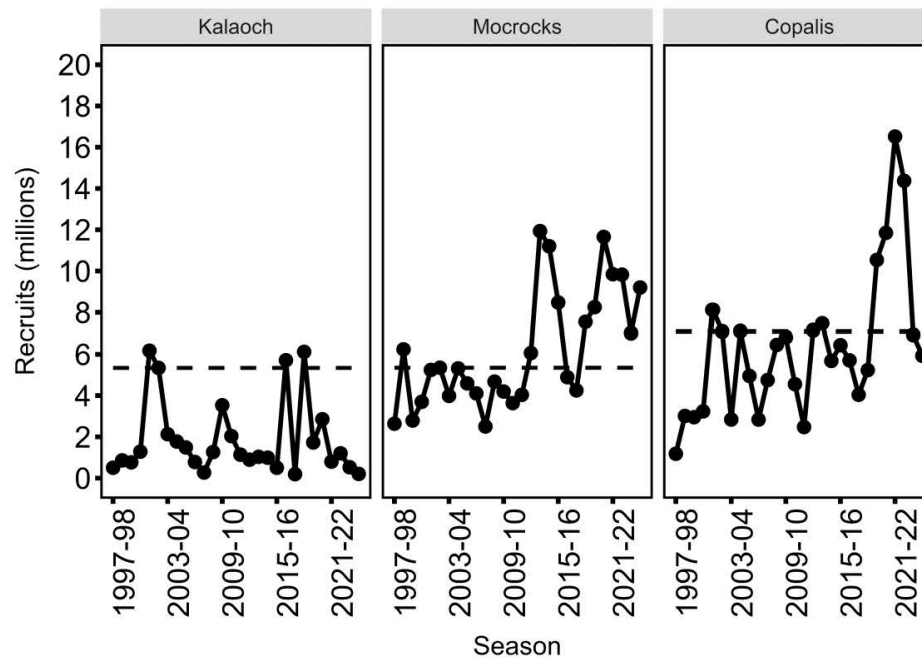
**Commercial Crab Fishing
WDFW Catch Reporting Areas**



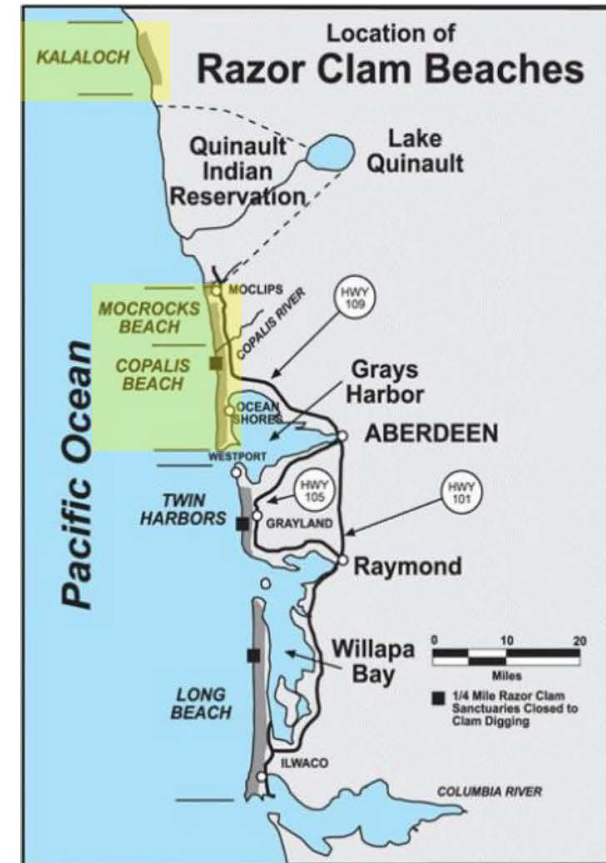
23-24 Catch Update - All Areas



24-25 North Beach Razor Clam Stock Assessment



The horizontal dotted line denotes the maximum sustainable yield from each beach (set in 2003). For the past 10 seasons, Kalaloch has seen low recruitment and will once again be closed for the 2024-25 season. Recruitment on Mocrocks and Copalis support a near equivalent amount of harvest opportunity to the 2023-24 season.



