Washington Department of Fish and Wildlife

report to the

Groundfish Technical Committee

2026

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I. EXECUTIVE SUMMARY

The Washington Department of Fish and Wildlife (WDFW) is organized into three main resource management programs: Fish, Habitat, and Wildlife, with supporting administrative programs. There have been no changes to the executive-level leadership within WDFW in 2024, and the Agency continues to operate under the leadership of Director Kelly Susewind and Deputy Director Amy Windrope. Within the Fish Program, the Fish Management Division oversees research and management of marine fishes, including groundfish. The Marine Fish Science (MFS) Unit within this division, led by Dr. Theresa Tsou, handles Puget Sound groundfish, marine forage fish, and coastal marine fish. Leadership for each of these teams has also remained stable in 2025.

The Puget Sound Groundfish Unit focuses on groundfish research and monitoring, the management of recreational fisheries for bottomfish under Washington Fish and Wildlife Commission authority, and on the recovery of ESA-listed rockfish in partnership with NOAA Fisheries. The Coastal Marine Fish Science Unit conducts groundfish research, manages coastal groundfish and pelagic species in coordination with the Pacific Fishery Management Council, and conducts commercial and recreational fishery monitoring of groundfish species. State-wide forage fish research and management, and highly migratory species management is conducted by an additional team in the MFS Unit. This group focuses largely on herring and smelt research and monitoring, which is not summarized in this year's groundfish report.

II. SURVEYS AND MONITORING

Puget Sound

A. Puget Sound Bottom Trawl

The WDFW began conducting bottom trawl surveys in 1987 to monitor declining groundfish populations in Puget Sound. The survey design and frequency has changed at several points in time, but a depth-stratified, fixed index station design has been conducted annually since 2008. WDFW contracts a commercial fishing vessel to deploy a scientific trawl net, which is towed for approximately 0.40 nautical miles over 51 index stations throughout Puget Sound. Agency staff conduct the scientific aspects of the survey operation, which includes speciating all catch to the lowest taxonomic level possible, weighing and enumerating all species, and collecting additional biological data according to sampling protocols.

In a budget prioritization exercise, the Puget Sound bottom trawl survey was moved to a biennial, even-year cycle in order to balance increasingly limited resources across long-term

surveys, including those that focus on ESA-listed species. Consequently, WDFW did not conduct a bottom trawl survey in 2025. The 2026 survey is scheduled to run from April 27 to May 22.

For more information on this survey, please contact Jen Blaine (Jennifer.Blaine@dfw.wa.gov).

B. Remotely Operated Vehicle (ROV) Studies of ESA-Listed Rockfish

In November 2024, the Marine Fish Science Unit initiated an ROV survey of ESA-threatened Yelloweye Rockfish across the U.S. extent of its Distinct Population Segment (DPS). A Maximum Entropy species distribution model was used to define the sampling frame, which consists of map cells with predicted probabilities greater than 10%. Sample locations (transect stations) were assigned randomly in proportion to the area of each of the seven sub-basins within the DPS. This is the first survey conducted with WDFW's new Seaeye Falcon fiberoptic ROV system and new stereo-camera calibration hardware and software. The video data will be used for estimating fish density to produce a design-based estimate of population abundance. Imagery collected with the stereo-camera will be used for estimating fish length that can be used to calculate length-based spawning potential ratios, the established recovery metric for ESA-listed Yelloweye Rockfish. The survey concluded in March 2026, and stereocamera and video imagery are currently being reviewed.

For more information on this survey, please contact Bob Pacunski (Robert.Pacunski@dfw.wa.gov).

C. Puget Sound Recreational Creel Survey

WDFW's Puget Sound Sampling Unit (PSSU) conducts dockside creel surveys at public boat launches throughout the region. They collect information on catch composition, species targeted, and fishing gear used throughout Marine Catch Areas 5-13 (i.e., interior Puget Sound). The resulting catch and discard rates are used in the production of recreational catch and bycatch estimates for groundfish species in Puget Sound. The PSSU also collects biological information from landed catch, such as lengths and age structures for select groundfish species as possible.

For more information on this survey, please contact Ann Stephenson (Ann.Stephenson@dfw.wa.gov).

