Fisheries Improvement Plan
Orange Roughy Mid East Coast

Versions

Version 2 March 2015

Version 1 March 2014

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Overview

Deepwater Group (DWG) and the Ministry for Primary Industries (MPI) are committed to the sustainable management of New Zealand's orange roughy fisheries. To this end we have jointly embarked on a Fisheries Certification Programme (FCP) with the objective of achieving independent certification of New Zealand's key deepwater fisheries, including orange roughy fisheries (Figure 1). Our FCP is a four-staged work programme and a summary of this process to date can be seen on our website (Certification of New Zealand's deepwater fisheries). As part of this programme, four orange roughy fisheries are in formal Fishery Improvement Plans (FIP). This includes Orange Roughy 3B East & South Chatham Rise (ORH3B ESCR), 3B Northwest Chatham Rise (ORH3B NWCR), Mid East Coast (ORH MEC) and 7A Challenger (ORH7A).

The FIPs were first developed in March 2014 following a series of stakeholder meetings and consideration of a wide range of options, tools and 'templates'. DWG have developed FIPs using tools and templates provided by Marine Stewardship Council (MSC) for orange roughy fisheries to establish a public, transparent, inclusive and stepwise approach towards MSC Certification.

The objective of these four orange roughy FIPs is to ensure management of the fisheries meets the MSC Fisheries Standard and achieves MSC Certification. MSC's FIPs templates and tools provide for the progressive and time-bound implementation of improvements. They provide external observers with the ability to benchmark fisheries improvement, to track progress, and to demonstrate conformance with the MSC Certification requirements. These MSC improvement tools have been coupled with an open, transparent and publically notified pathway to facilitate MSC certification of the orange roughy fisheries.

This FIP is specific to the Orange Roughy Mid East Coast fishery (ORH MEC). The following sections provide further detail on ORH MEC FIP including a Gap Analysis and Remedial Action Plan.

ORH MEC is currently progressing through Stage 2 Phase 2 FIP (see Table 1). This involves remedial management actions and monitoring progress according to a public, time-bound FIP.

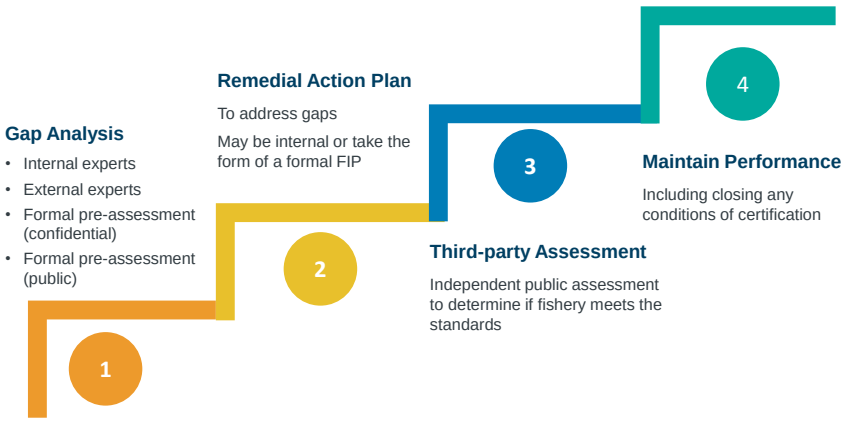

Figure 1 Deepwater Group's Fisheries Certification Programme Stages

Table 1 Timelines and milestones for the Fisheries Certification Programme for Orange Roughy Mid East Coast (ORH MEC)