Appendix A. Black Rockfish Relative Abundance Rod and Reel Survey, Spring 2024

Background

The WDFW has conducted fishery independent rockfish surveys on the Washington coast since the 1980s. Historically, these surveys have primarily focused on Black Rockfish due to the predominance of this species in recreational fishery landings. Concerns over population sizes of other less dominant, but recreationally sought after, nearshore groundfish species has motivated survey design changes to address this data need. From 2014 to 2018, the WDFW conducted a series of experimental rod and reel studies focused on the development of a catch per unit effort (CPUE) survey that could describe relative changes in abundance over time of all groundfish species found on Washington's nearshore rocky reefs. Results of these studies were considered in the creation of a coastwide survey strategy composed of two annual legs, or separate surveys; one focused on rockfish that typically school above rock piles in the spring and another targeting demersal groundfish species in the fall. The annual Semi-Pelagic Rockfish and Demersal Groundfish Relative Abundance Surveys were respectively implemented in the spring and fall of 2019 and were continued with standardized methods through 2022. Methods and preliminary data of both surveys were evaluated by the Pacific Fishery Management Council's Scientific Statistical Committee for future use in stock assessments in the fall of 2022. Suggestions from this workshop were addressed with adjustments made to survey methodology prior to the start of the 2023 season. The Semi-Pelagic Rockfish Survey, focused on all schooling rockfish species of Washington's nearshore waters including Black, Yellowtail, Blue, Deacon, Canary, and Widow rockfish, continued in 2024. Methods and preliminary results of the 2024 survey are summarized here.

Methods

The study area of the Semi-Pelagic Rockfish Survey includes Washington coastal Marine Areas 2 through 4, from the nearshore waters just outside of Grays Harbor to the confluence of the Sekiu River with the Strait of Juan de Fuca (Figure 1). Study depth is limited to under 40 fathoms, which includes the extent of Black Rockfish typical depth range and all locations where the WDFW rod and reel surveys have previously encountered Black Rockfish. Within this study area, 162 specific GPS coordinates located at rocky reefs have been chosen as unique survey index stations. One hundred twenty-two of these stations were created in the implementation of the survey in 2019 and another 40 stations were added with adjustments made to survey methodology in 2023. All stations were scheduled to be surveyed in the spring of 2024 at the GPS locations defined in 2019 and 2023 respectively.

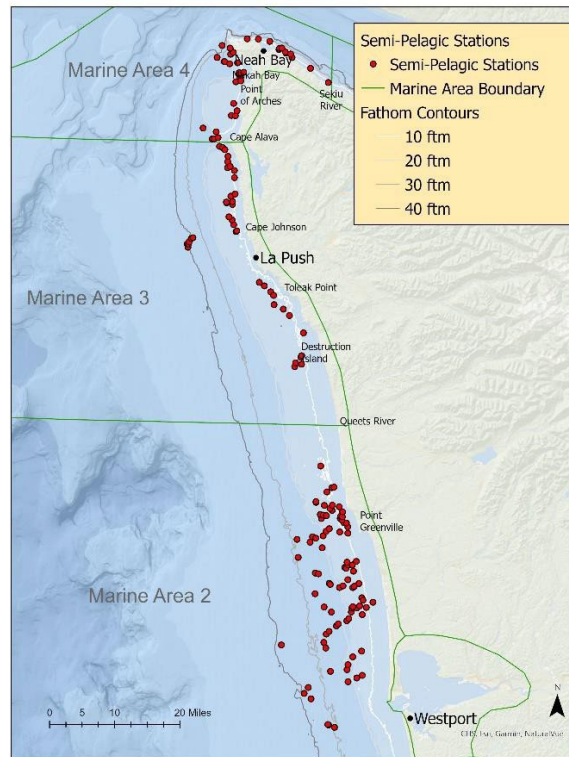


Figure 1. Semi-Pelagic Survey study area and index stations.