D. Recreational Effort Survey

Recreational fishing effort data has been collected through a phone survey of licensed anglers since 2003. Prior to that timeframe, the phone survey was conducted by the Marine Recreational Fisheries Statistical Program at NOAA. During each wave (i.e., 2-month period), a random sample of saltwater recreational fishing license holders are contacted by phone for a brief interview in which information on the number and location of saltwater trips, gear type used, and target species is collected. The information is used to calculate the mean angler trip rate within that timeframe for each marine catch area, gear, and target type for that time period.

For more information on this survey, please contact Kathryn Meyer (Kathryn.Meyer@dfw.wa.gov).

Coastal

E. Coastal Semi-Pelagic Rockfish Rod-and-Reel Survey

The WDFW has conducted fishery independent rod-and-reel surveys of Washington's coastal groundfish since the 1980s to support periodic stock assessments and other research needs that inform the management and status of marine fish populations. These surveys were amended in 2019 with the implementation of the Semi-Pelagic Rockfish Survey and the Demersal Groundfish Survey (see section G below).

The Semi-Pelagic Rockfish Survey was designed to provide relative abundance indices of Black Rockfish and other nearshore rockfish that typically school above rocky habitat. This annual survey currently includes 162 fixed stations on rocky reefs in nearshore waters (<40 fa) from just outside of Grays Harbor to the confluence of the Sekiu River with the Strait of Juan de Fuca. Each station is fished with standardized gear, effort, and methods. Metadata collected for each drift include effort information, location coordinates, weather conditions, and water column measurements. All catch is identified to species, measured, and externally sexed, and a subset of the catch is selected for age structure collection, genetic fin clip collection, and/or tag-and-release.

All 162 stations were successfully surveyed in 2025 over 21 fishing days from March 17 through April 24. Average drift speeds at each station ranged from 0.1 to 1.4 knots. Total angler rod hours at successfully surveyed stations ranged from 1.9 to 2.8 hours for a coastwide total of 335.4 rod hours. Weather conditions were exceptionally difficult in March and early April with 10 of the first 15 scheduled survey days cancelled. Average ocean swells encountered during survey days were higher than in any previous Semi- Pelagic Rockfish Survey, with 21 stations fished in eight-foot swells and nine stations surveyed in swells ranging from 9 to 11 feet.

Groundfish catch included 1,824 individual fish. As expected, Black Rockfish was the most predominant species encountered, comprising 70% of the total groundfish catch of individuals. Other prevalent species included Deacon Rockfish, Yellowtail Rockfish, and Lingcod that accounted for 5%, 11%, and 6% of the catch of groundfish individuals, respectively. All other groundfish species contributed less than 3% to the total catch.

For more information on this survey, please contact Rob Davis (Robert.Davis@dfw.wa.gov).

F. Coastal Demersal Groundfish Rod-and-Reel Survey

The Demersal Groundfish Survey was designed to provide relative abundance indices of groundfish species that are generally found individually or in small groups directly on rocky substrates of the nearshore Washington coast. This annual survey includes 84 fixed stations on rocky reefs in nearshore waters (<50 fa) from just outside of Grays Harbor to the confluence of the Sekiu River with the Strait of Juan de Fuca. Each station is fished with standardized gear, effort, and methods. Metadata collected for each drift include effort information, location coordinates, weather conditions, and water column measurements. All catch is identified to species, measured, and externally sexed, and a subset of the catch is selected for age structure collection, genetic fin clip collection, and/or tag-and-release.

Over 13 charter days from September 8 through October 6, 2025, 83 of the 84 stations were successfully surveyed. One station in the Strait of Juan de Fuca was covered with kelp and inaccessible. Average drift speeds at each station ranged from 0.03 to 1.18 knots. Total angler rod hours at successfully surveyed stations ranged from 2.49 to 3.07 hours for a coastwide total of 226.6 rod hours. Fifty-nine percent of the 1,142 individual groundfish caught were demersal species. China Rockfish was the most predominant demersal groundfish species encountered, comprising 25% of the total groundfish catch of individuals. Other prevalent demersal groundfish species ranged in abundance from 3% to 9% of the total catch and included Cabezon, Copper Rockfish, Kelp Greenling, Lingcod, Quillback Rockfish, and Yelloweye Rockfish. Hypoxic oxygen readings (<1.4 ml/l) were noted in all three water column profiles collected south of La Push in Marine Area 3. This area has had varying severity of hypoxia in the Demersal Groundfish Survey since 2023.