Fisheries Certification Programme Stage	Deliverables and outcomes	Action Lead	Timeline	Progress
Gap Analysis 1	**Phase 1 - Fishery Evaluations:** Completed on the 'Fishsource' template and independently scored by Sustainable Fisheries Partnership.	MPI & DWG	Feb 2013	Completed ✓
	Phase 2 - Fishery Gap Analysis: DWG & MPI assessed orange roughy fisheries against MSC SG80 Performance Indicators to identify potential non-conformities and information gaps.	MPI & DWG	Mar 2013	Completed ✓
	Phase 3 - Orange Roughy Fisheries Pre-Assessment Improvement Action Plan: Develop action plan to address anticipated non-conformities and information gaps. Determined deliverables, timelines, milestones & system for monitoring progress against this plan.	MPI & DWG	Mar 2013	Completed ✓
	Phase 4 - Implementation of Work Programmes: Implemented work programmes resulting from the Action Plan.	MPI & DWG	Mar-Jul 2013	Completed ✓
	Phase 5 - Assessment of the Environmental Effects of Fishing: Developed methodology; assembled expert panel; invited participants; held workshop and produced final report (publically available).	MPI & DWG	Jul 2013	Completed ✓
	Phase 6 - MSC Pre-assessments: Contracted MRAG-Americas to undertake MSC pre-assessments of each of four orange roughy fisheries. Held Consultation meeting with Stakeholders.	MPI & DWG	Jul 2013 – Jan 2014	Completed ✓
Remedial Action Plan 2	**Phase 1: Fishery Improvement Analysis:** Identified the remedial management actions based on MRAG-Americas pre-assessment identified certain PIs as unlikely to meet the MSC Fisheries Standard.	MPI & DWG	Jan-Feb 2014	Completed ✓
	Phase 2: Fishery Improvement Plan: Implemented remedial management actions within an agreed and time-bound plan using the MSC Monitoring and Benchmarking FIP Template. Once finalised, post with SFP for public viewing. Updated annually.	MPI & DWG	Jan 2014 - Jul 2022	Remedial Actions In process (see page 13)
Third-party assessment 3	**Phase 1 - MSC Assessment**: Undertook formal assessments of the fishery against the MSC Fisheries Standard.	MPI & DWG	Jul-Aug 2022	
	Phase 2 - MSC Certification: Achieved certification of the fishery against the MSC Fisheries Standard.	MPI & DWG	Sep 2023	

Gap Analysis

1

The first five phases of the Gap Analysis have been completed:

- Phase 1 Fishery Evaluations
- Phase 2 Fishery Gap Analysis
- Phase 3 Orange Roughy Fisheries Pre-Assessment Improvement Action Plan
- Phase 4 Work Programmes
- Phase 5 Assessment of the Environmental Effects of Fishing.

This version of the FIP addresses the outcomes of the Pre-Assessments.

Phase 6 MSC Pre-Assessments

On 22 and 23 August 2013, MRAG-Americas undertook detailed pre-assessments of four orange roughy fisheries against the MSC Fisheries Standard in an open workshop forum where all interested parties and MSC Stakeholders were invited to participate.

The pre-assessment workshop was attended by representatives from Deepwater Group, Ministry for Primary Industries, Department of Conservation, World Wildlife Fund, National Institute of Water and Atmospheric Research, Innovative Solutions Ltd, Clement & Associates and Seafood New Zealand.

MRAG-Americas provided Deepwater Group with their Pre-assessment Report for these fisheries on 22 December 2013. Pre-assessment results for each Performance Indicator are categorised as: 'red' (i.e. likely to score below 60); 'orange' (i.e. likely to score between 60 & 80); or 'green' (i.e. likely to score above 80).

Deepwater Group held a consultation meeting with MSC Stakeholders on this Pre-assessment Report on 21 January 2014 to discuss the report's findings.

The outcomes from MRAG-America's Pre-Assessment Report of ORH MEC are summarised in Table 2. This is a snapshot of the fishery as it was in 2013.

Key Documents:

- Pre-assessment Report (MRAG, 2013)
- Minutes of consultation meeting with MSC Stakeholders (DWG, 2013).
- WWF submission and DWG response.

