**Stock Identification**

**Scientific Name**: Hoplostethus atlanticus

**Species Name(s)**: Orange roughy

**Stock Identification**

Several studies (e.g. O’Brien et al. 2003, Viarengo et al. 2010) have been conducted using distinct techniques (microsatellites, allozyme or mtDNA analysis, diet, behaviour, etc.) in different geographic areas: New Zealand, Australia, Namibia, and Chile, North Atlantic). In samples collected from Helgoland (NW Ireland) to Sédib bath (near the Azores archipelago), a panmitic population was found in the NE Atlantic and significant differences with the Namibian population (White et al. 2010). Genetic studies also found differences among New Zealand and Australian stocks (Marchetti et al. 2015). But the worldwide stock structure of orange roughy is still currently unknown and a lack of significant differentiation among geographic samples is revealed (Viarengo et al. 2010). Main fisheries are conducted in New Zealand, Australia, NE Atlantic and Namibia, where different regional units are considered for assessment and management purposes:

- **Australia**: four units are based on regional spawning grounds and migration patterns (Epton et al., 2010). Western Zone (Sandy Cape), Southern Zone (Mackaypuck and Pedro Bank), Southern Remote Zone (Cascade Plateau), Eastern Zone (St. Patrick’s Head and St. Helens Hill).
- **New Zealand**: presumable biological stock structure is based on the spawning grounds identified but the nine assessment/management units are considered based on main fisheries operating in the region, not always in accordance with the boundaries of the biological stocks (more details in MPI, 2014).
- **Within the management unit Northern North Island (ORH 1)** there are several biological stocks with unclear boundaries: Mercury Cove is an assessment unit; there are other stocks that are not assessed.
- **Within the management unit Cape Runaway to Banks Peninsula (ORH 2A, 2B, 3A)** there are two biological stocks and correspondent assessment units: East Cape (ORH 2A North) and Mid-East Coast (ORH 2A South, 3A).
- **Within the management unit Chatham Rise and Prydz Bay (ORH 1B)** there are at least two biological stocks with correspondent assessment units: WNW Chatham Rise, East and South, Prydz Bay and the remainder of the sub-Antarctic area.
- **Within the management unit Challenger Plateau (ORH 1A)** there is a biological stock which includes also the Westpac Bank outside the New Zealand EEZ, managed by the South Pacific RFMO.

- **West coast South Island (ORH 1B)**.

**Management Quality**

- **Stock Health**:
  - Current Health: 9.6
  - Future Health: 10

**ASSESSMENT**

**Strengths**

The fishery was reopened in 2010 after a ten-year closure. Biomass has been increasing and is currently above all biomass reference points and fishing intensity is below the target. A Harvest Strategy (harvest control rule) is in place. The biomass target range and the harvest control rule were revised due to concerns raised by a MSC pre-assessment as to their appropriateness. Control and monitoring of non-regulation measures for protected species and catch limits in quota management areas is in force. A Vessel Monitoring System covers the entire fleet. A programme of observers’ onboard and a New Zealand Plan of Action to Prevent, Detect and Eliminate Illegal, Unreported & Unregulated Fishing is in place. Technical measures are established to minimize and monitor the interaction of the fishery with sharks, seabeams and marine mammals. Both bycatch and discarding have been decreasing. Bycatch is at around 4% and bycatch species are known, quantified and the magnitude is managed by quotas. The annual footprint of the fishery (area of seafloor contacted by trawling operations) has been decreasing and in 2015/2016 was a third of the maximum peak of 1988/1989.

**Weaknesses**

Quantitative information is not available for illegal, unreported and unregulated fishing and there are signs of non-compliance; reported catches are slightly above limits. District Fish analysis studies determined different levels of impacts of the fishery on the seafloor ecosystem and protected corals but both identified the lack of specific data to generate robust conclusions about the interaction. There are concerns about the expansion of trawling operations into new areas, the poor knowledge of corals in unfished areas and the lack of monitoring on management of the interaction of the fishery with the benthic ecosystem, especially in areas already closed to fishing.

**RECOMMENDATIONS**

1. Implement a comprehensive data collection program, including fishery-dependent and fishery-independent methods, to reduce uncertainty in and increase the quantity of data available for stock assessments.
2. Improve bycatch data collection, especially on slow-growing deep-sea corals.
3. Expand research on monitoring of impacts on the seafloor ecosystem in both fished and unfished (including closed areas) and increase Benthic Protected Area coverage in orange roughy habitat.
4. Collect information on potential non-compliance issues such as misreporting of Quota Management Area, species and weights, and fishing in closed areas.

**SCORES**

- **Management Quality**: > 8
- **Management Strategy**: 10
- **Managers Compliance**: 9.6
- **Fishers Compliance**: 9.6
- **Stock Health**: 10
- **Current Health**: 9.6
- **Future Health**: 10

**FIPS**

No related FIPs

**MSC**

No related MSC fisheries

**RECOMMENDATIONS**

1. Encourage your suppliers to continue the consultation process, begun with U.S. conservation organizations in October 2013, to identify sustainability concerns and establish a path to resolve these concerns.
2. Contact the New Zealand Ministry for Primary Industries and encourage them to be highly precautionary in the management of this sensitive fishery, and request that they improve data collection and reduce uncertainty surrounding both the target species and the ecosystem impacts of harvest.
3. Request that your supplies provide documentation of their compliance with Total Allowable Commercial Catch (this documentation should be available from the Ministry for Primary Industries).