Fishing operations were scheduled from March to May, remaining consistent with historic WDFW spring survey timing. All locations were surveyed after recreational fishing began on March 11. Three recreational charter vessels staffed with five hired anglers and two to four WDFW scientific staff were used for onboard operations. All contracted skippers have at least ten years of professional captain experience fishing for rockfish on the Washington Coast and each angler has extensive experience fishing for rockfish on the Washington Coast. Fishing gear and tackle have been unaltered since 2019 and were kept consistent across all stations surveyed. Terminal tackle consisted of two shrimp flies tied on a leader above a dropper weight. Leaders were pre-tied at specified lengths before the charter day to ensure consistency. The weight of sinkers used for each drift was chosen by the vessel's captain after taking into consideration depth and weather conditions but were kept consistent among anglers for each drift.

All fishing effort was conducted during daylight hours and charter days ranged from 8-11 hours. Stations to be visited on any given charter day were chosen before leaving port by the lead biologist after consultation with the vessel's captain and taking into account ocean conditions. Fishing effort at each station consisted of three eight-minute fishing drifts that began within 50 yards of the station's GPS position. A fishing "drift" is defined as any consecutive time span that is spent fishing, beginning when the first angler's hook enters the water and ending when the last angler's hook leaves the water for any reason. At each station, captains took time to scout for fish aggregations and hard bottom/high relief areas near the station coordinates before setting up each drift. All fishing effort was

completed with the vessel unanchored and drifting. Captains were allowed to slow drifts to maintain an effective fishing speed, maintaining a similar drift speed and direction for all drifts at a single station.

Five anglers fished for the total fishing time at each station surveyed. The same five anglers fished all stations each charter day. Individual anglers were assigned a position on the vessel to fish for all drifts at each station. A “six-pack” charter vessel was used for all stations in Marine Area 3 and stations at Cape Alava in Marine Area 4. Due to space limitations on this vessel, three anglers were evenly spread out on the starboard side of the vessel and two anglers fished on the port side, one toward the bow and another mid-ship. Each angler was assigned a fishing position for the entire fishing day. All other stations were fished on larger recreational charter vessels that allow for established fishing positions on one side of the vessel evenly spread out from bow to stern. Before fishing began at each station on the larger vessels, anglers were randomly assigned to one of the established fishing positions.

At the beginning of each drift, all anglers were told to begin fishing and an eight-minute timer was started. Once the allotted eight minutes for each drift was reached, all anglers retrieved their gear. Anglers were allowed to retrieve their gear as many times as necessary during each drift to land catch or maintain gear. Individual angler times per drift were recorded as total time hooks were in the water, which excludes any time that fishing gear was out of the water either to land a fish or work on the gear. Anglers were allowed to fish anywhere in the water column that they expected to catch the most fish and captains were encouraged to describe the depths of fish aggregations to them.

Effort information collection at each station included GPS location of the start and end of each drift, depth, drift speed and direction, and total fishing time per station. Individual angler’s fishing time, catch by species, gear loss, and fishing depth (benthic or pelagic) were recorded for each angler and drift. Catch was identified to species, measured (fork length), externally sexed, and scanned for previously implanted tags. A caudal fin clipping no larger than one centimeter squared was collected, preserved on blotter paper, and recorded by individual fish for the first 30 individuals of all rockfish species, Kelp Greenling, Cabezon, and Lingcod encountered in each Marine Area visited. Age structures from Black, Deacon, and Yellowtail rockfish were systematically collected over the survey period with a sampling goal of over 100 per specie.

Individual fish weights in grams were recorded for all fish selected for age structure sampling. Fish that were not chosen for systematic or other ancillary age structure sampling were released at capture location with a descending device when necessary. Released Yelloweye Rockfish were tagged with both an internal PIT tag and an external Floy tag. Released China Rockfish, Copper Rockfish, Deacon Rockfish, Quillback

Rockfish, Tiger Rockfish, Vermilion Rockfish, Cabezon, and Kelp Greenling were tagged with a Floy tag and released.

Weather conditions including the intensity and direction of tide, wind, and swell were also recorded before fishing began at each station. A model SBE 19+ V2 water column profiler (CTD) was deployed at select stations surveyed. Stations that are central to groupings of stations were chosen for CTD deployment in an effort to represent conductivity, temperature, dissolved oxygen, chlorophyll a, and transmittance (650 nm wavelength over a 25 cm path) at multiple stations in a time effective manner.