Table 2 ORH MEC 2013 pre-assessment results

MSC Component	MSC Performance Indicator	MSC Performance Indicator	Outcome
Outcome	1.1.1	**Stock Status:** Stock at a level which maintains high productivity	60-80
	1.1.2	**Reference Points:** Appropriate limits and reference points for the stock	<60
	1.1.3	**Stock Rebuilding:** Where stock depleted - there is evidence of rebuilding	<60
Management	1.2.1	**Harvest Strategy:** Precautionary and robust harvest strategy in place	60-80
	1.2.2	**Harvest Control Rules & Tools:** Well defined harvest control rules in place	60-80
	1.2.3	**Information & Monitoring:** Relevant Information collected to support harvest strategy	>80
	1.2.4	**Assessment of Stock Status:** Assessment of stock status is adequate	>80
	P1 ALL	**Sustainability of Exploited Stock**	**Fail**
Retained Species	2.1.1	**Retained Species Outcome:** Does not cause serious or irreversible harm to retained species	>80
	2.1.2	**Retained Species Management:** Strategy in place for managing retained species	>80
	2.1.3	**Retained Species Information:** Relevant information to help manage retained species	>80
Bycatch species	2.2.1	**Bycatch Species Outcome:** Does not cause serious or irreversible harm to bycatch species	60-80
	2.2.2	**Bycatch Species Management:** Strategy in place for managing bycatch species	60-80
	2.2.3	**Bycatch Species Information:** Relevant information to help manage bycatch species	>80
ETP species	2.3.1	**ETP Species Outcome:** Meets national and international requirements for EPTs protection	60-80
	2.3.2	**ETP Species Management:** Precautionary management strategies in place	60-80
	2.3.3	**ETP Species Information:** Relevant information to support management of impacts on ETPs	60-80
Habitats	2.4.1	**Habitats Outcome:** Does not cause serious or irreversible harm to habitat structure	60-80
	2.4.2	**Habitats Management:** Information is adequate to determine risk to habitat types	>80
	2.4.3	**Habitats Information:** Information adequate to determine risk to habitats	>80
Ecosystem	2.5.1	**Ecosystem Outcome:** Does not cause serious or irreversible harm to ecosystem	>80
	2.5.2	**Ecosystem Management:** Measures are in place to mitigate risk to ecosystem	>80
	2.5.3	**Ecosystem Information:** Adequate knowledge of impacts of fishery on the ecosystem	>80
	P2 ALL	**Maintenance of Ecosystem**	**Fail**
Governance and Policy	3.1.1	**Legal/Customary Framework:** Management system exists with legal/customary framework	>80
	3.1.2	**Consultation, Roles & Responsibilities:** Management system has clear processes	>80
	3.1.3	**Long Term Objectives:** Management policy contains clear long-term objectives	>80
	3.1.4	**Incentives for Sustainable Fishing:** Management system has sustainability incentives	>80
Fishery specific management system	3.2.1	**Fishery Specific Objectives:** Fishery has clear and specific outcome objectives	>80
	3.2.2	**Decision Making Processes:** Management system includes effective decision making	>80
	3.2.3	**Compliance & Enforcement:** Monitoring, control and surveillance mechanisms in place	>80
	3.2.4	**Research Plan:** Research plan that addresses management needs are in place	>80
	3.2.5	**Management Performance Evaluation:** Performance Evaluation processes in place	>80
	P3 ALL	**Effective Management System**	**Pass**

Key:	Indicative Assessment Scores	>80 (Pass)	60-80 (Condition)	<60 (Fail)	Indicative Aggregate Scores	Pass	Fail

Remedial Action Plan

2

There are two phases to the Remedial Action Plan:

- Phase 1 Fishery Improvement Analysis
- Phase 2 Fishery Improvement Plan

Phase 1 Fishery Improvement Analsyis

ORH MEC has been considered against MRAG-America's findings in their Pre-Assessment Report to identify non-conformities and information gaps against the MSC Performance Indicators (SG80 and SG60).

A Fishery Improvement Analysis developed in 2014 to inform remedial action work programmes as a step towards the Fishery Improvement Plan. This analysis is summarised in Appendix 1.

Phase 2 Fisheries Improvement Plan

This involves implementing the remedial management actions and monitoring progress according to a public, time-bound FIP.

Table 3 provides management actions to remedy identified gaps in Phase 1 of the Remedial Action Plan.

Table 4 provides timelines for each of the remedial management actions.

