



Marine Resources

Stock Assessment Summary BLACK ROCKFISH - 2023



An Oregon black rockfish stock assessment (a model that uses fishery and survey information to create a population estimate) was completed in 2023, updating population status and overfishing limits from the previous 2015 assessment.

The 2023 model includes new and updated data and is structured around using the first fishery independent black rockfish survey completed in 2021 along Oregon’s entire coast.

A critical request from the previous assessment, this survey provides an estimate of absolute biomass, anchoring the scale of the population in the model. The survey used a scientific fish finder with an underwater camera to effectively count black rockfish.

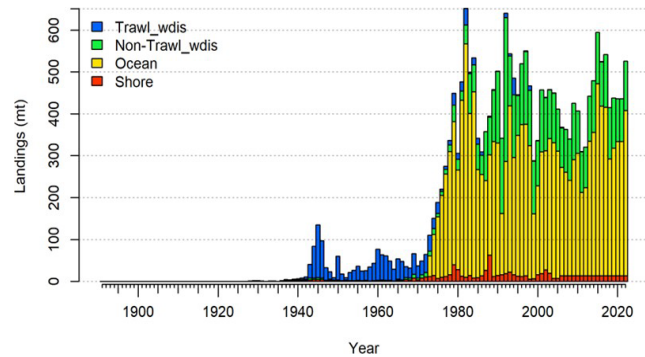
The model was very sensitive to how the 2021 survey was used. The more confidence put in the survey data, the more the modeled black rockfish population size increased. Models without the survey data estimated a much lower population.

Results from the assessment model indicate that black rockfish are just above the target stock status (45 percent) but could go below it without a reduction in catch prior to the next assessment. The current black rockfish assessment represents the best available science at this time, having undergone a detailed, intensive, and independent review process with multiple opportunities for public input.

What data were used?

The 2023 black rockfish assessment used a wide range of data from fisheries and from independent sources.

These include catch data (left), including three ODFW historical catch reconstructions, and six indices of abundance. Indices of abundance track the population level over time. These were from the commercial non-trawl fleet, the recreational fleet, the marine reserves hook and line survey, a tagging study of black rockfish off the central Oregon coast and the 2021 coastwide black rockfish survey.



Other important data include length and age data from commercial and recreational fisheries and surveys and updated reproductive information for black rockfish (maturity and fecundity, or the number of offspring females are able to produce).

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 full assessment review.

The primary review 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

KEY TAKEAWAY

By taking into account new and existing data sources, the 2023 stock assessment is an improvement in many ways from previous assessment and the Oregon black rockfish stock appears to be just above the target population size.



where the assessment team and panelists come to an agreement on the best model.

During the STAR panel, several changes to the assessment model were recommended to produce the most realistic model possible that all participants could agree on. Finally, the assessment was reviewed by the SSC and approved by the PFMC at the September 2023 meeting.

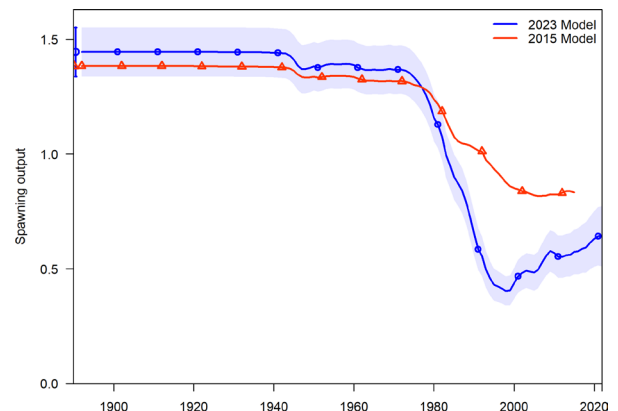
What are the key differences between the 2023 and 2015 assessments?

The new assessment differs from the previous in several ways:

- The most significant change is the incorporation of the 2021 coastwide survey that provides an estimate of the population of black rockfish off Oregon. The scale of the population in the new assessment is anchored to this survey.
- In the previous assessment, the tagging study on the central coast (2005 - 2013) was used to scale the population.
- While these fishery-independent surveys are useful to scale the population within the model, multiple data sources must be balanced.
- There are also data from fisheries, the recreational and commercial fleet. Removals and biological length and age data were updated for this assessment.
- A new index of abundance was developed from hook and line surveys in Oregon's marine reserves.
- More accurate estimates of reproductive capacity (maturity and fecundity) were used.
- The treatment of natural mortality is another key difference between the two most recent assessments. In the previous assessment, female natural mortality was increased at age 10 to account for a lack of older females in the data. The 2023 assessment chose a simplified approach that used a single value for female natural mortality that was slightly higher than for males to account for this phenomenon.
- Finally, recruitment (number of juveniles produced each year) is estimated in the 2023 model, which was not accounted for in 2015.

Why did the size of the population change?

This assessment incorporated both the 2021 black rockfish survey and the previous tagging study, which generally agreed with each other on the scale of the population. However, they are not the only source of data in the 2023 assessment and the model balances a range of data sources. The length and age data from the recreational fishery were pulling the size of the population in the opposite direction as the survey and tagging data, pulling as low as possible. Given this survey is only a single data point, the fishery data are weighted more heavily and pull the scale of the population down in the 2023 assessment.



Next Steps: Harvest specifications and another fishery independent coastwide survey

The PFMC approved the 2023 assessment to set harvest limits at the September 2023 meeting. During the winter and spring of 2023/2024, the PFMC will evaluate alternative catch limits to maintain the black rockfish stock at a healthy level.

ODFW is trying to secure funding to conduct the coastwide survey on a regular schedule. This will give this survey a stronger influence in future black rockfish assessments.



KEY TAKEAWAY

This assessment represents the best available science at this time. ODFW is trying to secure long-term funding to complete more coastwide surveys to improve the data going into the assessment.