Results

All 162 scheduled stations within the study area were successfully surveyed (Table 1) over 21 fishing days from March 14 through April 26. Average drift speeds at each station ranged from 0.1 to 1.0 knots. Total angler rod hours at successfully surveyed stations ranged from 1.7 to 2.3 for a coastwide total of 330.0 rod hours expended.

Table 1. Distribution (number) of stations surveyed in the 2024 Semi-Pelagic Rockfish Survey by Marine Area and depth bin.

	0-10 Fathoms	11-20 Fathoms	21-30 Fathoms	31-40 Fathoms	Grand Total
Marine Area 2	17	43	22	5	87
Marine Area 3	12	21	4	2	39
Marine Area 4	12	19	5		36
Grand Total	41	83	31	7	162

As expected, CPUE of Black Rockfish was highest among all species encountered in each Marine Area (Table 2). Other predominant species included Canary Rockfish, Deacon Rockfish, Lingcod, and Yellowtail Rockfish. Less than 27 individuals of all other species encountered were captured.

Table 2. Catch of groundfish species in the 2024 Semi-Pelagic Rockfish Survey. Coastwide

	Black Rockfish	Blue Rockfish	Buffalo Sturgeon	Cabezon	Canary Rockfish	China Rockfish	Copper Rockfish	Deacon Rockfish	Kelp Greenling	Lingcod	Quillback Rockfish	Vermilion Rockfish	Widow Rockfish	Yelloweye Rockfish	Yellowtail Rockfish
Total Catch	1650	20	1	26	51	14	10	256	12	110	16	4	11	6	234
Marine Area 4 CPUE	0-10 Fathoms	1.27	0.04		0.29		0.12	0.12	0.99	0.12	0.70	0.04			
	11-20 Fathoms	2.06			0.29	0.31	0.26	0.05	0.89	0.13	0.60	0.10	0.08	0.03	1.04
	21-30 Fathoms	0.67				1.63		0.38		0.10	0.10	0.29	0.10		0.67
	All Depths	1.60	0.01		0.25	0.40	0.18	0.12	0.79	0.12	0.56	0.11	0.05	0.01	0.64
Marine Area 3 CPUE	0-10 Fathoms	6.29	0.72		0.04			3.46	0.08	0.17					0.21
	11-20 Fathoms	4.53			0.07			1.73		0.07					0.38
	21-30 Fathoms	0.12				0.37		1.73		0.86	0.25		0.25	0.49	6.37
	31-40 Fathoms							1.19		0.24	0.24		2.14		1.67
	All Depths	4.35	0.22		0.05	0.04	0.01	2.17	0.09	0.19	0.04		0.14	0.05	1.02
Marine Area 2 CPUE	0-10 Fathoms	4.21	0.06		0.06			0.24	0.09	0.15					
	11-20 Fathoms	6.91		0.01	0.01			0.02		0.42					0.12
	21-30 Fathoms	8.62			0.02	0.26		0.02	0.39	0.20	0.09			0.02	0.98
	31-40 Fathoms	4.20				0.64				0.27	0.09				4.66
	All Depths	6.67	0.01	0.01	0.02	0.11		0.01	0.16	0.01	0.30	0.03		0.01	0.60
Coastwide CPUE		5.00	0.06	0.00	0.08	0.15	0.04	0.03	0.78	0.04	0.33	0.05	0.01	0.03	0.71

Average coastwide CPUEs of Black Rockfish, Deacon Rockfish, Yellowtail Rockfish, and Lingcod were realized in the 2024 survey (Table 3). The number of stations these species were encountered over the 2024 survey ranged from 37 stations with Deacon Rockfish present to 138 stations with Black Rockfish present. Catch rates of Canary Rockfish were historically low with encounters at 17 stations.

Table 3. Predominant species CPUE (total individuals per total rod hours) of the Semi-Pelagic Rockfish Survey from 2019 to 2024.