Table 3 Remedial management actions

ACTIONS	ACTION LEAD & PARTNERS	Links to MSC Performance Indicators: P1. Target stocks							P2. Ecosystem components																P3. Management system								
		1.1.1 Stock status	1.1.2 Reference points	1.1.3 Stock rebuilding	1.2.1 Harvest Strategy	1.2.2 Harvest control rules and tools	1.2.3 Information and monitoring	1.2.4 Assessment	2.1.1 Retained spp. status	2.1.2 Retained spp. management	2.1.3 Retained spp: Information & monitoring	2.2.1 Bycatch spp. status	2.2.2 Bycatch spp. management	2.2.3. Bycatch spp: Information & monitoring	2.3.1 ETP spp. status	2.3.2 ETP spp. management	2.3.3 ETP spp: Information & monitoring	2.4.1 Habitat status	2.4.2 Habitat strategy	2.4.3 Habitat: information & monitoring	2.5.1 Ecosystem: status	2.5.2 Ecosystem: strategy	2.5.3 Ecosystem: information & monitoring	3.1.1 Legal or customary framework	3.1.2 Consultation, roles & responsibilities	3.1.3 Long-term objectives	3.1.4 Incentives for sustainable fishing	3.2.1 Fishery-specific objectives	3.2.2 Decision-making processes	3.2.3 Compliance & enforcement	3.2.4 Research plan	3.2.5 Management performance evaluation
1. Stock assessment																																	
1.1 Undertake ORH MEC biomass survey	MPI & DWG																																
1.2 Update the stock assessment for ORH MEC according to agreed methodology	MPI & DWG																																
1.3 Acceptance of ORH MEC stock assessment outputs by MPI	MPI, DWG & ISL																																
1.4 Undertake MSE to establish and test the harvest strategy and harvest control rules	MPI, DWG & ISL																																
1.5 Undertake a high level review of the New Zealand ORH stock assessment process	MPI, DWG, Prof. R Hilborn, Dr. P Starr, CSIRO & WWF																																
1.6 Develop and implement a rebuilding plan for ORH MEC	MPI, DWG, Prof. R Hilborn & Dr. P Starr																																
2. Habitats and ecosystems																																	
2.1 Compile metrics of main/secondary by-catch species in ORH MEC and in the EEZ	MPI & DWG																																
2.2 Document management strategy for by-catch species in ORH MEC and in the EEZ	MPI & DWG																																
2.3 Quantitatively determine distributions of ETP corals the ORH MEC fishery and the EEZ	MPI & DWG																																
2.4 Document the nature and extent of impact by the ORH MEC fishery	MPI & DWG																																
2.5 Document the management strategy to provide information and management for ETP corals	MPI & DWG																																
2.6 Assess nature and extent of impact by the ORH MEC fishery on habitat structure and function	MPI & DWG																																
2.7 Document the management strategy to provide information and management of habitats	MPI & DWG																																

Notes: DWG (Deepwater Grup Ltd.) MPI (Ministry for Primary Industries for New Zealand) CSIRO (Commonwealth Scientific and Industrial Research Organisation)

Table 4 Timelines for each of the remedial management actions

March 2015 Update		Completion (Expected)							
MSC Principle 1: Stock Status		2015	2016	2017	2018	2019	2020	2021	2022
1.1	A biomass survey was conducted in June 2013. The next biomass survey is scheduled for the 2016-17 year. **Documents** • Fisheries Assessment Plenary May 2014: Volume 2 Stock Assessment and Stock Status (pages 603-607) summarising stock assessment and stock status information.	Jun 2013		Jul 2016					
1.2	During 2013-14 stock assessment was developed, implemented, peer reviewed and accepted by MPI. The stock assessment estimated the stock to be below the soft limit (20% B_0) which triggers implementation of a time-bound rebuilding plan, in line with the New Zealand Harvest Strategy Standard (HSS). Under the HSS, any stock should be rebuilt to the management target in not less than twice the time it would take to rebuild in the absence of fishing. For MEC, this is estimated to be 42 years. **Documents** • Fisheries Assessment Plenary May 2014: Volume 2 Stock Assessment and Stock Status (pages 603-607) summarising stock assessment and stock status information • The 2014 orange roughy stock assessments – New Zealand Fisheries Assessment Report 2014/50 September 2014 provides a full write-up of the stock assessment.	Apr 2014		Apr 2017					

	In-progress
	Completed (Completion date)

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	March 2015 Update	Completion (Expected)							
		2015	2016	2017	2018	2019	2020	2021	2022
1.3	The stock assessment and outputs were accepted by MPI's Deepwater Fisheries Assessment Working Group (DWFAWG) and Plenary Processes. **Documents** • Fisheries Assessment Plenary May 2014: Volume 2 Stock Assessment and Stock Status (pages 603-607) summarising stock assessment and stock status information • The 2014 orange roughy stock assessments – New Zealand Fisheries Assessment Report 2014/50 September 2014 provides a full write-up of the stock assessment.	May 2014							
1.4	A Management Strategy Evaluation (MSE) has been developed and applied to three ORH fisheries. The 2014 MEC stock assessment estimates $B_{current}$ to <20% B_0 rendering the MSE inappropriate. Instead, a rebuilding plan has been implemented (see Action1.6). Note: A main uncertainty in the 2014 assessment model was the proportion of the ORH MEC stock surveyed in the 2013 biomass survey. A further survey and stock assessment is scheduled for 2016-17. **Documents** • A Management Strategy Evaluation for orange roughy • Harvest Strategy Standard for New Zealand Fisheries.	Aug 2014	→	→	→	→	→	→	→
1.5	WWF-USA asked DWG for a high level review of the ORH stock assessments. During 2013-14 the ORH stock assessments were extensively reviewed during DWFAWG and Plenary by domestic and international experts including: Paul Starr (Canada); Prof. Matthew Dunn (Victoria University, New Zealand); Dr. Pamela Mace (Ministry for Primary Industries, New Zealand); Prof. Ray Hilborn (University of Washington, USA); and, Dr. Malcolm Haddon and Dr. Judy Upston (CSIRO).	Aug 2014							
1.6	A rebuilding plan has been developed and implemented for MEC that meets the New Zealand Harvest Strategy Standard. The most recent stock assessment for the ORH MEC stock estimates the stock to be < 20% B_0. This triggered implementation of a time-bound rebuilding plan, in line with the New Zealand Harvest Strategy Standard (HSS). The MEC catch limit has been reduced from 1,230 to 525 tonnes to provide for rebuild of the stock. **Documents** • See link for Final Advice Paper and submissions • See Ministers decision at this link.	Oct 2014	→	→	→	→	→	→	→