For more information on this survey, please contact Rob Davis (Robert.Davis@dfw.wa.gov).

G. Rod-and-Reel Deep Water Experimentation

Current WDFW coastal 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 coast. In 2025, a deep-water experimentation (DWE) survey was conducted 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.

The DWE survey was conducted along the entire Washington outer coast, from the Columbia River to the border of the Canadian Exclusive Economic Zone. Specific fishing locations where Yelloweye Rockfish and other species of interest were known to inhabit were chosen by contracted recreational charter captains. Fishing locations were spaced at least 400 meters apart and ranged in depth from 161 to 760 feet. Locations were fished with three individual drifts. Each subsequent drift at each location was fished with a different terminal tackle so that three terminal tackle types could be compared per day. Fishing methods were adapted from the current nearshore WDFW rod-and-reel surveys to reduce the high variance of fishing effort among fishing location and angler due to extreme differences in depth and catch within the study area.

Fifty-four individual fishing locations in the study area were sampled over nine charter days in 2025. A total of 168 Yelloweye Rockfish were encountered at 27 novel locations. Other predominant groundfish catch included Canary Rockfish, Lingcod, and Yellowtail Rockfish. Further DWE is warranted to refine an optimal terminal tackle gear for targeting Yelloweye Rockfish at depths greater than 60 fathoms while maintaining a diversified groundfish catch. Additionally, numerous un-surveyed fishing locations in the study area have been indicated as potential rockfish habitat, which should be included in future studies.

For more information on this survey, please contact Rob Davis (Robert.Davis@dfw.wa.gov).

H. Ocean Sampling Program for Recreational Fisheries

The Ocean Sampling Program (OSP) is responsible for catch estimation of ocean salmon and groundfish recreational fisheries. OSP uses port-exit counts, primarily, and dockside angler interviews of recreational landings at Ilwaco- Chinook, Westport, La Push, and Neah Bay to track quota attainment for Chinook and Coho Salmon, and to estimate catch of groundfish species. In addition, dockside samplers collect biological and tag data from salmon and length data from groundfish.

For more information on this survey, please contact Kyle Vandegraaf (Kyle.Vandegraaf@dfw.wa.gov).

I. Coastal Sampling Program for Commercial and Recreational Fisheries

The Coastal Marine Fish Science (CMFS) Unit's recreational groundfish sampling program directly supports research and stock assessment by collecting biological data from recreationally caught groundfish species landed at Westport, La Push, and Neah Bay. Comprehensive biological information includes fork length, weight, sex, and age structure collection (otolith or Lingcod dorsal fin ray). This biological information enhances data collection efforts of the WDFW Ocean Sampling Program previously described.

The CMFS unit also collects data on commercial groundfish, coastal pelagic species (CPS), and Hagfish fisheries at all primary coastal ports. The commercial sampling team has two major objectives: (1) to collect biological data – such as sizes, otoliths, and gonads – from commercially landed groundfish to support research and stock assessments; and (2) to collect groundfish catch data via commercial fisheries logbooks, fish receiving tickets, and species composition sampling of mixed-species market categories, which support fisheries monitoring and in-season management decision making.

The CMFS Unit produces periodic reports intended to inform fishery managers and fishery assessment authors by describing the biological and catch data collection methods and including an inventory of data collected. Descriptions of port and fishery dynamics offer context for the changes to data collection methods. Collectively, the series of reports serve to document changes in fishery monitoring and sampling goals, and approaches and procedures in response to evolving fishery management science and management needs. The most recent report, published in June 2020, summarizes activities and accomplishments from 2015 through 2018 (Downs et al. 2020).

Downs, D., K. Hinton, J. Fuller, T. Zepplin, K. Lawson, L. Wargo, T.S. Tsou. 2020. Washington Coastal Commercial Groundfish Fisheries Monitoring Program: Progress Report 2015-2018. Washington Department of Fish and Wildlife. Fish Program Report Number FPA 20-07.