	2019	2021	2022	2023	2024
Black Rockfish	5.07	6.46	3.84	5.20	5.00
Canary Rockfish	0.26	0.16	0.21	0.23	0.15
Deacon Rockfish	0.88	1.11	0.54	0.28	0.78
Lingcod	0.16	0.47	0.32	0.66	0.33
Yellowtail Rockfish	0.87	0.43	0.46	0.63	0.71

Catch was biologically sampled according to the methods described above. All fish brought onboard were measured, sexed externally, and scanned for internal tags. Five hundred and eleven genetic fin clip samples were collected, and 154 tagged fish were released. No recaptured fish were encountered. Age structures were taken from over 100 individuals selected systematically from encountered Black, Deacon, and Yellowtail Rockfish for representative age distributions. Black Rockfish lengths ranged from 14 to 54 centimeters (Figure 2).

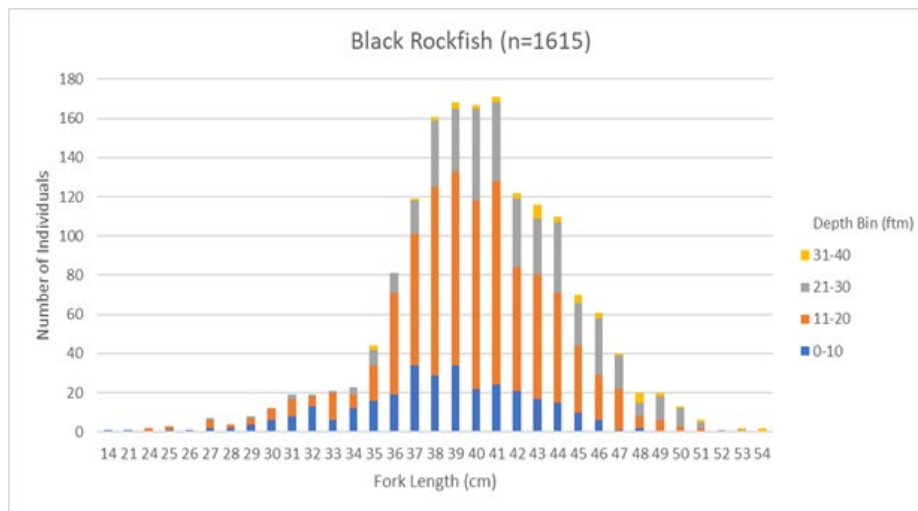


Figure 2. Length frequency of Black Rockfish catch on the 2024 Semi-Pelagic Rockfish Survey.

Forty-six water column profiles were collected coastwide (Table 4). Oxygen, temperature, salinity, and turbidity readings at maximum depth were within typical ranges. Notably high Chlorophyll a measurements of over 5ug/l including some readings exceeding 18.00 ug/l were noted in multiple casts where pockets of high concentrations were typically suspended in the water column.

Table 4. Range of ocean condition values observed at maximum depth of water column profiles collected in the spring of 2024 by depth bin and Marine Area. Samples collected at a descent rate of one-half to two meters/second are summarized here.

Marine Area	Depth Bin	Total Profiles	Max Depth (M)	Dissolved Oxygen (ML/L)		Temperature (°C)		Salinity (PSU)		Chlorophyll (UG/L)		BeamTransmission (%)	
				Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
2	0-10	3	20.06	5.44	6.77	10.40	10.53	28.87	31.72	1.06	3.63	25.46	61.86
2	11-20	12	38.448	5.13	5.98	10.40	10.65	31.27	32.20	0.52	3.19	19.06	91.31
2	21-30	6	59.692	5.39	6.11	10.04	10.54	32.00	32.45	0.16	2.14	11.72	90.87
2	31-40	3	69.46	4.39	5.45	9.66	10.20	32.38	32.79	0.33	1.25	64.97	84.06
3	0-10	3	17.566	2.97	6.81	9.01	9.78	31.92	32.97	1.87	12.21	47.59	69.43
3	11-20	6	33.167	2.84	5.53	8.84	10.17	31.27	33.15	2.88	18.00	13.23	71.71
3	21-30	1	52.951	4.03	4.03	9.17	9.17	32.88	32.88	0.45	0.45	87.98	87.98
3	31-40	1	70.316	3.34	3.34	8.80	8.80	33.23	33.23	0.89	0.89	69.72	69.72
4	0-10	1	11.98	6.89	6.89	9.16	9.16	31.45	31.45	7.16	7.16	79.15	79.15
4	11-20	8	33.979	3.78	6.47	8.53	9.06	31.59	33.05	0.45	8.29	78.92	97.46
4	21-30	2	44.92	3.12	4.15	8.21	8.54	32.78	33.57	0.08	2.88	84.89	99.58