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	March 2015 Update	Completion (Expected)							
		2015	2016	2017	2018	2019	2020	2021	2022
MSC Principle 2: Ecosystem Management									
2.1	Undertake analyses to provide metrics of main/secondary bycatch species in the orange roughy fishery area and in the EEZ.							Mar 2021	
2.2	Document management strategy for secondary bycatch species in this orange roughy fishery and in the EEZ. • Quota Management System Introduction Standard							Mar 2021	
2.3	Quantitatively determine distributions of protected coral species within this orange roughy fishery and the New Zealand EEZ*.							Mar 2021	
2.4	Quantitatively assess nature and extent of impacts on protected corals species by the orange roughy fishery*.							Mar 2021	
2.5	Document the management strategy to provide information and outline management measures for ETP coral species.							Mar 2021	
2.6	Assess the nature and extent of impacts by orange roughy bottom trawls on the structure and function of habitats that overlap this fishery*.							Mar 2021	
2.7	Document the management strategy to provide information and outline management framework for managing benthic habitats that overlap with this orange roughy fishery.							Mar 2021	

* Completed for three orange roughy fisheries (North West Chatham Rise, East South Chatham Rise, and Challenger). ORH MEC to be delivered to match time of certification assessment.

Key:

	In-progress
	Expected completion date

Third-party assessment

3

MSC Assessment

Stage three of ORH MEC FCP requires the submission of this fishery for full assessment by an accredited MSC Conformance Advisory Body against the MSC Fisheries Standard. It is anticipated that the fishery will be ready (> 20% B_0) for full MSC assessment by July 2022.

MSC Certification

Conformance with each MSC Performance Indicator and the 80 Scoring Guidelines (80SG) will result in the achievement of this final stage which is to achieve MSC certification.

Appendix 1

Orange Roughy Mid East Cost (ORH MEC) Fishery Improvement Analysis (Actions are referenced to Tables 3 and 4)

PI 1.1.1 – The stock is at a level which maintains high productivity and has a low probability of recruitment overfishing		
MSC SG80 Certification Requirements	a) It is highly likely that the stock is above the point where recruitment would be impaired. b) The stock is at or fluctuating around its target reference point.	
MRAG-America's Findings	MRAG-America's assessors noted: • The lack of quantitative assessments based on fitting population dynamics models.	
Responses	• Demonstrate through an accepted stock assessment that the stock status is highly likely to be above the point at which recruitment would be impaired and at or above B_{MSY}.	**Actions 1.1 – 1.3**
PI 1.1.2 – Limit and target reference points are appropriate for the stock		
MSC SG80 Certification Requirements	a) Reference points are appropriate for the stock and can be estimated. b) The limit reference point is set above the level at which there is an appreciable risk of impairing reproductive capacity. c) The target reference point is such that the stock is maintained at a level consistent with B_{MSY} or some measure or surrogate with similar intent or outcome. d) For key low trophic level species, the target reference point takes into account the ecological role of the stock.	
MRAG America's Findings	MRAG-America's assessors noted: • The lack of rationale for the limit reference point (LRP) which is 20% B_0. • The lack of rationale for the "appropriateness" of the management target range which is 30-40% B_0.	
Responses	• Undertake a Management Strategy Evaluation (MSE) to establish and test a harvest strategy and harvest control rules that meet the requirements of PI 1.1.2.	**Actions 1.4 – 1.5**