For more information, please contact Rob Davis (Robert.Davis@dfw.wa.gov) regarding the Recreational Fisheries program and Donna Downs (Donna.Downs@dfw.wa.gov) regarding the Commercial Fisheries program.

III. RESEARCH

A. Groundfish and Benthic Invertebrate 'Vital Sign' Indicators

In 2023, WDFW was awarded a grant from the Puget Sound Partnership to support the development of 'Groundfish and Benthic Invertebrate' Vital Sign indicators to help track progress towards their recovery goal for 'Thriving Species and Food Webs'. More information

on the Puget Sound Vital Signs program can be found here: https://vitalsigns.pugetsoundinfo.wa.gov.

A collaborative workshop held on October 30th, 2024, brought together nearly 40 participants representing Tribes, state and federal agencies, and NGOs. As an outcome, Pacific Cod, English Sole, Dungeness Crab, and Spot Prawn were selected as indicator species based on data availability, selectivity by trawl gear, conservation concern, cultural and/or economic importance, and trophic diversity.

Using a spatio-temporal generalized linear modeling framework (sdmTMB), WDFW developed standardized, model-based indices of abundance for each indicator species. These indices, along with supporting documentation and web-based reporting tools, were completed in 2025 (Vital Signs | Groundfish and Benthic Invertebrates). The indicators provide a consistent and scientifically robust basis for tracking status and trends of key species within Puget Sound.

This work establishes a foundation for ongoing indicator updates and broader application of spatio-temporal modeling approaches. The indices will be updated in 2026 to incorporate new bottom trawl survey data, and the modeling framework will continue to be expanded to additional managed species to support fishery stock assessment needs.

For more information on this research, please contact Kathryn Meyer (Kathryn.Meyer@dfw.wa.gov).

B. Spiny Dogfish Aging Methods

The most recent stock assessment for Spiny Dogfish (Gertseva et al. 2021) cited several challenges resulting from survey and fishery age data. Dorsal spines are the aging structure used for spiny dogfish, which tend to be brittle and can be worn, creating age reading challenges. To address this area of uncertainty, WDFW began a study to improve ageing information for this species in 2024. Researchers are comparing spine-based age estimates to vertebral growth information through a Bayesian von Bertalanffy model to improve the precision of age estimates and better inform future stock assessments. Information gained from spine and vertebral age comparisons were discussed during the multi-agency spiny dogfish aging workshop in February 2026.

Gertseva, V., I.G. Taylor, J.R. Wallace, S.E. Matson. 2021. Status of the Pacific Spiny Dogfish shark resource off the continental U.S. Pacific Coast in 2021. Pacific Fishery Management Council, Portland, OR. Available from http://www.pcouncil.org/groundfish/stock-assessments/

For more information on this research, please contact Lisa Hillier (Lisa.Hillier@dfw.wa.gov).

C. Online Recreational Effort Survey Pilot Study

In Puget Sound, recreational catch for groundfish species is estimated using data from two distinct surveys. A phone-based survey collects information on fishing effort, and a dockside creel survey collects information on catch rates for groundfish species, as detailed in a previous section. The resulting effort and creel data are combined to estimate total recreational catch by species, target, catch area, and wave. Historically, there has been a relatively high degree of uncertainty in the Puget Sound groundfish catch estimates, much of which originates from the high variance in effort estimates. To improve catch estimate precision, WDFW has initiated a pilot effort survey using an online (rather than phone-based) format, which will allow the survey to reach a larger number of anglers at less cost.

Throughout 2025, both the historical phone survey and the online adaptation were conducted in parallel. Initial findings show an improved response rate for email-based contacts over phone-based, and parallel surveys will continue to occur through 2026 to allow two full years' worth of overlapping data. The resulting data will be evaluated in 2026 and 2027 for any biases that may require a correction factor to maintain a continuous time series of angler effort.

For more information on this research, please contact Kathryn Meyer (Kathryn.Meyer@dfw.wa.gov).

