

12th MEETING OF THE SCIENTIFIC COMMITTEE

30 September to 05 October 2024, Lima, Peru

SC 12 – DW 06

Challenger plateau stock assessment - Explanatory note

New Zealand

South Pacific Regional Fisheries Management Organisation

12th Meeting of the Scientific Committee

Lima, Peru 30 September - 5 October 2024

Challenger plateau stock assessment - Explanatory note

Andy Biggerstaff ¹, Alexander Arkhipkin ¹

31 August 2024

1. Fisheries New Zealand, Ministry for Primary Industries, Wellington, New Zealand

Contents

1. Purpose	2
2. Background	2
3. The 2023 Challenger Plateau stock assessment	3
4. New Zealand consultation on ORH 7A TAC.....	3
5. Recommendations	4

1. Purpose

This explanatory note provides a high-level summary for the orange roughy stock assessment paper (DWXX), providing background information, highlighting relevant points for the Westpac Bank Fishery Management Area (FMA) of the SPRFMO Convention Area and providing recommendations for the Scientific Committee (SC) to consider.

2. Background

Orange roughy on the Challenger Plateau constitutes a ‘straddling stock’. The biological stock extends across the boundary of New Zealand’s Exclusive Economic Zone (EEZ) and onto the Westpac Bank FMA of the South Pacific Regional Fisheries Management Organisation (SPRFMO) Convention Area.

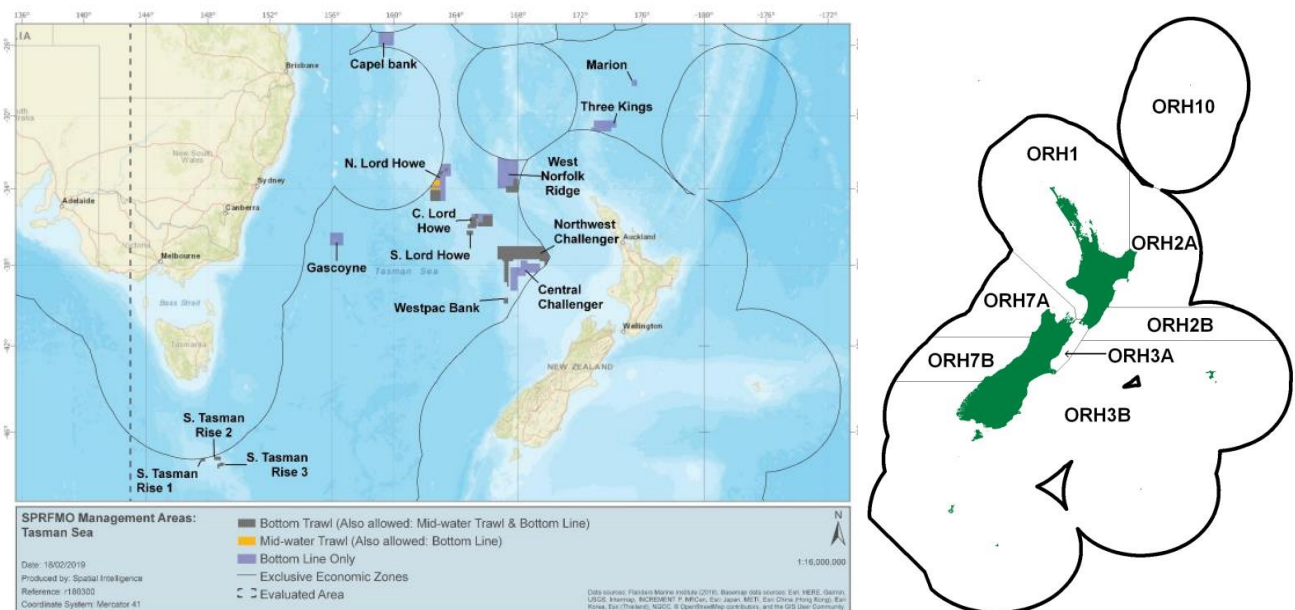


Figure 1: SPRFMO management areas (left) and New Zealand Quota Management Areas for orange roughy (right).

The Total Allowable Catch (TAC) for the Challenger Plateau biological stock is set for the New Zealand EEZ stock – ORH 7A. This TAC is set to allow the Maximum Sustainable Yield (MSY) for the whole biological stock. A proportion of this TAC, as determined by the catch limit set under CMM03a, is then allocated to the Westpac Bank FMA.

Catch taken from the Westpac Bank FMA is counted against the Total Allowable Commercial Catch (TACC) for ORH 7A. New Zealand fishers may take all the TACC for ORH 7A within the New Zealand EEZ, but only up to New Zealand’s allocation of Westpac Bank catch as stipulated in CMM03a may be taken from the Westpac Bank FMA. This ensures that no more than the TACC for the overall biological stock (set for ORH 7A) is taken, and that no more than the SPRFMO catch limit for the Westpac Bank FMA is taken, regardless of where the fishing takes place in relation to the Challenger Plateau.