PI 1.1.3 – Where the stock is depleted, there is evidence of stock rebuilding within a specified timeframe		
MSC SG80 Certification Requirements	a) A rebuilding timeframe is specified for the depleted stock that is the shorter of 20 years or 2 times its generation time. For cases where 2 generations is less than 5 years, the rebuilding timeframe is up to 5 years. b) There is evidence that the rebuilding strategies are rebuilding stocks, or it is highly likely based on simulation modelling or previous performance that they will be able to rebuild the stock within the specified timeframe.	
MRAG-America's Findings	MRAG-America's assessors noted: • The lack of projections given the current stock status relative to B_0. • The lack of evaluation of harvest strategy against rebuild to management target with required 20 years. • The lack of alternative assumptions for how assessment is conducted and provisions for future recruitment.	
Responses	• Develop a rebuilding plan for orange roughy fisheries to be implemented where the stock status is below the management target range that rebuilds the stock to the management target range in the required timeframe. • Test the robustness of the rebuilding plan using simulations based on the stock assessment model.	**Action 1.6**
PI 1.2.1 – There is a robust and precautionary harvest strategy in place		
MSC SG80 Certification Requirements	a) The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving management objectives reflected in the target and limit reference points. b) The harvest strategy may not have been fully tested but monitoring is in place and evidence exists that it is achieving its objectives.	
MRAG-America's Findings	MRAG-America's assessors noted: • The lack of analyses to demonstrate that the harvest strategy is "responsive to the state of the stock" or to demonstrate that the harvest strategy elements successfully "work together towards achieving management objectives reflected in the target and limit reference points." • The lack of analyses to demonstrate the efficacy of the harvest strategy in achieving its objectives	
Responses	• Undertake analyses to demonstrate and test the harvest strategy to establish that it is responsive to the state of the stock and the stock management process; "Such evidence would require either monitoring data which shows direct evidence for an increase in abundance or the results of projections using a stock assessment model" (MRAG, 2013: p69). • Compile and document evidence that demonstrates the harvest strategy will work in achieving its objectives.	**Action 1.4**

PI 1.2.2 – There are well defined and effective harvest control rules in place		
MSC SG80 Certification Requirements	a) Well defined harvest control rules are in place that are consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached. b) The selection of the harvest control rules takes into account the main uncertainties. c) Available evidence indicates that the tools in use are appropriate and effective in achieving the exploitation levels required under the harvest control rules.	
MRAG's Findings	MRAG-America's assessors noted: • The lack of justification for specific choices for the values of parameters (e.g. FMSY = M). • The lack of documentation of the main uncertainties and the selection of the harvest control rules to address those uncertainties.	
Responses	• Document that the harvest control rules are "well defined" and is "consistent with the harvest strategy and ensure that the exploitation rate is reduced as limit reference points are approached" SG80. • Demonstrate the appropriateness of the Harvest Strategy in meeting the SG80 highlighting uncertainties and taking them into account.	**Action 1.4**

PI 2.2.1 – The fishery does not pose a risk of serious or irreversible harm to the bycatch species or species groups and does not hinder recovery of depleted bycatch species or species groups		
MSC SG80 Certification Requirements	a) Main bycatch species are highly likely to be within biologically based limits (if not, go to scoring issue (b) below). b) If main bycatch species are outside biologically based limits there is a partial strategy of demonstrably effective mitigation measures in place such that the fishery does not hinder recovery and rebuilding.	
MRAG-America's Findings	MRAG-America's assessors noted: • The lack of information to score the stock status of key bycatch species. • The lack of information to determine whether or not a species comprises 5-20% or more of the total catch of that species (e.g. rattails, deepwater dogfish).	
Responses	• Provide information to demonstrate (semi-quantitatively) that bycatch species are highly likely (70%) to be within biologically based limits or there is evidence that the fishery does not hinder recovery and rebuilding (B_{LIM}). • Identify vulnerable species and document impacts of this fishery on those species. • Where possible document bycatches that are recorded under generic codes as species (e.g. rattails, slickheads and deepwater dogfish). • Provide information (semi-quantitatively) to support findings and to demonstrate the nature and extent of the impacts of the orange roughy fishery on bycatch stocks.	**Actions 2.1 & 2.4**

PI 2.2.2 – There is a strategy in place for managing bycatch that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to bycatch populations		
MSC SG80 Certification Requirements	a) There is a partial strategy in place, if necessary, for managing bycatch species at levels which are highly likely to be within biologically based limits or to ensure that the fishery does not hinder their recovery. b) There is some objective basis for confidence that the partial strategy will work, based on some information directly about the fishery and/or the species involved. c) There is some evidence that the partial strategy is being implemented successfully.	
MRAG-America's Findings	MRAG-America's assessors note: • The lack of information for non-QMS species. • The lack of a partial strategy that is expected to maintain bycatch species within biologically based limits. • The lack of evidence that demonstrates confidence in the strategy.	