D. Shark Tagging

Broadnose Sevengill sharks (*Notorynchus cepedianus*) are known to inhabit the coastal waters of Washington and in the northern Salish Sea. In 2022, a multi-agency collaborative effort verified the presence of adult and sub-adult sharks in South Puget Sound, extending this species' previously documented range (Schulte et al. 2024). To date, researchers have acoustically tagged 21 individuals. In 2025, six additional receivers were strategically deployed in South Puget Sound to capture finer-scale movement patterns.

An array of receivers in Washington, Oregon, California, and British Columbia have detected several of these sharks, including multiple detections as far south as Humbolt Bay, California. These tracking data provide valuable insight into population connectivity across the Pacific Ocean, key reproductive and foraging habitats, and considerations for long-term shark management. Researchers will continue monitoring shark movements throughout the Pacific and may tag additional individuals in 2026 pending available funding. Monitoring of tagged sevengill sharks is planned to continue through 2031.

Schulte, J. M., E.M. Personius, D. Lowry, L. Hillier, A.G. McInturf, and T.K. Chapple. 2024. Advancing the ecological narrative: documentation of Broadnose Sevengill sharks (*Notorynchus cepedianus*) in South Puget Sound, Washington, USA. *Frontiers in Marine Science*, *11*, 1430962.

For more information on this research, please contact Lisa Hillier (Lisa.Hillier@dfw.wa.gov).

E. Historical Groundfish Fishery Compendium and Catch Reconstructions

Understanding and quantifying the historic fishery removals from a stock are essential to generating time-series data that are crucial inputs for stock assessment methods and catch-based management strategies. Estimating population-specific removals is exceptionally challenging during periods with very limited record keeping, when species are grouped into market categories, and when catch is aggregated by outdated or poorly described geographic areas. Factors such as sampling protocols, fishery diversity, catch versus landing locations, dead discards, and species identification add further complexity, varying across time and space, and reporting details can differ significantly. Since many groundfish stocks are distributed along the coast and a full time-series of removals is essential, coordination across states (i.e., Washington, Oregon, and California) is necessary to address removal reconstruction issues and develop common practices. Both California and Oregon have worked to reconstruct historical removals and continue to update their data. Washington's initial effort to reconstruct commercial landings for Lingcod and rockfish market categories was completed to support the 2017 PFMC groundfish stock assessments. Ongoing efforts are focused on analyzing the fishery's historical documents, reconstructing flatfish catch histories, and updating existing records. The most recent revision was used for the 2025 PFMC groundfish stock assessments of Rougheye/Blackspotted Rockfish, Widow Rockfish, Yelloweye Rockfish, and Yellowtail Rockfish.

For more information on this research, please contact Fabio Prior Caltabellotta (Fabio.PriorCaltabellotta@dfw.wa.gov).

IV. STOCK ASSESSMENTS AND MANAGEMENT BY SPECIES/GROUP

A. Hagfish

The Washington Hagfish Commercial Fishery, which opened in 2005 under developmental regulations, is small in scale, exporting hagfish for both frozen and live-fish food markets in Korea. Hagfish, predominately Pacific Hagfish, are caught in long-lined barrels constructed from olive oil or pickle barrels modified with an entrance tunnel and dewatering holes. Fishing occurs on soft, muddy habitat along the entire outer coast of Washington and northern Oregon. The fishery operates, by rule, only in offshore waters deeper than 50 fathoms and is open

access. Licensed Washington fishers can fish federal waters off Oregon and land catch into Washington; however, during the past few years, fleet participation and landings into Washington has been low. The median CPUE is about 4.5 pounds, but instances of high CPUE are not uncommon, as evidenced by reports of "plugged" barrels. Male and female hagfish present similar size distributions, with the largest specimen sampled being a 67-cm female, and the smallest a 20-cm specimen, sex unknown. An evaluation of maturity suggests year-round spawning, but fecundity is low, with the number of eggs in females at maturity stages 6 & 7 averaging 24 eggs per female.

For more information on this fishery, please contact Donna Downs (Donna.Downs@dfw.wa.gov).

B. Dogfish and other Sharks

Most Elasmobranchs along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan.

Shark species in Puget Sound are not well-monitored by existing surveys, although Spiny Dogfish are observed in both trawl and ROV surveys. Recreationally targeting Sixgill, Sevengill, and Thresher sharks is prohibited statewide, and no directed commercial fishing is allowed for any shark species in Puget Sound. No specific, directed research is being conducted on shark species, other than those described in Sections III-B & D.