Appendix B. 2024 Rod and Reel Deep-Water Experimentation

Background

Current WDFW rod and reel survey efforts have been limited to waters on the Washington coast less than 40 fathoms deep where nearshore priority species are mostly distributed. However, some of the groundfish consistently encountered in nearshore surveys have distributions that extend much further off the Washington coast. Yelloweye Rockfish, Yellowtail Rockfish, Canary Rockfish, and Lingcod are commonly encountered in current shallow-water WDFW rod and reel surveys but are known to extend commonly down to 110 fathoms on the Washington coast.

Setline surveys such as the International Pacific Halibut Commission's Fishery Independent Setline Survey (International Pacific Halibut Commission, 2022) and WDFW experimental setline studies have typically been modified and used to represent the rocky habitat species found at these depths. While setline gear effectively samples deep water rocky reefs in a standardized way, it is cost restrictive. The cost of attaining significant abundance data, particularly of Yelloweye Rockfish that have a patchy distribution on the Washington coast, has restricted the use of this survey type by WDFW. Alternatively, rod and reel surveys are more cost effective but functionally challenging in deep water where weather conditions and the complexity of fishing methods tend to compound with depth and distance from shore. Current methods and gear types used in WDFW nearshore rod and reel studies are not designed for fishing waters deeper than 60 fathoms, however other rod and reel surveys, most notably NOAA's Hook and Line Survey of Shelf Rockfish in the Southern California Bight (Harms, Wallace, & Stewart, 2010) have been effective in deep water. In the fall of 2023 and the spring of 2024, the WDFW conducted Deep- Water Experimentation on the Washington coast to evaluate the use of rod and reel gear at depths over 50 fathoms and to identify specific reef locations at these depths for further study. This report summarizes methods and initial results from experimentation conducted in the spring of 2024.

Methods

Two Deep-Water Experimentation fishing days were scheduled during the 2024 WDFW Semi- Pelagic Rockfish Survey season in April and May. A boulder field in Marine Area 3 and 4 west of the Juan de Fuca Canyon known as the "Prairie" was selected for the general study area (Figure 1).

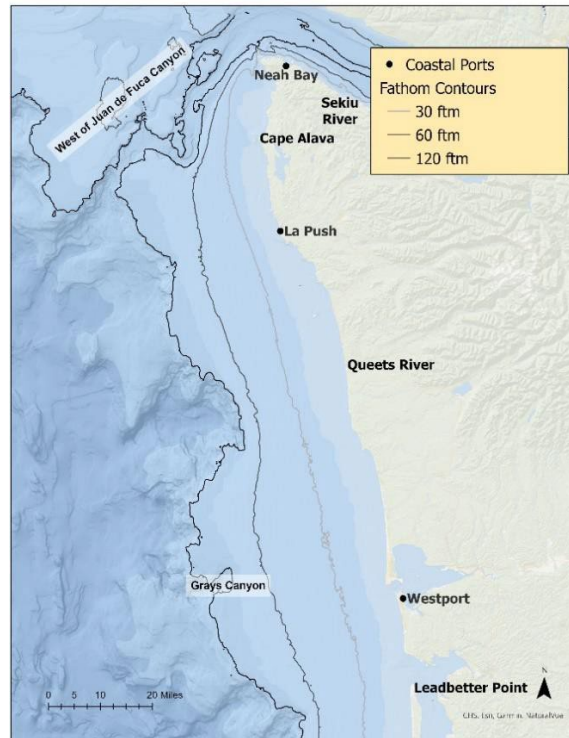


Figure 1. Deep-Water Experimentation general study locations, West of Juan de Fuca Canyon and Grays Canyon.