Responses	• Formalise a bycatch management strategy that provides for "the [expectation] to maintain main bycatch species at levels which are highly likely (70%) to be within biologically based limits or to ensure that the fishery does not hinder their recovery."
	• **QMS Species**
	  ◦ Demonstrate how the QMS manages stock status, the role of deemed values, ACE values and ACE availability constrains catches.
	• **Non-QMS Species**
	  ◦ Document the policy for QMS entry (by non-QMS stocks, providing examples of recent QMS entries).
	  ◦ Review and document activities and plans being developed under the new (2014) NPOA – Sharks for vulnerable elasmobranch bycatch species.
		Action 2.2

PI 2.3.1 – The fishery meets national and international requirements for protection of ETP species. The fishery does not pose a risk of serious or irreversible harm to ETP species and does not hinder recovery of ETP species.		
MSC SG80 Certification Requirements	a) The effects of the fishery are known and are highly likely to be within limits of national and international requirements for protection of ETP species. b) Direct effects are highly unlikely to create unacceptable impacts to ETP species. c) Indirect effects have been considered and are thought to be unlikely to create unacceptable impacts.	
MRAG-America's Findings	MRAG-America's assessors noted: • The lack of robust distributional information of several cold water coral species (that overlap with the ORH Fishery) outside fished areas. • The lack of information defining the level of impacts with fisheries of protected corals, species identification, quantities taken and distribution. • The lack of any rationale to quantitatively determine if any impacts are such that they pose a risk of serious or irreversible harm to ETP coral species.	
Responses	• Document national (and relevant international) requirements for the protection of corals, demonstrating that direct effects (considering also indirect effects) are highly unlikely to create unacceptable impacts (impacts that hinder recovery or rebuilding) to ETP coral species. • Undertake desktop analysis of the nature and extent of information used in modelling coral density distributions, including (where possible) the distribution of corals within fished areas, outside fished areas, and within protected areas (BPAs and Seamount Closures). • Undertake desktop analysis of the distribution of coral genera/species in the New Zealand EEZ and within the ORH MEC fishery, coral taken within the ORH MEC fishery and determine (where possible) which genera/species are affected most by the ORH MEC fishery. • Undertake semi-quantitative analysis to demonstrate the nature and extent of the interactions with corals in areas that are fished (taking into account recovery and closed areas). Determine if effects of the fishery are: highly likely to be within limits of national (and international) requirements for protection of ETP coral species; highly unlikely to create unacceptable impacts to ETP coral species; and, consider indirect effects.	**Actions 2.3 & 2.4**

PI 2.3.2 – The fishery has in place precautionary management strategies designed to (1) meet national and international requirements; (2) ensure the fishery does not pose a risk of serious or irreversible harm to ETP species; (3) ensure the fishery does not hinder recovery of ETP species; and (4) minimise mortality of ETP species.		
MSC SG80 Certification Requirements	a) There is a strategy in place for managing the fishery's impact on ETP species, including measures to minimise mortality that is designed to be highly likely to achieve national and international requirements for the protection of ETP species. b) There is an objective basis for confidence that the strategy will work, based on information directly about the fishery and/or the species involved. c) There is evidence that the strategy is being implemented successfully.	
MRAG-America's Findings	MRAG-America's assessors noted: • That, while there are elements of a precautionary strategy in place (for protected corals), this does not constitute a formal strategy. • The lack of an overall management plan for protected corals. • The lack of a strategy to minimise coral mortality, especially for new areas.	
Responses	Document all relevant information and formalise a management strategy for ETP coral species that provides for management measures that "minimise mortality, [and] which is designed to be highly likely to achieve national and international requirements for the protection of ETP species" taken into account: • The principles and mechanism behind: 1) BPAs (i.e. percentages of each marine environmental habitat class (MEC)); and, 2) Seamount Closures (e.g. UTFs of high coral abundance and benthic biodiversity). • Measures that avoid, mitigate or, minimise interactions with corals (including reporting, monitoring and assessment) that is consistent with the requirements of the Fisheries Act 1996. • Demonstrate the "objective basis for confidence" the efficacy of this strategy.	**Action 2.5**
PI 2.3.3 – Relevant information is collected to support the management of fishery impacts on ETP species, including: (1) information for the development of the management strategy; (2) information to assess the effectiveness of the management strategy; and (3) information to determine the outcome status of ETP species.		
MSC SG80 Certification Requirements	a) Sufficient data are available to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species. b) Information is sufficient to determine whether the fishery may be a threat to protection and recovery of the ETP species. c) Information is sufficient to measure trends and support a full strategy to manage impacts on ETP species.	
MRAG-America's Findings	MRAG-America's assessors noted: • There is insufficient quantitative information in some areas. • The lack of assessment of the level of threat by the orange roughy fishing on corals generally and on reef-forming stony corals in particular.	
Responses	• Document the management strategy to demonstrate the sufficiency of information "to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP [coral] species" so as to "determine whether the fishery may be a threat to protection and recovery of [protected coral] species." • Quantitatively determine the distributions of protected species within the New Zealand EEZ (to Generic level). • Quantitatively assess the nature and extent of impact by fishery of these protected coral species.	**Action 2.4 & 2.5**