C. Skates and Chimeras

Skates along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan.

In Puget Sound, Spotted Ratfish, Longnose Skates, and Big Skates are regularly seen in ROV videos and caught in the Puget Sound bottom trawl survey, where they are counted, weighed, and measured. Sandpaper Skates are less common but occasionally encountered. Spotted Ratfish is the most dominant fish species caught in the trawl survey by both biomass and abundance, with an estimated 51,050 mt and 145 million individuals present in Puget Sound based on the 2024 survey.

D. Pacific Cod

Skates along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan.

In 2023, WDFW engaged in a collaborative research effort with the University of Washington, the Alaska Fisheries Science Center, Department of Fisheries and Oceans Canada, and the Farallon Institute. UW geneticists are leading the study, which focuses on identifying the genetic underpinnings of Puget Sound Pacific Cod's apparent adaptability to the warmer bottom temperatures of Puget Sound. Work is anticipated to conclude in 2025.

The Puget Sound population of Pacific Cod are also caught in the Puget Sound bottom trawl survey, where they are counted, weighed, and measured; otoliths for age analysis and fin clips for genetic analysis are also taken from a small subset of individuals. In the 2024 trawl survey, 118 Pacific Cod weighing a total of 155 kg were caught compared to 201 individuals and 287 kg in 2023. Pacific Cod were selected as an indicator species under the Puget Sound Partnership's Vital Sign program. A standardized model-based index of abundance shows a variable, but slightly increasing, pattern over the past four years, although population levels are believed to be well below historic levels that pre-date trawl survey data collection.

Puget Sound Partnership. 2025. *Groundfish and Benthic Invertebrate Vital Sign Indicator*. https://vitalsigns.pugetsoundinfo.wa.gov/VitalSignIndicator/Detail/67

E. Walleye Pollock

Walleye Pollock along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan.

Walleye Pollock are regularly seen in ROV videos and caught in the Puget Sound bottom trawl survey, where they are counted, weighed, and measured. Rough population estimates are produced as part of the trawl survey analysis. Pollock biomass estimates decreased from 3,074 mt in 2023 to 1,633 mt in 2024, and abundance estimates dropped from 64.2 million individuals in 2023 to 26.8 million in 2024.

F. Pacific Whiting (Hake)

Pacific Whiting/Hake along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan.

The Puget Sound Pacific Hake population is primarily monitored with the Puget Sound bottom trawl survey, although they are also observed on ROV surveys. Neither survey type is thought to be the most effective method for monitoring Hake due to their pelagic nature, but the prevalence in the trawl survey data likely provides some indication of population-level trend. Design-based Hake biomass estimates decreased from 1,172 mt in 2023 to 682 mt in 2024, and abundance estimates dropped from 23.7 million individuals to 15.6 million in 2024.

G. Grenadiers

Grenadiers along the coast of Washington are managed as an ecosystem-component species under the Pacific Coast Groundfish Management by NOAA and the PFMC. This species is not thought to occur in Puget Sound.

H. Rockfish

Rockfish species along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan.

In Puget Sound, rockfish are managed in accordance with the policies, strategies, and actions outlined in WDFW's Puget Sound Rockfish Conservation Plan (Bargmann et al. 2011) and the Yelloweye and Bocaccio Recovery Plan (NMFS 2017). All rockfish species have been non-retentive since 2010 in most Puget Sound Marine Catch Areas and a 120-ft "bottomfish exclusion zone" was established in the same year to protect deeper-water rockfish species, particularly ESA-listed Yelloweye and Bocaccio Rockfish. Commercial fisheries targeting groundfish in Puget Sound were also closed in 2010 to promote rockfish recovery. WDFW monitors deep-water rockfish species primarily with periodic ROV surveys, and more nearshore species with periodic dive surveys and other opportunistic sampling methods. See Section II above for more information on these surveys.