Previously the Westpac Bank catch limit has been set at 12.5% of the ORH 7A TACC. This 12.5% is then allocated to New Zealand (95%) and Australia (5%). The 12.5% is based on the assumption that 12.5% of the Challenger Plateau orange roughy biomass resides in the Westpac Bank area.

The 12.5% value was based on historic catch data (prior to 2019) with reference to results from ORH 7A stock assessments prior to 2015 ([SC7-DW07](#) - Appendix 1).

3. The 2023 Challenger Plateau stock assessment

Following a survey by New Zealand to estimate the size of the orange roughy spawning stock on the Challenger Plateau in 2023, a stock assessment was conducted in 2024 (see DWXXX for full assessment results). The Challenger Plateau biological stock was assessed using a population model fitted to fishery catches, scientific surveys of the spawning grounds using bottom trawls and acoustic methods, and estimates ages of the fish.

Some substantial changes were made to the way the modelling was done compared to previous stock assessments. The most important change was that estimates of the size of the stock from different areas on the Challenger Plateau were summed to give a total stock size. Previously, three areas (Volcano, West, and East) had been treated independently. This assumption allows for movement of spawning stock biomass between aggregations and is the same as used for assessments of the Chatham Rise and Mid-East Coast orange roughy stocks (ORH 3B – New Zealand domestic stock). Movement of aggregations from west to east was noted in Challenger acoustic surveys in 2012 and 2018, and variable allocation of spawning biomass between spawning areas has been assumed in the East and South Chatham Rise assessment. There were other changes to the way the productivity of the stock was estimated, the relative importance given to each of the data sets, which data sets were included in the model and changes to the statistical settings of the model. Further detail on these changes is outlined in the stock assessment (DWXX)

The size of the stock before fishing started (the virgin spawning stock size, B_0), was estimated to be about 99,400 tonnes, and the stock in 2024 reduced by fishing to about 35% of this level. The future productivity of the stock was a concern as the stock was estimated to have been substantially reduced by fishing in the 1980s and 1990s. Due to orange roughy being a long-lived species, if this estimated reduction in the spawning stock biomass has had an effect on reproduction, it would likely only be observed now through recruitment into the fishery.

The acoustic surveys conducted in 2023 notably failed to measure a spawning aggregation within the EEZ on either the eastern and western survey strata. However, the acoustic surveys located a substantial spawning aggregation on the Volcano seamount (Westpac Bank FMA) and the biomass estimate was 8,132 tonnes. Further details on the research surveys including the survey strata are outlined in DWXX.

4. New Zealand consultation on ORH 7A TAC

In June-July 2024 a public consultation was undertaken in New Zealand outlining options to reduce the catch limit for the biological stock of orange roughy on the Challenger plateau (ORH 7A) in response to the stock assessment results from 2024 (DWXX). The full consultation document for ORH 7A is available [here](#) and the options presented in the paper are provided below:

Table 1. Proposed management options (in tonnes) for ORH 7A

Option	TAC	TACC	Allowances		
			Customary Māori	Recreational	All other mortality caused by fishing
Option 1 (<i>status quo</i>)	2,163	2,058	2	0	103
Option 2	1,730 (↓ 433)	1,646 (↓ 412)	2	0	82 (↓ 21)
Option 3	1,301 (↓ 862)	1,235 (↓ 823)	2	0	64 (↓ 39)
Option 4	942 (↓ 1,221)	885 (↓ 1,173)	2	0	55 (↓ 48)

New Zealand’s Minister for Oceans and Fisheries will decide before the 12th Meeting of the SC what, if any, adjustments to catch settings for ORH 7A will be. As this decision has not been made at time of submission, a revision to this paper will be provided when the decision is made.

5. Recommendations

It is recommended that the Scientific Committee:

- **notes** that an updated stock assessment has been conducted for the Challenger Plateau biological straddling stock of orange roughy, and this area contains the Westpac Bank FMA that is within the SPRFMO Convention Area (DW-XXX);
- **notes** the stock assessment estimated the spawning stock biomass is at 35% B_0 and declining, and due to uncertainties associated with the stock assessment, the biomass is ‘as likely as not’ to be below the lower threshold of the target biomass range to produce MSY. A reduction in the catch limit would be required to provide confidence the biological stock is at, and remains within, the target biomass range;
- **notes** New Zealand has publicly consulted on various catch limit reductions for ORH 7A (covering Challenger Plateau biological stock) – Table 1, and New Zealand’s Minister for Oceans and Fisheries will decide before the 12th Meeting of the SC what, if any, adjustments to the ORH 7A TAC are made;
- **notes** that the catch limit for Westpac Bank for future years will need to be set under CMM03a at COMM13;
- **notes** the catch limit for Westpac Bank has previously been set at 12.5% of the Total Allowable Commercial Catch of ORH 7A based on assumptions from historic catch information and references to stock assessment results prior to 2015;
- **notes** that during the 2023 Challenger Plateau acoustic survey a substantial spawning aggregation of orange roughy was found on Westpac Bank (Volcano seamount) from acoustic surveys, however spawning aggregations could not be found within New Zealand’s EEZ during the survey.