Stock Assessment Summary

QUILLBACK ROCKFISH - 2021

Oregon's quillback rockfish stock is above the target stock status at 47 percent (target is 40 percent), according to a 2021 assessment. The population could drop below the target without a reduction in catch. The current quillback rockfish assessment represents the best available science at this time, having undergone a detailed independent scientific review process with multiple opportunities for public input.

The 2021 stock assessment (a model that uses the best available fishery and survey information to create a population estimate) uses data through 2020. Population status and overfishing limits from the previous 2010 analysis are now updated. This assessment was mandated by the PFMC to be "data-moderate," using only catch and length data from the fisheries and fishery-independent survey data.

Two independent population estimates from ODFW were developed using remotely operated vehicle (ROV) data and video lander data to compare model results to. ODFW also has a collection of otoliths (ear bones that document a fish's age like tree rings) to age quillback rockfish, primarily from the recreational fishery, that would be available for future assessments.

What data were used?

The 2021 Oregon quillback rockfish assessment used the most up-to-date catch and length data from fisheries through the end of 2020. Two ODFW historical catch reconstructions and length data from both commercial and recreational fisheries were used. Age and weight data from both surveys and Oregon fisheries were used to estimate biological parameters, such as growth and length-weight relationships. However, age data were not used directly in the model (see section below). Finally, maturity estimates that detail the size at which Oregon quillback can begin to reproduce, from a previously published ODFW study, were used.

ODFW staff launching the ROV.

Though not incorporated directly into the assessment model, additional datasets from ODFW were useful to groundtruth assessment results. These included two independent population size estimates from ROV and video lander surveys and a newly developed catch-per-unit-effort (CPUE index) from Oregon's marine reserves hook and line surveys. The ODFW population estimates from the ROV and lander data were greater than the model estimated numbers of fish, and the population trend from the CPUE index differed from the assessment model. However, observations for quillback were limited for the index and there were additional caveats to the ROV and lander datasets, limiting their utility in this assessment. All these data would be explored again for future assessments.

KEY TAKEAWAY

By considering updated data sources up to 2020, the Oregon quillback rockfish stock appears to be just above the target population size but catch reductions are necessary to maintain that target.

Marine Resources Program | Oregon Department of Fish and Wildlife
2040 SE Marine Science Drive | Newport, OR 97365 | (541) 867-4741

What was the review process for the assessment?

The review process for federal assessments is extensive and provides multiple opportunities for public comment during development. Several public workshops discussing data and preliminary models were conducted prior to the assessment review.

The primary review mechanism is a STAR (Stock Assessment Review) panel, with independent experts and members of the PFMC (Pacific Fisheries Management Council) Science and Statistic Committee (SSC). STAR panels are a week-long, intensive, and detailed review where the assessment team and panelists come to an agreement on the best model.

However, as a data moderate assessment, the Oregon quillback assessment was reviewed in a separate process by the PFMC SSC Groundfish Subcommittee (GFSC) at a public meeting. Finally, the assessment was reviewed by the full SSC and approved by the PFMC at the June 2021 meeting for use in setting harvest specifications.

Why weren't age data used in the assessment?

Aging the hundreds of samples necessary for a full assessment can often take months and ODFW has a substantial collection of unaged samples for quillback rockfish. However, the capacity to age these samples has been a chronic long-term issue in the development of these data- and time-intensive population models. In an effort to increase the number of species assessed, the PFMC approved two new assessment methodologies for the 2021 assessment cycle. These new methodologies were classified as "data-moderate" and only used catch, lengths, and if available, indices of abundance. New age data were not allowed in these assessments. However, existing age data for quillback were used to estimate growth and other biological parameters in the assessment model.

Why was the assessment process different for this data moderate assessment?

As the goal of the data-moderate assessments was to increase the number of assessments completed each cycle, there was a trade-off in the number of assessments reviewed at STAR panels. As an alternative, during the 2021 cycle, the data moderate assessments, including the Oregon quillback and copper rockfish assessments, were reviewed first by the GFSC and second by the full SSC. Similar to STAR panels, these meetings were open to the public and the assessments subject to a detailed review. However, they lacked the iterative, collaborative process of a STAR, leading to the SSC and PFMC recommending that future data-moderate assessments be reviewed in more depth.

Next Steps: Looking to the next assessment

The PFMC approved the 2021 assessment to set harvest limits for Oregon quillback rockfish at the June 2021 meeting. Following that meeting, the PFMC set catch limits to maintain the stock at a healthy level, which went into effect in 2023.

ODFW continues to collect data on quillback rockfish, despite additional harvest restrictions to keep the stock above target levels. The highest priority for the next assessment is to age the substantial collection of age structures and utilize all potential data sources to inform the status of quillback rockfish in Oregon.

KEY TAKEAWAY

The 2021 quillback assessment represents the best available science at this time. ODFW is planning to age its collection of samples and continue to collect fishery data to improve the data for a future quillback assessment.

Marine Resources Program | Oregon Department of Fish and Wildlife
2040 SE Marine Science Drive | Newport, OR 97365 | (541) 867-4741