A 2023 study, which used length and historical catch data, suggested that Yelloweye Rockfish appear to be on a path towards recovery in Puget Sound, although much uncertainty still exists in the estimates of relative population status (Min et al. 2023). The ROV survey, which is currently underway, is expected to provide an updated estimate of Spawning Potential Ratio as an additional recovery benchmark for this species. ESA-listed (endangered) Bocaccio Rockfish continue to be rare in Puget Sound and have not been identified in an ROV survey since 2015 and in the trawl survey since 2018. Although one Bocaccio was reported in the recreational Salmon fishery in 2024 in South Puget Sound, there was not an opportunity to validate the species identification of this observation.

Bargmann, G., W. Palsson, C. Burley, D. Friedel, and T. Tsou. 2011. Puget Sound Rockfish Conservation Plan (PSRCP) and Final Environmental Impact Statement (FEIS). Washington Department of Fish and Wildlife: Final Environmental Impact Statement for the Puget Sound Rockfish Conservation Plan

Min, M.A., J. Cope, D. Lowry, J. Selleck, D. Tonnes, K. Andrews, R. Pacunski, A. Hennings, and M.D. Scheuerell. 2023. Data-limited fishery assessment methods shed light on the exploitation history and population dynamics of Endangered Species Act-listed Yelloweye Rockfish in Puget Sound, Washington. Marine and Coastal Fisheries 15(5): e210251. https://doi.org/10.1002/mcf2.10251

NMFS. 2017. Rockfish Recovery Plan: Puget Sound/Georgia Basin Yelloweye Rockfish (*Sebastes ruberrimus*) and Bocaccio (*Sebastes paucispinus*). National Marine Fisheries Service, West Coast Region.

I. Thornyheads

Rockfish species along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan.

J. Sablefish

Sablefish along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan.

Puget Sound Sablefish are thought to be an extension of the coastal stock since this species extensively migrates across latitudes and depth gradients and shows very little genetic differentiation across much of its range (Timm et al. 2024). Although no Puget Sound Sablefish samples have been included in prior genetic assessments, they appear to only be abundant when coastal stocks are also highly abundant. Puget Sound Sablefish are monitored with trawl survey data, and although they are infrequently caught, their abundance has been increasing since 2017, with 2024 being the highest observed since the survey began in 1987 (mirroring record-level population estimates along the coast). Recreational catch estimates also show an increase in frequency of Sablefish in recent years. There are no commercial fisheries targeting Sablefish in Puget Sound, and the recreational groundfish fisheries are limited to depths less than 120 ft, which likely also reduces fishing pressure for this relatively deeper-water species. The current fishing regulations are very conservative, and there are no plans to conduct a Puget Sound-specific stock assessment for this species in the near-future.

Timm, L., W.A. Larson, A.J. Jasonowicz, and K.M. Nichols. 2024. Whole genome resequencing of Sablefish at the northern end of their range reveals panmixia and large putative inversions. ICES Journal of Marine Science 0(0): 1-15.

K. Lingcod

Lingcod along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan (PCGFMP).

WDFW samples and processes lingcod fins from both commercial and recreational fisheries, where they are cross-sectioned are aged using the surface-read method. Lingcod age and length data inform coastal age-structured stock assessments and data-limited population monitoring in Puget Sound. The recreational fishery for Lingcod population in Puget Sound is managed by a conservative collection of regulations, which include a short open season time to avoid nesting behavior, a 120-ft depth exclusion, a slot limit, and a daily bag limit of 1 fish. Catch rates in the majority of Puget Sound catch areas have remained relatively stable as a result.

L. Atka Mackerel

No specific, directed research or management to report for Atka Mackerel, which are not thought to occur in Washington waters.

M. Flatfish

Flatfish along the coast of Washington are assessed and managed by NOAA and the Pacific Fishery Management Council under the Pacific Coast Groundfish Fishery Management Plan (PCGFMP).

In Puget Sound, flatfish populations are monitored primarily by the Puget Sound bottom trawl survey. Design-based population estimates are produced for all species of flatfish encountered by the trawl survey, and length composition data are also collected. Overall, trends for this broad species complex are relatively stable and are believed to be healthy due to the long-term closure of a directed commercial fishery and very low recreational catch. English Sole is the dominant flatfish species throughout Puget Sound, which has been encountered at all depth strata and regions. The design-based population estimate for English Sole in 2024 was 12,727 mt and 110 million individuals, compared to 9,172 mt and 67 million individuals in 2023.