Within this study area, specific fishing locations spaced at least one kilometer apart at depths

over 50 fathoms were selected. Fishing locations were chosen by the vessel's captain so that as many locations as possible could be fished in a single charter day prioritizing:

1. Locations that have not been visited in a previous survey where Yelloweye Rockfish are known to inhabit.
2. IPHC FISS stations that consistently encounter Yelloweye Rockfish annually.
3. Locations that have not been visited in a previous survey where Lingcod, Yellowtail Rockfish, or Canary Rockfish are known to inhabit.

Fishing gear was supplied and maintained by WDFW staff. Six foot and six-inch, heavy action Ugly Stick Bigwater conventional rods with a 40-80 pound rating and seven foot, medium-heavy action Ugly Stick conventional rods with a 30-60 pound rating were used. Reels included TANACOM 750 and TANACOM 1000 electric reels having a maximum drag of 48lbs, momentary winding power of 140 lbs, and electronic reeling speed of 130-140 meters per minute. Reels were spooled with 80-pound braided line that was tied directly to a snap swivel.

Three different terminal tackles were used at each fishing location:

1. A modified version of the standard gear in the WDFW Demersal Groundfish Survey consisted of a mooching rig baited with an artificial worm. This was made of a three foot 60-pound monofilament line attached from the mainline to a sinker with a Demersal Groundfish Survey standard mooching rig leader attached between the monofilament and sinker via a three-way swivel.
2. Baited shrimp flies modeled after the standard terminal tackle used in NOAA's Hook and Line Survey of Shelf Rockfish in the Southern California Bight. This terminal tackle design consisted of a 96-inch, 60-pound monofilament leader with hooks attached via five-inch dropper loops. Hooks were spaced 16 inches from a top barrel swivel, 16 inches between hooks, and 16 inches from the bottom hook to a snap swivel that connected to a sinker.
3. The typical tackle the vessel captain uses in the area to catch groundfish. This included both a two-pound pipe jig with a large rubber worm tied above, and a mooching rig baited with squid. This terminal tackle type was kept consistent per day with pipe jigs used the first day and squid mooching rigs used the second day of experimentation.

The weight of the sinkers used for each drift was chosen by the vessel's captain after taking into consideration depth and weather conditions but was kept consistent among anglers for each drift.

As many unique fishing locations as possible were fished each charter day. Captains scouted potential fishing locations for fish aggregations or high relief areas before setting up each fishing event. Fishing effort at each location consisted of three fishing drifts of equal active fishing time that began as close as possible to each other and over the same target area. Captains slowed down drifts to maintain an effective fishing speed and maintain a consistent drift speed and direction for all drifts at a single location. Each subsequent drift at each location was fished with a different terminal tackle. Artificial mooching rigs were fished on the first drift, baited shrimp flies on the second drift, and the captain's choice on the third drift.

A "six-pack" charter vessel was contracted for all experimental days and five anglers fished at all locations surveyed each charter day. Due to space limitations on this vessel, the captain was used as one of the anglers. Anglers fished on both sides of the vessel with three anglers evenly spread bow to stern on the starboard side and two stationed on the port side of the vessel, one toward the bow and another mid-ship.

At the beginning of each drift, all anglers were told to begin fishing and an eight-minute timer was started. Once the allotted eight minutes for each drift was reached, all anglers retrieved their gear. Anglers were allowed to retrieve their gear as many times as necessary during the drift to land catch or maintain gear. Individual angler times per drift were recorded as the total time that hooks were in the water, which excludes any time that fishing gear was out of the water either to land a fish or work on the gear. Anglers fished with their terminal tackle on or near the bottom.

Effort information collection included GPS location of the start and end of each drift, depth, drift speed and direction, and total fishing time per drift. Individual angler's fishing time, catch by species, and gear loss were recorded for each angler and drift. The number of retrievals anglers were able to make during a drift, the number of fish caught on the first retrieval of drifts fished with the baited shrimp fly gear, and the hook position of demersal species caught on the baited shrimp fly gear were documented per angler. Catch was identified to species, measured (fork length), and externally sexed.

Results

Ten locations near the Juan De Fuca Canyon were studied over the two scheduled Deep-Water Experimentation charter days. Depths fished over the study ranged from 370 to 600 feet. Wind speed ranged from 2 to 17 knots and swell was at 5 to 7 feet which was acceptable, although pushing the fishable limit of maximum wind speed, for fishing at the target depths. The captain adjusted the speed of most drifts, maintaining drift speed from 0.1 to 0.74 knots.