2.4.1 – The fishery is highly unlikely (within 30% probability) to reduce habitat structure and function to a point where there would be serious or irreversible harm [considered on a regional or bioregional basis].		
MSC SG80 Certification Requirements	a) The fishery is highly unlikely to reduce habitat structure and function to a point where there would be serious or irreversible harm.	
MRAG-America's Findings	MRAG-America's assessors noted: • That although geomorphology and operational aspects of bottom trawling had the effect of confining trawl tows spatially to the orange roughy trawl grounds, bottom trawling could occur outside the trawl grounds anytime. • The lack of robust understanding of the distribution of benthic habitats relative to orange roughy bottom trawl paths. • The lack of robust understanding of the homogeneity/heterogeneity of the benthic habitats on various UTFs. • The lack of information to assess whether unfished areas with remaining habitat is sufficient to prevent serious or irreversible harm to habitats that overlap with fished areas.	

Responses	• Undertake an analysis of the habitats (centred on identifying their structure and function) that overlap with the distributional range of this orange roughy fishery.
	• As New Zealand's orange roughy fisheries fall within the lower bathyal New Zealand Kermadec bio-geographical province (UNESCO (2009), the entire distributional range of orange roughy and the orange roughy fishery within this 'bio-geographic area habitat should be taken into account.
	  ◦ Where changes in substrate type, geomorphology and dominant biota type describe a habitat type that differs from the New Zealand Kermadec bio-geographic area (e.g. UTFs), then any such areas will be considered to be different habitat types.
	  ◦ Summarise information on the extent and homogeneity/heterogeneity of particular habitat types on UTFs.
	• Undertake analyses of the impacts this orange roughy fishery on those habitats, and determine quantitatively whether or not there is "*serious or irreversible harm*" to the *"structure and function"* (i.e. not the habitat itself) taking into account ("*on a regional or bioregional basis"*) the area covered by bottom-trawl tow paths, the areas that are not fished, areas that are no longer fished, and the areas that are closed to fishing for protection of the benthic biodiversity.
		Action 2.6

2.4.2 – There is a strategy in place that is designed to ensure the fishery does not pose a risk of serious or irreversible harm to habitat types.		
MSC SG80 Certification Requirements	a) There is a partial strategy in place, if necessary, that is expected to achieve the Habitat Outcome 80 level of performance or above. b) There is some objective basis for confidence that the partial strategy will work, based on information directly about the fishery and/or habitats involved. c) There is some evidence that the partial strategy is being implemented successfully.	
MRAG-America's Findings	MRAG-America's assessors noted: • The absence of a formal benthic management plan. • The lack of robust understanding of the distribution of benthic habitats relative to the footprint. • The lack of robust understanding of the nature of the benthic habitats on various UTFs (that indicate their homogeneity/heterogeneity). • The lack of information to assess whether unfished areas with remaining habitat is sufficient to prevent serious or irreversible harm to habitats that overlap with fished areas.	

Responses	• Bring together all relevant information and formalise a comprehensive management strategy for managing the impact of the fishery on habitat types:
	  ◦ Articulate the principles and mechanisms behind the strategy, including BPAs (e.g. percentages of each MEC habitat class) and Seamount Closures (e.g. UTFs of high coral abundance and benthic biodiversity), and incorporate these principles and mechanism into the New Zealand's EEZ Spatial Management component of a comprehensive management strategy.
	  ◦ Articulate a precautionary component of the strategy monitoring and assessing the nature and extent of habitat impacts to avoid, minimise or mitigate interactions with new areas of significant abundance benthic habitat (which is consistent with the requirements of the Fisheries Act 1996).
	• Demonstrate that there "is some objective basis for confidence" the efficacy of this strategy.
		Action 2.7