English Sole were selected as an indicator species under the Puget Sound Partnership's Vital Sign program, and subsequently, a standardized model-based index of abundance was developed for this species. The model-based index shows moderately steady growth since 1988, the beginning of the modeled timeframe.

Puget Sound Partnership. 2025. *Groundfish and Benthic Invertebrate Vital Sign Indicator*. https://vitalsigns.pugetsoundinfo.wa.gov/VitalSignIndicator/Detail/67

N. Pacific Halibut & IPHC Activities

WDFW had little to no involvement with IPHC sampling activities in 2024.

O. Other Groundfish Species

No specific, directed research to report for other Groundfish species.

V. RESERVES

There are over 100 marine protected areas (MPAs) in Washington State that fall variously under federal, state, and local jurisdictions. By statute, the WDFW has sanctioned 26 of them. Each has been categorically defined as either a Conservation Area, where harvest of all marine resources is prohibited, or a Preserve, which is less protective and allows for the harvest of some species. All of them are located in Puget Sound and were created between 1970 and 2009.

During the 1990s, the WDFW conducted systematic scuba-based bottomfish censuses over a small number of WDFW Conservation MPAs and nearby habitat-comparable unprotected sites. The surveys showed that the size and abundance of rockfish and lingcod were notably greater in the longest-established MPA (Brackett's Landing Conservation Area) when compared to the unprotected sites. Other pairwise comparisons were less conclusive. No further systematic evaluations of WDFW MPAs have been conducted. Further research is needed to determine whether WDFW-sponsored MPAs are meeting performance expectations, such as improving overall ecosystem health or increasing fish abundance and reproductive output potential.

For more information on WA reserves, please contact Kathryn Meyer (Kathryn.Meyer@dfw.wa.gov).

VI. DATA MANAGEMENT

Developing modern databases and workflows continues to be a widespread need and a high priority. In 2025, improvements were made to the databases that house recreational and commercial sampling information, and several workflow improvements were made as a result. Several outstanding needs remain for replaced outdated and/or inefficient data management

practices with modern, relational databases, and requests for funding to address these needs are outstanding for 2026.

VII. UPCOMING WORK, EMERGING NEEDS, CHALLENGES

Over the upcoming 2-5 years, WDFW is focusing on improving the quality and accessibility of Puget Sound fishery data as a foundational step towards producing reliable stock assessments on regular intervals. In 2025, this included developing model-based indices for select trawl survey species, conducting a digital recreational fishing effort survey to improve the precision of catch estimates, and modernizing data management practices. Next steps will include: 1.) developing model-based indices for an expanded selection of trawl survey species; 2.) developing a bias correction factor for telephone vs online-based effort estimates; 3.) re-evaluating other aspects of the recreational catch estimation process (e.g. survey stratification); 4.) continuing to streamline data accessibility by centralizing survey and other data sources, and standardizing QA/QC routines; and 5.) identifying research gaps in life history information, and ensuring survey biological data collection protocols are aligned with current information needs.

In 2025, the WDFW ROV program began working with researchers at the University of Washington to integrate an eDNA sampling tool onto the ROV. The goal of this collaboration was to collect eDNA samples during the ongoing WDFW survey in areas where Yelloweye Rockfish were encountered, and in areas where the habitat appeared to be suitable for Yelloweye Rockfish. Due to several technical challenges integrating the unit into the ROV control system, this work will continue to be evaluated for feasibility in 2026.

VIII. OTHER PUBLICATIONS

Beaudreau, A.H., Lowry, D., Blaine, J., Selleck, J., Pacunski, R., and K. Meyer. 2025. Social-ecological goals and outcomes of public engagement for recovery of endangered and threatened rockfishes (*Sebastes* spp.). PLOS One 20(9): e03316186 https://doi.org/10.1371/journal.pone.0331686

McInturf, A.G., C.R. Teixeira, R. Boyt, E.A. Daly, M. English, L. Hillier, ... and T.K. Chapple. 2025. Ontogenetic and sex variation in the foraging ecology of the Salmon Shark (*Lamna ditropis*) in the California current ecosystem. Marine Biology 172(3): 1-19. *DOI: 10.1007/s00227-025-04602-x*

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