Similar to study efforts in 2023, extended drop and retrieval times at depths over 60 fathoms continued to limit number of retrievals an angler can complete in a single drift. Anglers averaged 1.26 retrievals per drift with anglers averaging less than one retrieval per drift with all gear types. Further, when multiple retrievals were possible on a single drift, fishing was typically unsuccessful. For example, only five fish of the 79 fish caught with the baited shrimp flies were caught on a second retrieval of a drift. Catch rates of one or two hook terminal tackle types that can become easily saturated are particularly affected by this inability to clear catch and continue fishing during a deep-water fishing drift. However, limits to multiple hook tackle types like the baited shrimp fly gear, comprised of a 5-hook rig, were noted. As documented in the fall of 2023, significant, although less prevalent snarls with baited shrimp flies were encountered limiting overall fishing time. Additionally, all Yelloweye Rockfish caught with baited shrimp flies were caught on the last two hooks of the rig indicating that only the bottommost hooks are truly fishing for these bottom dwelling species.

Twenty-one Yelloweye Rockfish were encountered over the two experimental days and were caught at seven of the ten locations fished (Table 1). Yellowtail Rockfish was the most predominant species encountered and other schooling species including Bocaccio and Canary rockfish were well represented.

Table 1. Total number of each groundfish species encountered in the 2024 Deep-Water Experimentation study at each unique fishing location.

	East of JDF Canyon 1	East of JDF Canyon 2	East of JDF Canyon 3	SE IPHC 1082	SE IPHC 1531	IPHC 1528-1	IPHC 1528-2	IPHC 1531	South Prairie 1	South Prairie 2	Grand Total
Bocaccio Rockfish			6		7				2		15
Canary Rockfish	1		4	1	2	2		1	1		12
Lingcod	1		2	6	3			4	1		17
Rosethorn Rockfish	1							1			2
Tiger Rockfish							1				1
Yelloweye Rockfish	1		5	2			1	7	1	4	21
Yellowtail Rockfish				13	11	1	20	1	25		71

Anglers caught more Lingcod with pipe jigs on the first experimental day and more Yelloweye Rockfish with squid mooching rigs on the second experimental day than with either worm mooching rigs or baited shrimp flies (Table 2). Fishing effort with baited shrimp flies generally produced more semi-pelagic species than with the other gear types and Yelloweye Rockfish catch rates with baited shrimp flies were similar to those attained with worm mooching rigs.

Table 2. Total number of each groundfish species encountered in the Deep-Water Experimentation study by terminal tackle gear type on 4/24/2024 (left) and 5/8/2024 (right).

	Worm Mooching Rig	Baited Shrimp Flies	Pipe Jig		Worm Mooching Rig	Baited Shrimp Flies	Squid Mooching Rig
Bocaccio Rockfish	1	6		Bocaccio Rockfish	1	7	
Canary Rockfish	1	3	2	Canary Rockfish	4	1	1
Lingcod	2	2	9	Lingcod	1	1	2
Rosethorn Rockfish		1		Rosethorn Rockfish		1	
Tiger Rockfish			1	Yelloweye Rockfish	1	2	8
Yelloweye Rockfish	4	5	1	Yellowtail Rockfish	7	12	6
Yellowtail Rockfish	8	38					

Additional deep-water experimentation is needed to refine terminal tackle gear types and to evaluate specific fishing locations for future survey development. Seventy percent of the ten specific fishing locations that were thoroughly documented near the Juan De Fuca Canyon produced Yelloweye Rockfish. This area has the highest abundance of Yelloweye Rockfish known on the Washington coast and numerous un-surveyed fishing locations there have been indicated as potential rockfish habitat. Further exploration in this area would be highly beneficial to any future deep-water study design.

Reference

Harms, J. H., Wallace, J. R., & Stewart, I. J. (2010). Analysis of Fishery-Independent Rod and reel-Based Data for Use in the Stock Assessment of Bocaccio Rockfish. *106*, 298-309. Fisheries Research.

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